



## **COG Operating L L C**

Lea County, NM (NAD27 NME)

Sec. 31, T 20 S., R 35 E

Stratojet 31 St Com #7H

**Wellbore #1**

**Design: Wellbore #1**

## **Survey Report - Geographic**

07 July, 2017

**HOBBS CCD**  
**MAY 18 2018**  
**RECEIVED**





Integrity Directional Services, LLC  
Survey Report - Geographic



|                  |                            |                                     |                                |
|------------------|----------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>  | COG Operating L L C        | <b>Local Co-ordinate Reference:</b> | Well Stratojet 31 St Com #7H   |
| <b>Project:</b>  | Lea County, NM (NAD27 NME) | <b>TVD Reference:</b>               | KB=20' @ 3745.10ft (Patriot 2) |
| <b>Site:</b>     | Sec. 31, T 20 S., R 35 E   | <b>MD Reference:</b>                | KB=20' @ 3745.10ft (Patriot 2) |
| <b>Well:</b>     | Stratojet 31 St Com #7H    | <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 Multi User Db       |

|                    |                                      |                      |                |
|--------------------|--------------------------------------|----------------------|----------------|
| <b>Project</b>     | Lea County, NM (NAD27 NME)           |                      |                |
| <b>Map System:</b> | US State Plane 1927 (Exact solution) | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | NAD 1927 (NADCON CONUS)              |                      |                |
| <b>Map Zone:</b>   | New Mexico East 3001                 |                      |                |

|                              |                          |                          |                   |
|------------------------------|--------------------------|--------------------------|-------------------|
| <b>Site</b>                  | Sec. 31, T 20 S., R 35 E |                          |                   |
| <b>Site Position:</b>        |                          | <b>Northing:</b>         | 555,501.2000 usft |
| <b>From:</b>                 | Map                      | <b>Easting:</b>          | 757,216.9000 usft |
| <b>Position Uncertainty:</b> | 0.00 ft                  | <b>Slot Radius:</b>      | 13-3/16 "         |
|                              |                          | <b>Latitude:</b>         | 32.5244134        |
|                              |                          | <b>Longitude:</b>        | -103.4988151      |
|                              |                          | <b>Grid Convergence:</b> | 0.45 °            |

|                             |                                 |                            |                                    |
|-----------------------------|---------------------------------|----------------------------|------------------------------------|
| <b>Well</b>                 | Stratojet 31 St Com #7H, ACTIVE |                            |                                    |
| <b>Well Position</b>        | <b>+N/-S</b>                    | 0.00 ft                    | <b>Northing:</b> 555,501.2000 usft |
|                             | <b>+E/-W</b>                    | 0.00 ft                    | <b>Easting:</b> 757,216.9000 usft  |
| <b>Position Uncertainty</b> | 0.00 ft                         | <b>Wellhead Elevation:</b> | 0.00 ft                            |
|                             |                                 | <b>Latitude:</b>           | 32.5244134                         |
|                             |                                 | <b>Longitude:</b>          | -103.4988151                       |
|                             |                                 | <b>Ground Level:</b>       | 3,725.10 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 (nT)</b> |
|                  | HDGM              | 6/1/2017           | 6.77                   | 60.48                | 48,292                     |

|                          |                              |                   |                   |                           |
|--------------------------|------------------------------|-------------------|-------------------|---------------------------|
| <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) (ft)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b> | <b>Direction (°)</b>      |
|                          | 0.00                         | 0.00              | 0.00              | 1.85                      |

|                       |                |                               |                  |                    |
|-----------------------|----------------|-------------------------------|------------------|--------------------|
| <b>Survey Program</b> | Date 7/7/2017  |                               |                  |                    |
| <b>From (ft)</b>      | <b>To (ft)</b> | <b>Survey (Wellbore)</b>      | <b>Tool Name</b> | <b>Description</b> |
| 100.00                | 5,965.00       | Gyro Surveys (Wellbore #1)    | Gyro             | Gyro Survey        |
| 6,019.00              | 16,264.00      | IDS MWD Surveys (Wellbore #1) | MWD              | MWD - Standard     |

|                                      |                        |                    |                            |                   |                   |                            |                           |                 |                  |  |
|--------------------------------------|------------------------|--------------------|----------------------------|-------------------|-------------------|----------------------------|---------------------------|-----------------|------------------|--|
| <b>Survey</b>                        |                        |                    |                            |                   |                   |                            |                           |                 |                  |  |
| <b>Measured Depth (ft)</b>           | <b>Inclination (°)</b> | <b>Azimuth (°)</b> | <b>Vertical Depth (ft)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b> | <b>Map Northing (usft)</b> | <b>Map Easting (usft)</b> | <b>Latitude</b> | <b>Longitude</b> |  |
| 0.00                                 | 0.00                   | 0.00               | 0.00                       | 0.00              | 0.00              | 555,501.2000               | 757,216.9000              | 32.5244134      | -103.4988151     |  |
| 1.23                                 | 0.00                   | 130.47             | 1.23                       | 0.00              | 0.00              | 555,501.2000               | 757,216.9001              | 32.5244134      | -103.4988151     |  |
| <b>Stratojet 31 State Com 7H FTP</b> |                        |                    |                            |                   |                   |                            |                           |                 |                  |  |
| 100.00                               | 0.33                   | 130.47             | 100.00                     | -0.19             | 0.22              | 555,501.0131               | 757,217.1191              | 32.5244129      | -103.4988144     |  |
| <b>1st Gyro Survey</b>               |                        |                    |                            |                   |                   |                            |                           |                 |                  |  |
| 125.00                               | 0.49                   | 175.97             | 125.00                     | -0.34             | 0.28              | 555,500.8598               | 757,217.1814              | 32.5244125      | -103.4988142     |  |
| 150.00                               | 0.64                   | 188.71             | 150.00                     | -0.58             | 0.27              | 555,500.6151               | 757,217.1678              | 32.5244118      | -103.4988143     |  |
| 175.00                               | 0.44                   | 163.48             | 175.00                     | -0.81             | 0.27              | 555,500.3851               | 757,217.1739              | 32.5244112      | -103.4988143     |  |
| 200.00                               | 0.58                   | 160.19             | 200.00                     | -1.03             | 0.34              | 555,500.1740               | 757,217.2441              | 32.5244106      | -103.4988141     |  |
| 225.00                               | 0.34                   | 221.04             | 224.99                     | -1.20             | 0.34              | 555,499.9990               | 757,217.2383              | 32.5244101      | -103.4988141     |  |
| 250.00                               | 0.12                   | 161.65             | 249.99                     | -1.28             | 0.30              | 555,499.9182               | 757,217.1978              | 32.5244099      | -103.4988142     |  |



# Integrity Directional Services, LLC

## Survey Report - Geographic



|                  |                            |                                     |                                |
|------------------|----------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>  | COG Operating L L C        | <b>Local Co-ordinate Reference:</b> | Well Stratojet 31 St Com #7H   |
| <b>Project:</b>  | Lea County, NM (NAD27 NME) | <b>TVD Reference:</b>               | KB=20' @ 3745.10ft (Patriot 2) |
| <b>Site:</b>     | Sec. 31, T 20 S., R 35 E   | <b>MD Reference:</b>                | KB=20' @ 3745.10ft (Patriot 2) |
| <b>Well:</b>     | Stratojet 31 St Com #7H    | <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 Multi User Db       |

| Survey              |                 |             |                     |            |            |                     |                    |            |              |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------|--------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude   | Longitude    |
| 275.00              | 0.13            | 209.42      | 274.99              | -1.33      | 0.29       | 555,499.8686        | 757,217.1921       | 32.5244098 | -103.4988142 |
| 300.00              | 0.27            | 150.64      | 299.99              | -1.41      | 0.31       | 555,499.7926        | 757,217.2071       | 32.5244095 | -103.4988142 |
| 325.00              | 0.14            | 317.72      | 324.99              | -1.44      | 0.32       | 555,499.7639        | 757,217.2154       | 32.5244095 | -103.4988142 |
| 350.00              | 0.26            | 177.42      | 349.99              | -1.47      | 0.30       | 555,499.7298        | 757,217.1974       | 32.5244094 | -103.4988142 |
| 375.00              | 0.21            | 209.99      | 374.99              | -1.57      | 0.28       | 555,499.6334        | 757,217.1771       | 32.5244091 | -103.4988143 |
| 400.00              | 0.06            | 248.09      | 399.99              | -1.61      | 0.24       | 555,499.5889        | 757,217.1420       | 32.5244090 | -103.4988144 |
| 425.00              | 0.17            | 180.96      | 424.99              | -1.65      | 0.23       | 555,499.5469        | 757,217.1292       | 32.5244089 | -103.4988144 |
| 450.00              | 0.11            | 233.49      | 449.99              | -1.70      | 0.21       | 555,499.4956        | 757,217.1093       | 32.5244087 | -103.4988145 |
| 475.00              | 0.28            | 124.34      | 474.99              | -1.75      | 0.24       | 555,499.4468        | 757,217.1405       | 32.5244086 | -103.4988144 |
| 500.00              | 0.16            | 183.57      | 499.99              | -1.82      | 0.29       | 555,499.3775        | 757,217.1888       | 32.5244084 | -103.4988143 |
| 525.00              | 0.18            | 79.30       | 524.99              | -1.85      | 0.33       | 555,499.3500        | 757,217.2252       | 32.5244083 | -103.4988141 |
| 550.00              | 0.38            | 53.21       | 549.99              | -1.79      | 0.43       | 555,499.4069        | 757,217.3301       | 32.5244085 | -103.4988138 |
| 575.00              | 0.13            | 34.94       | 574.99              | -1.72      | 0.51       | 555,499.4798        | 757,217.4128       | 32.5244087 | -103.4988135 |
| 600.00              | 0.12            | 331.04      | 599.99              | -1.67      | 0.52       | 555,499.5260        | 757,217.4163       | 32.5244088 | -103.4988135 |
| 625.00              | 0.16            | 148.17      | 624.99              | -1.68      | 0.52       | 555,499.5192        | 757,217.4221       | 32.5244088 | -103.4988135 |
| 650.00              | 0.14            | 71.99       | 649.99              | -1.70      | 0.57       | 555,499.4990        | 757,217.4695       | 32.5244087 | -103.4988133 |
| 675.00              | 0.25            | 2.50        | 674.99              | -1.64      | 0.60       | 555,499.5629        | 757,217.5010       | 32.5244089 | -103.4988132 |
| 700.00              | 0.43            | 107.36      | 699.99              | -1.61      | 0.69       | 555,499.5894        | 757,217.5929       | 32.5244090 | -103.4988129 |
| 725.00              | 0.52            | 34.39       | 724.99              | -1.54      | 0.85       | 555,499.6551        | 757,217.7465       | 32.5244092 | -103.4988124 |
| 750.00              | 0.62            | 96.86       | 749.99              | -1.47      | 1.04       | 555,499.7325        | 757,217.9449       | 32.5244094 | -103.4988118 |
| 775.00              | 0.14            | 345.95      | 774.99              | -1.45      | 1.17       | 555,499.7460        | 757,218.0717       | 32.5244094 | -103.4988114 |
| 800.00              | 0.11            | 335.12      | 799.99              | -1.40      | 1.15       | 555,499.7974        | 757,218.0542       | 32.5244095 | -103.4988114 |
| 825.00              | 0.09            | 321.46      | 824.99              | -1.37      | 1.13       | 555,499.8345        | 757,218.0319       | 32.5244096 | -103.4988115 |
| 850.00              | 0.12            | 260.74      | 849.99              | -1.35      | 1.09       | 555,499.8457        | 757,217.9938       | 32.5244097 | -103.4988116 |
| 875.00              | 0.30            | 72.00       | 874.99              | -1.34      | 1.13       | 555,499.8617        | 757,218.0302       | 32.5244097 | -103.4988115 |
| 900.00              | 0.26            | 348.71      | 899.99              | -1.26      | 1.18       | 555,499.9375        | 757,218.0814       | 32.5244099 | -103.4988113 |
| 925.00              | 0.21            | 333.06      | 924.99              | -1.17      | 1.15       | 555,500.0340        | 757,218.0495       | 32.5244102 | -103.4988114 |
| 950.00              | 0.55            | 278.88      | 949.99              | -1.11      | 1.01       | 555,500.0934        | 757,217.9102       | 32.5244104 | -103.4988119 |
| 975.00              | 0.49            | 260.23      | 974.99              | -1.11      | 0.79       | 555,500.0937        | 757,217.6863       | 32.5244104 | -103.4988126 |
| 1,000.00            | 0.54            | 210.13      | 999.99              | -1.23      | 0.62       | 555,499.9737        | 757,217.5218       | 32.5244100 | -103.4988132 |
| 1,025.00            | 0.64            | 95.81       | 1,024.99            | -1.34      | 0.70       | 555,499.8577        | 757,217.6016       | 32.5244097 | -103.4988129 |
| 1,050.00            | 0.40            | 215.29      | 1,049.99            | -1.43      | 0.79       | 555,499.7723        | 757,217.6901       | 32.5244095 | -103.4988126 |
| 1,075.00            | 0.39            | 93.58       | 1,074.99            | -1.50      | 0.82       | 555,499.6958        | 757,217.7246       | 32.5244093 | -103.4988125 |
| 1,100.00            | 0.22            | 192.23      | 1,099.99            | -1.56      | 0.90       | 555,499.6436        | 757,217.7993       | 32.5244091 | -103.4988123 |
| 1,125.00            | 0.41            | 233.60      | 1,124.99            | -1.66      | 0.82       | 555,499.5436        | 757,217.7172       | 32.5244088 | -103.4988125 |
| 1,150.00            | 0.32            | 227.30      | 1,149.98            | -1.76      | 0.69       | 555,499.4431        | 757,217.5939       | 32.5244086 | -103.4988129 |
| 1,175.00            | 0.25            | 220.74      | 1,174.98            | -1.85      | 0.61       | 555,499.3545        | 757,217.5070       | 32.5244083 | -103.4988132 |
| 1,200.00            | 0.58            | 353.59      | 1,199.98            | -1.76      | 0.56       | 555,499.4389        | 757,217.4573       | 32.5244086 | -103.4988134 |
| 1,225.00            | 0.32            | 288.54      | 1,224.98            | -1.61      | 0.48       | 555,499.5868        | 757,217.3769       | 32.5244090 | -103.4988136 |
| 1,250.00            | 0.38            | 247.93      | 1,249.98            | -1.62      | 0.33       | 555,499.5779        | 757,217.2339       | 32.5244090 | -103.4988141 |
| 1,275.00            | 0.52            | 236.59      | 1,274.98            | -1.72      | 0.16       | 555,499.4843        | 757,217.0624       | 32.5244087 | -103.4988147 |
| 1,300.00            | 0.73            | 208.54      | 1,299.98            | -1.92      | -0.01      | 555,499.2819        | 757,216.8916       | 32.5244081 | -103.4988152 |
| 1,325.00            | 0.53            | 220.50      | 1,324.98            | -2.15      | -0.16      | 555,499.0541        | 757,216.7404       | 32.5244075 | -103.4988157 |
| 1,350.00            | 0.65            | 207.84      | 1,349.98            | -2.36      | -0.30      | 555,498.8408        | 757,216.5991       | 32.5244069 | -103.4988162 |
| 1,375.00            | 0.71            | 204.19      | 1,374.98            | -2.63      | -0.43      | 555,498.5741        | 757,216.4694       | 32.5244062 | -103.4988166 |
| 1,400.00            | 0.57            | 176.73      | 1,399.97            | -2.89      | -0.49      | 555,498.3086        | 757,216.4130       | 32.5244055 | -103.4988168 |
| 1,425.00            | 0.23            | 154.18      | 1,424.97            | -3.06      | -0.46      | 555,498.1393        | 757,216.4420       | 32.5244050 | -103.4988167 |
| 1,450.00            | 0.36            | 316.74      | 1,449.97            | -3.05      | -0.49      | 555,498.1513        | 757,216.4100       | 32.5244050 | -103.4988168 |
| 1,475.00            | 0.49            | 228.43      | 1,474.97            | -3.06      | -0.62      | 555,498.1376        | 757,216.2762       | 32.5244050 | -103.4988172 |
| 1,500.00            | 0.56            | 203.70      | 1,499.97            | -3.25      | -0.75      | 555,497.9548        | 757,216.1471       | 32.5244045 | -103.4988177 |
| 1,525.00            | 0.34            | 162.72      | 1,524.97            | -3.43      | -0.78      | 555,497.7721        | 757,216.1201       | 32.5244040 | -103.4988178 |
| 1,550.00            | 0.35            | 248.64      | 1,549.97            | -3.53      | -0.83      | 555,497.6735        | 757,216.0710       | 32.5244037 | -103.4988179 |
| 1,575.00            | 0.69            | 42.16       | 1,574.97            | -3.44      | -0.80      | 555,497.7572        | 757,216.1009       | 32.5244040 | -103.4988178 |
| 1,600.00            | 0.51            | 175.26      | 1,599.97            | -3.44      | -0.69      | 555,497.7579        | 757,216.2111       | 32.5244040 | -103.4988175 |
| 1,625.00            | 0.44            | 152.51      | 1,624.97            | -3.64      | -0.64      | 555,497.5619        | 757,216.2646       | 32.5244034 | -103.4988173 |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | COG Operating L L C        | Local Co-ordinate Reference: | Well Stratojet 31 St Com #7H   |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=20' @ 3745.10ft (Patriot 2) |
| Site:     | Sec. 31, T 20 S., R 35 E   | MD Reference:                | KB=20' @ 3745.10ft (Patriot 2) |
| Well:     | Stratojet 31 St Com #7H    | North Reference:             | Grid                           |
| Wellbore: | Wellbore #1                | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Wellbore #1                | Database:                    | EDM 5000.1 Multi User Db       |

| Survey              |                 |             |                     |            |            |                     |                    |            |              |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------|--------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude   | Longitude    |
| 1,650.00            | 0.65            | 220.42      | 1,649.97            | -3.83      | -0.68      | 555,497.3688        | 757,216.2170       | 32.5244029 | -103.4988175 |
| 1,675.00            | 0.69            | 196.93      | 1,674.97            | -4.08      | -0.82      | 555,497.1168        | 757,216.0812       | 32.5244022 | -103.4988179 |
| 1,700.00            | 0.70            | 154.92      | 1,699.97            | -4.37      | -0.80      | 555,496.8345        | 757,216.1021       | 32.5244014 | -103.4988178 |
| 1,725.00            | 0.90            | 251.94      | 1,724.96            | -4.56      | -0.92      | 555,496.6353        | 757,215.9802       | 32.5244009 | -103.4988182 |
| 1,750.00            | 0.68            | 218.94      | 1,749.96            | -4.74      | -1.20      | 555,496.4591        | 757,215.7003       | 32.5244004 | -103.4988192 |
| 1,775.00            | 0.64            | 246.07      | 1,774.96            | -4.91      | -1.42      | 555,496.2870        | 757,215.4794       | 32.5243999 | -103.4988199 |
| 1,800.00            | 0.96            | 260.33      | 1,799.96            | -5.00      | -1.75      | 555,496.1952        | 757,215.1453       | 32.5243997 | -103.4988210 |
| 1,825.00            | 0.81            | 225.14      | 1,824.95            | -5.16      | -2.09      | 555,496.0354        | 757,214.8136       | 32.5243993 | -103.4988220 |
| 1,850.00            | 1.09            | 299.64      | 1,849.95            | -5.17      | -2.42      | 555,496.0284        | 757,214.4817       | 32.5243993 | -103.4988231 |
| 1,875.00            | 0.92            | 228.79      | 1,874.95            | -5.19      | -2.78      | 555,496.0137        | 757,214.1240       | 32.5243992 | -103.4988243 |
| 1,900.00            | 0.77            | 222.79      | 1,899.95            | -5.44      | -3.04      | 555,495.7582        | 757,213.8589       | 32.5243985 | -103.4988252 |
| 1,925.00            | 0.57            | 214.22      | 1,924.94            | -5.67      | -3.23      | 555,495.5321        | 757,213.6749       | 32.5243979 | -103.4988258 |
| 1,950.00            | 0.88            | 232.22      | 1,949.94            | -5.89      | -3.45      | 555,495.3117        | 757,213.4532       | 32.5243973 | -103.4988265 |
| 1,975.00            | 0.56            | 227.88      | 1,974.94            | -6.09      | -3.69      | 555,495.1121        | 757,213.2108       | 32.5243968 | -103.4988273 |
| 2,000.00            | 0.46            | 197.70      | 1,999.94            | -6.27      | -3.81      | 555,494.9346        | 757,213.0897       | 32.5243963 | -103.4988277 |
| 2,025.00            | 0.66            | 210.53      | 2,024.94            | -6.49      | -3.91      | 555,494.7150        | 757,212.9861       | 32.5243957 | -103.4988280 |
| 2,050.00            | 0.58            | 181.40      | 2,049.94            | -6.74      | -3.99      | 555,494.4644        | 757,212.9098       | 32.5243950 | -103.4988283 |
| 2,075.00            | 0.60            | 190.83      | 2,074.94            | -6.99      | -4.02      | 555,494.2094        | 757,212.8821       | 32.5243943 | -103.4988284 |
| 2,100.00            | 0.74            | 94.04       | 2,099.93            | -7.13      | -3.88      | 555,494.0694        | 757,213.0186       | 32.5243939 | -103.4988279 |
| 2,125.00            | 0.53            | 209.03      | 2,124.93            | -7.24      | -3.78      | 555,493.9570        | 757,213.1235       | 32.5243936 | -103.4988276 |
| 2,150.00            | 0.70            | 192.97      | 2,149.93            | -7.49      | -3.87      | 555,493.7070        | 757,213.0331       | 32.5243929 | -103.4988279 |
| 2,175.00            | 0.75            | 205.11      | 2,174.93            | -7.79      | -3.97      | 555,493.4101        | 757,212.9294       | 32.5243921 | -103.4988282 |
| 2,200.00            | 0.74            | 243.44      | 2,199.93            | -8.01      | -4.18      | 555,493.1897        | 757,212.7156       | 32.5243915 | -103.4988289 |
| 2,225.00            | 0.73            | 172.29      | 2,224.93            | -8.24      | -4.31      | 555,492.9597        | 757,212.5925       | 32.5243909 | -103.4988293 |
| 2,250.00            | 0.81            | 171.64      | 2,249.92            | -8.57      | -4.26      | 555,492.6271        | 757,212.6396       | 32.5243899 | -103.4988292 |
| 2,275.00            | 0.65            | 162.49      | 2,274.92            | -8.88      | -4.19      | 555,492.3170        | 757,212.7080       | 32.5243891 | -103.4988290 |
| 2,300.00            | 0.92            | 189.96      | 2,299.92            | -9.22      | -4.18      | 555,491.9841        | 757,212.7159       | 32.5243882 | -103.4988290 |
| 2,325.00            | 0.85            | 190.42      | 2,324.92            | -9.60      | -4.25      | 555,491.6040        | 757,212.6477       | 32.5243871 | -103.4988292 |
| 2,350.00            | 0.99            | 171.92      | 2,349.91            | -9.99      | -4.26      | 555,491.2078        | 757,212.6445       | 32.5243860 | -103.4988292 |
| 2,375.00            | 0.64            | 178.74      | 2,374.91            | -10.35     | -4.22      | 555,490.8544        | 757,212.6779       | 32.5243851 | -103.4988291 |
| 2,400.00            | 0.90            | 204.95      | 2,399.91            | -10.66     | -4.30      | 555,490.5368        | 757,212.5982       | 32.5243842 | -103.4988294 |
| 2,425.00            | 0.95            | 187.03      | 2,424.91            | -11.05     | -4.41      | 555,490.1531        | 757,212.4900       | 32.5243831 | -103.4988297 |
| 2,450.00            | 1.09            | 191.18      | 2,449.90            | -11.49     | -4.48      | 555,489.7141        | 757,212.4185       | 32.5243819 | -103.4988300 |
| 2,475.00            | 0.79            | 171.66      | 2,474.90            | -11.89     | -4.50      | 555,489.3103        | 757,212.3974       | 32.5243808 | -103.4988301 |
| 2,500.00            | 1.03            | 172.46      | 2,499.90            | -12.28     | -4.45      | 555,488.9171        | 757,212.4519       | 32.5243798 | -103.4988299 |
| 2,525.00            | 1.37            | 151.31      | 2,524.89            | -12.77     | -4.28      | 555,488.4321        | 757,212.6248       | 32.5243784 | -103.4988293 |
| 2,550.00            | 1.17            | 169.51      | 2,549.88            | -13.28     | -4.09      | 555,487.9190        | 757,212.8148       | 32.5243770 | -103.4988287 |
| 2,575.00            | 1.18            | 139.74      | 2,574.88            | -13.73     | -3.87      | 555,487.4716        | 757,213.0276       | 32.5243758 | -103.4988281 |
| 2,600.00            | 1.36            | 162.64      | 2,599.87            | -14.21     | -3.62      | 555,486.9920        | 757,213.2825       | 32.5243744 | -103.4988272 |
| 2,625.00            | 1.62            | 148.58      | 2,624.86            | -14.79     | -3.34      | 555,486.4072        | 757,213.5552       | 32.5243728 | -103.4988264 |
| 2,650.00            | 1.55            | 170.65      | 2,649.86            | -15.43     | -3.11      | 555,485.7720        | 757,213.7944       | 32.5243711 | -103.4988256 |
| 2,675.00            | 1.84            | 144.42      | 2,674.84            | -16.09     | -2.82      | 555,485.1120        | 757,214.0828       | 32.5243693 | -103.4988247 |
| 2,700.00            | 1.68            | 146.63      | 2,699.83            | -16.72     | -2.38      | 555,484.4795        | 757,214.5179       | 32.5243675 | -103.4988233 |
| 2,725.00            | 1.59            | 150.63      | 2,724.82            | -17.33     | -2.01      | 555,483.8712        | 757,214.8896       | 32.5243658 | -103.4988221 |
| 2,750.00            | 2.04            | 144.22      | 2,749.81            | -17.99     | -1.58      | 555,483.2079        | 757,215.3199       | 32.5243640 | -103.4988207 |
| 2,775.00            | 1.65            | 143.18      | 2,774.80            | -18.64     | -1.10      | 555,482.5588        | 757,215.7958       | 32.5243622 | -103.4988192 |
| 2,800.00            | 1.95            | 142.01      | 2,799.78            | -19.26     | -0.63      | 555,481.9355        | 757,216.2733       | 32.5243605 | -103.4988177 |
| 2,825.00            | 1.71            | 144.26      | 2,824.77            | -19.90     | -0.15      | 555,481.2975        | 757,216.7529       | 32.5243587 | -103.4988161 |
| 2,850.00            | 1.80            | 137.80      | 2,849.76            | -20.50     | 0.33       | 555,480.7039        | 757,217.2346       | 32.5243571 | -103.4988146 |
| 2,875.00            | 1.31            | 124.16      | 2,874.75            | -20.95     | 0.83       | 555,480.2525        | 757,217.7348       | 32.5243558 | -103.4988130 |
| 2,900.00            | 1.05            | 104.00      | 2,899.75            | -21.16     | 1.29       | 555,480.0367        | 757,218.1935       | 32.5243552 | -103.4988115 |
| 2,925.00            | 1.22            | 94.75       | 2,924.74            | -21.24     | 1.78       | 555,479.9592        | 757,218.6810       | 32.5243550 | -103.4988099 |
| 2,950.00            | 1.16            | 101.15      | 2,949.74            | -21.31     | 2.29       | 555,479.8882        | 757,219.1945       | 32.5243548 | -103.4988082 |
| 2,975.00            | 1.42            | 92.11       | 2,974.73            | -21.37     | 2.85       | 555,479.8279        | 757,219.7523       | 32.5243546 | -103.4988064 |
| 3,000.00            | 1.49            | 72.21       | 2,999.72            | -21.28     | 3.47       | 555,479.9158        | 757,220.3714       | 32.5243548 | -103.4988044 |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | COG Operating L L C        | Local Co-ordinate Reference: | Well Stratojet 31 St Com #7H   |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=20' @ 3745.10ft (Patriot 2) |
| Site:     | Sec. 31, T 20 S., R 35 E   | MD Reference:                | KB=20' @ 3745.10ft (Patriot 2) |
| Well:     | Stratojet 31 St Com #7H    | North Reference:             | Grid                           |
| Wellbore: | Wellbore #1                | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Wellbore #1                | Database:                    | EDM 5000.1 Multi User Db       |

| Survey              |                 |             |                     |           |           |                     |                    |            |              |
|---------------------|-----------------|-------------|---------------------|-----------|-----------|---------------------|--------------------|------------|--------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N-S (ft) | +E-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude   | Longitude    |
| 3,025.00            | 2.02            | 80.06       | 3,024.71            | -21.11    | 4.21      | 555,480.0912        | 757,221.1149       | 32.5243553 | -103.4988020 |
| 3,050.00            | 1.49            | 63.69       | 3,049.70            | -20.89    | 4.94      | 555,480.3113        | 757,221.8402       | 32.5243559 | -103.4987997 |
| 3,075.00            | 2.26            | 72.92       | 3,074.68            | -20.60    | 5.70      | 555,480.6001        | 757,222.6028       | 32.5243567 | -103.4987972 |
| 3,100.00            | 2.02            | 68.04       | 3,099.67            | -20.29    | 6.58      | 555,480.9097        | 757,223.4826       | 32.5243575 | -103.4987943 |
| 3,125.00            | 2.19            | 68.18       | 3,124.65            | -19.95    | 7.43      | 555,481.2520        | 757,224.3347       | 32.5243584 | -103.4987915 |
| 3,150.00            | 2.05            | 70.15       | 3,149.63            | -19.62    | 8.30      | 555,481.5814        | 757,225.1987       | 32.5243593 | -103.4987887 |
| 3,175.00            | 2.21            | 72.07       | 3,174.62            | -19.32    | 9.18      | 555,481.8816        | 757,226.0779       | 32.5243601 | -103.4987859 |
| 3,200.00            | 2.31            | 64.38       | 3,199.60            | -18.95    | 10.09     | 555,482.2478        | 757,226.9908       | 32.5243611 | -103.4987829 |
| 3,225.00            | 1.87            | 59.82       | 3,224.58            | -18.53    | 10.90     | 555,482.6708        | 757,227.7977       | 32.5243623 | -103.4987803 |
| 3,250.00            | 2.20            | 58.57       | 3,249.56            | -18.07    | 11.66     | 555,483.1260        | 757,228.5598       | 32.5243635 | -103.4987778 |
| 3,275.00            | 1.97            | 63.21       | 3,274.55            | -17.63    | 12.45     | 555,483.5699        | 757,229.3528       | 32.5243647 | -103.4987752 |
| 3,300.00            | 2.73            | 85.86       | 3,299.53            | -17.39    | 13.43     | 555,483.8066        | 757,230.3302       | 32.5243653 | -103.4987720 |
| 3,325.00            | 1.83            | 59.49       | 3,324.51            | -17.15    | 14.37     | 555,484.0522        | 757,231.2680       | 32.5243660 | -103.4987690 |
| 3,350.00            | 1.34            | 80.85       | 3,349.50            | -16.90    | 15.00     | 555,484.3014        | 757,231.9005       | 32.5243666 | -103.4987669 |
| 3,375.00            | 0.94            | 4.27        | 3,374.49            | -16.65    | 15.30     | 555,484.5524        | 757,232.2044       | 32.5243673 | -103.4987659 |
| 3,400.00            | 1.02            | 66.03       | 3,399.49            | -16.35    | 15.52     | 555,484.8473        | 757,232.4230       | 32.5243681 | -103.4987652 |
| 3,425.00            | 0.97            | 99.27       | 3,424.49            | -16.30    | 15.94     | 555,484.9036        | 757,232.8352       | 32.5243683 | -103.4987639 |
| 3,450.00            | 0.74            | 47.90       | 3,449.48            | -16.22    | 16.26     | 555,484.9777        | 757,233.1638       | 32.5243685 | -103.4987628 |
| 3,475.00            | 0.89            | 66.61       | 3,474.48            | -16.04    | 16.56     | 555,485.1631        | 757,233.4618       | 32.5243690 | -103.4987618 |
| 3,500.00            | 0.24            | 108.74      | 3,499.48            | -15.98    | 16.79     | 555,485.2233        | 757,233.6896       | 32.5243691 | -103.4987611 |
| 3,525.00            | 0.68            | 61.79       | 3,524.48            | -15.92    | 16.97     | 555,485.2766        | 757,233.8699       | 32.5243693 | -103.4987605 |
| 3,550.00            | 0.21            | 24.67       | 3,549.48            | -15.81    | 17.12     | 555,485.3884        | 757,234.0197       | 32.5243696 | -103.4987600 |
| 3,575.00            | 0.40            | 36.48       | 3,574.48            | -15.70    | 17.19     | 555,485.5002        | 757,234.0907       | 32.5243699 | -103.4987598 |
| 3,600.00            | 0.24            | 75.74       | 3,599.48            | -15.62    | 17.29     | 555,485.5832        | 757,234.1934       | 32.5243701 | -103.4987594 |
| 3,625.00            | 0.27            | 78.86       | 3,624.48            | -15.59    | 17.40     | 555,485.6075        | 757,234.3019       | 32.5243702 | -103.4987591 |
| 3,650.00            | 0.19            | 232.12      | 3,649.48            | -15.61    | 17.43     | 555,485.5935        | 757,234.3270       | 32.5243701 | -103.4987590 |
| 3,675.00            | 0.25            | 320.64      | 3,674.48            | -15.59    | 17.36     | 555,485.6102        | 757,234.2597       | 32.5243702 | -103.4987592 |
| 3,700.00            | 0.29            | 217.71      | 3,699.48            | -15.60    | 17.29     | 555,485.6023        | 757,234.1864       | 32.5243702 | -103.4987595 |
| 3,725.00            | 0.42            | 164.80      | 3,724.48            | -15.74    | 17.27     | 555,485.4638        | 757,234.1717       | 32.5243698 | -103.4987595 |
| 3,750.00            | 0.34            | 144.26      | 3,749.48            | -15.88    | 17.34     | 555,485.3152        | 757,234.2391       | 32.5243694 | -103.4987593 |
| 3,775.00            | 0.65            | 139.32      | 3,774.48            | -16.05    | 17.47     | 555,485.1474        | 757,234.3748       | 32.5243689 | -103.4987589 |
| 3,800.00            | 0.69            | 193.41      | 3,799.47            | -16.31    | 17.53     | 555,484.8935        | 757,234.4324       | 32.5243682 | -103.4987587 |
| 3,825.00            | 0.51            | 181.16      | 3,824.47            | -16.56    | 17.50     | 555,484.6358        | 757,234.3952       | 32.5243675 | -103.4987588 |
| 3,850.00            | 0.51            | 197.60      | 3,849.47            | -16.78    | 17.46     | 555,484.4185        | 757,234.3593       | 32.5243669 | -103.4987589 |
| 3,875.00            | 0.78            | 206.68      | 3,874.47            | -17.04    | 17.35     | 555,484.1604        | 757,234.2492       | 32.5243662 | -103.4987593 |
| 3,900.00            | 0.30            | 264.34      | 3,899.47            | -17.20    | 17.21     | 555,484.0019        | 757,234.1077       | 32.5243658 | -103.4987598 |
| 3,925.00            | 0.66            | 230.57      | 3,924.47            | -17.30    | 17.03     | 555,483.9040        | 757,233.9314       | 32.5243655 | -103.4987603 |
| 3,950.00            | 1.13            | 224.32      | 3,949.47            | -17.56    | 16.75     | 555,483.6362        | 757,233.6479       | 32.5243648 | -103.4987613 |
| 3,975.00            | 0.62            | 219.77      | 3,974.46            | -17.84    | 16.49     | 555,483.3558        | 757,233.3892       | 32.5243640 | -103.4987621 |
| 4,000.00            | 0.89            | 199.62      | 3,999.46            | -18.13    | 16.34     | 555,483.0690        | 757,233.2374       | 32.5243632 | -103.4987626 |
| 4,025.00            | 0.52            | 170.97      | 4,024.46            | -18.43    | 16.29     | 555,482.7741        | 757,233.1900       | 32.5243624 | -103.4987628 |
| 4,050.00            | 0.59            | 188.09      | 4,049.46            | -18.67    | 16.29     | 555,482.5346        | 757,233.1897       | 32.5243618 | -103.4987628 |
| 4,075.00            | 0.79            | 203.01      | 4,074.46            | -18.95    | 16.20     | 555,482.2485        | 757,233.1043       | 32.5243610 | -103.4987631 |
| 4,100.00            | 0.53            | 155.57      | 4,099.45            | -19.22    | 16.18     | 555,481.9846        | 757,233.0847       | 32.5243603 | -103.4987631 |
| 4,125.00            | 0.63            | 192.23      | 4,124.45            | -19.46    | 16.20     | 555,481.7450        | 757,233.1034       | 32.5243596 | -103.4987631 |
| 4,150.00            | 0.79            | 211.69      | 4,149.45            | -19.74    | 16.08     | 555,481.4640        | 757,232.9838       | 32.5243588 | -103.4987635 |
| 4,175.00            | 0.58            | 183.61      | 4,174.45            | -20.01    | 15.99     | 555,481.1911        | 757,232.8853       | 32.5243581 | -103.4987638 |
| 4,200.00            | 0.81            | 218.93      | 4,199.45            | -20.27    | 15.87     | 555,480.9274        | 757,232.7663       | 32.5243574 | -103.4987642 |
| 4,225.00            | 0.62            | 69.51       | 4,224.45            | -20.36    | 15.88     | 555,480.8372        | 757,232.7819       | 32.5243571 | -103.4987641 |
| 4,250.00            | 0.69            | 241.16      | 4,249.45            | -20.39    | 15.88     | 555,480.8120        | 757,232.7768       | 32.5243570 | -103.4987642 |
| 4,275.00            | 0.80            | 202.40      | 4,274.44            | -20.62    | 15.68     | 555,480.5780        | 757,232.5784       | 32.5243564 | -103.4987648 |
| 4,300.00            | 0.60            | 193.87      | 4,299.44            | -20.91    | 15.58     | 555,480.2896        | 757,232.4805       | 32.5243556 | -103.4987651 |
| 4,325.00            | 0.71            | 233.01      | 4,324.44            | -21.13    | 15.43     | 555,480.0693        | 757,232.3254       | 32.5243550 | -103.4987656 |
| 4,350.00            | 0.38            | 76.13       | 4,349.44            | -21.20    | 15.38     | 555,479.9960        | 757,232.2822       | 32.5243548 | -103.4987658 |
| 4,375.00            | 0.97            | 202.48      | 4,374.44            | -21.38    | 15.38     | 555,479.8203        | 757,232.2817       | 32.5243543 | -103.4987658 |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | COG Operating L L C        | Local Co-ordinate Reference: | Well Stratojet 31 St Com #7H   |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=20' @ 3745.10ft (Patriot 2) |
| Site:     | Sec. 31, T 20 S., R 35 E   | MD Reference:                | KB=20' @ 3745.10ft (Patriot 2) |
| Well:     | Stratojet 31 St Com #7H    | North Reference:             | Grid                           |
| Wellbore: | Wellbore #1                | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Wellbore #1                | Database:                    | EDM 5000.1 Multi User Db       |

| Survey              |                 |             |                     |            |            |                     |                    |            |              |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------|--------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude   | Longitude    |
| 4,400.00            | 0.85            | 193.14      | 4,399.44            | -21.76     | 15.26      | 555,479.4442        | 757,232.1587       | 32.5243533 | -103.4987662 |
| 4,425.00            | 1.31            | 189.90      | 4,424.43            | -22.22     | 15.17      | 555,478.9821        | 757,232.0674       | 32.5243520 | -103.4987665 |
| 4,450.00            | 0.98            | 234.82      | 4,449.43            | -22.62     | 14.94      | 555,478.5774        | 757,231.8435       | 32.5243509 | -103.4987672 |
| 4,475.00            | 1.30            | 187.68      | 4,474.42            | -23.03     | 14.73      | 555,478.1732        | 757,231.6309       | 32.5243498 | -103.4987679 |
| 4,500.00            | 1.63            | 343.65      | 4,499.42            | -22.97     | 14.59      | 555,478.2333        | 757,231.4928       | 32.5243500 | -103.4987684 |
| 4,525.00            | 1.28            | 183.02      | 4,524.42            | -22.90     | 14.48      | 555,478.2957        | 757,231.3780       | 32.5243502 | -103.4987688 |
| 4,550.00            | 1.35            | 202.20      | 4,549.41            | -23.46     | 14.35      | 555,477.7442        | 757,231.2520       | 32.5243486 | -103.4987692 |
| 4,575.00            | 1.41            | 171.99      | 4,574.40            | -24.03     | 14.28      | 555,477.1669        | 757,231.1836       | 32.5243471 | -103.4987694 |
| 4,600.00            | 1.24            | 186.12      | 4,599.40            | -24.61     | 14.30      | 555,476.5934        | 757,231.1976       | 32.5243455 | -103.4987694 |
| 4,625.00            | 1.13            | 155.45      | 4,624.39            | -25.10     | 14.37      | 555,476.1002        | 757,231.2712       | 32.5243441 | -103.4987692 |
| 4,650.00            | 0.60            | 183.24      | 4,649.39            | -25.45     | 14.47      | 555,475.7452        | 757,231.3662       | 32.5243431 | -103.4987689 |
| 4,675.00            | 0.51            | 128.92      | 4,674.39            | -25.66     | 14.55      | 555,475.5447        | 757,231.4454       | 32.5243426 | -103.4987686 |
| 4,700.00            | 0.23            | 168.42      | 4,699.39            | -25.77     | 14.64      | 555,475.4256        | 757,231.5421       | 32.5243423 | -103.4987683 |
| 4,725.00            | 0.46            | 93.43       | 4,724.39            | -25.83     | 14.75      | 555,475.3704        | 757,231.6523       | 32.5243421 | -103.4987679 |
| 4,750.00            | 0.84            | 197.83      | 4,749.39            | -26.01     | 14.80      | 555,475.1900        | 757,231.6964       | 32.5243416 | -103.4987678 |
| 4,775.00            | 0.42            | 73.55       | 4,774.39            | -26.16     | 14.83      | 555,475.0415        | 757,231.7281       | 32.5243412 | -103.4987677 |
| 4,800.00            | 0.79            | 111.07      | 4,799.38            | -26.19     | 15.08      | 555,475.0055        | 757,231.9768       | 32.5243411 | -103.4987669 |
| 4,825.00            | 0.49            | 66.77       | 4,824.38            | -26.21     | 15.34      | 555,474.9857        | 757,232.2359       | 32.5243410 | -103.4987661 |
| 4,850.00            | 0.92            | 100.71      | 4,849.38            | -26.21     | 15.63      | 555,474.9905        | 757,232.5313       | 32.5243410 | -103.4987651 |
| 4,875.00            | 0.70            | 114.04      | 4,874.38            | -26.31     | 15.97      | 555,474.8910        | 757,232.8680       | 32.5243408 | -103.4987640 |
| 4,900.00            | 0.93            | 98.87       | 4,899.38            | -26.40     | 16.31      | 555,474.7975        | 757,233.2079       | 32.5243405 | -103.4987629 |
| 4,925.00            | 1.00            | 67.73       | 4,924.37            | -26.35     | 16.71      | 555,474.8489        | 757,233.6103       | 32.5243406 | -103.4987616 |
| 4,950.00            | 1.30            | 102.24      | 4,949.37            | -26.33     | 17.19      | 555,474.8715        | 757,234.0893       | 32.5243407 | -103.4987601 |
| 4,975.00            | 0.96            | 97.69       | 4,974.36            | -26.42     | 17.67      | 555,474.7833        | 757,234.5740       | 32.5243404 | -103.4987585 |
| 5,000.00            | 1.41            | 93.43       | 4,999.36            | -26.46     | 18.19      | 555,474.7369        | 757,235.0886       | 32.5243403 | -103.4987568 |
| 5,025.00            | 0.86            | 77.77       | 5,024.35            | -26.44     | 18.68      | 555,474.7582        | 757,235.5790       | 32.5243403 | -103.4987552 |
| 5,050.00            | 0.85            | 96.84       | 5,049.35            | -26.42     | 19.05      | 555,474.7759        | 757,235.9465       | 32.5243404 | -103.4987540 |
| 5,075.00            | 0.71            | 49.97       | 5,074.35            | -26.35     | 19.35      | 555,474.8534        | 757,236.2492       | 32.5243406 | -103.4987530 |
| 5,100.00            | 1.00            | 86.32       | 5,099.34            | -26.23     | 19.69      | 555,474.9671        | 757,236.5855       | 32.5243409 | -103.4987520 |
| 5,125.00            | 0.70            | 59.81       | 5,124.34            | -26.14     | 20.04      | 555,475.0579        | 757,236.9352       | 32.5243411 | -103.4987508 |
| 5,150.00            | 1.04            | 48.65       | 5,149.34            | -25.92     | 20.34      | 555,475.2845        | 757,237.2375       | 32.5243417 | -103.4987498 |
| 5,175.00            | 0.79            | 43.86       | 5,174.34            | -25.64     | 20.63      | 555,475.5587        | 757,237.5272       | 32.5243425 | -103.4987489 |
| 5,200.00            | 0.97            | 54.30       | 5,199.33            | -25.39     | 20.92      | 555,475.8064        | 757,237.8185       | 32.5243432 | -103.4987479 |
| 5,225.00            | 0.77            | 62.37       | 5,224.33            | -25.19     | 21.24      | 555,476.0078        | 757,238.1392       | 32.5243437 | -103.4987469 |
| 5,250.00            | 0.92            | 89.51       | 5,249.33            | -25.11     | 21.59      | 555,476.0875        | 757,238.4887       | 32.5243439 | -103.4987457 |
| 5,275.00            | 0.75            | 82.69       | 5,274.32            | -25.09     | 21.95      | 555,476.1100        | 757,238.8517       | 32.5243440 | -103.4987446 |
| 5,300.00            | 1.17            | 50.24       | 5,299.32            | -24.91     | 22.31      | 555,476.2941        | 757,239.2102       | 32.5243445 | -103.4987434 |
| 5,325.00            | 0.75            | 93.00       | 5,324.32            | -24.75     | 22.67      | 555,476.4487        | 757,239.5698       | 32.5243449 | -103.4987422 |
| 5,350.00            | 0.95            | 79.83       | 5,349.32            | -24.72     | 23.04      | 555,476.4768        | 757,239.9372       | 32.5243450 | -103.4987410 |
| 5,375.00            | 0.93            | 100.86      | 5,374.31            | -24.72     | 23.44      | 555,476.4751        | 757,240.3404       | 32.5243450 | -103.4987397 |
| 5,400.00            | 0.74            | 83.30       | 5,399.31            | -24.74     | 23.80      | 555,476.4557        | 757,240.7000       | 32.5243449 | -103.4987386 |
| 5,425.00            | 1.16            | 105.03      | 5,424.31            | -24.79     | 24.20      | 555,476.4090        | 757,241.1048       | 32.5243448 | -103.4987373 |
| 5,450.00            | 0.86            | 95.73       | 5,449.30            | -24.88     | 24.64      | 555,476.3246        | 757,241.5358       | 32.5243445 | -103.4987359 |
| 5,475.00            | 1.01            | 86.06       | 5,474.30            | -24.88     | 25.04      | 555,476.3210        | 757,241.9423       | 32.5243445 | -103.4987345 |
| 5,500.00            | 1.24            | 97.07       | 5,499.29            | -24.90     | 25.53      | 555,476.3029        | 757,242.4306       | 32.5243444 | -103.4987330 |
| 5,525.00            | 1.44            | 99.25       | 5,524.29            | -24.98     | 26.11      | 555,476.2191        | 757,243.0091       | 32.5243442 | -103.4987311 |
| 5,550.00            | 1.26            | 93.35       | 5,549.28            | -25.05     | 26.69      | 555,476.1525        | 757,243.5935       | 32.5243440 | -103.4987292 |
| 5,575.00            | 1.53            | 102.49      | 5,574.27            | -25.14     | 27.29      | 555,476.0643        | 757,244.1938       | 32.5243437 | -103.4987272 |
| 5,600.00            | 1.78            | 92.69       | 5,599.26            | -25.23     | 28.01      | 555,475.9739        | 757,244.9075       | 32.5243435 | -103.4987249 |
| 5,625.00            | 1.07            | 109.95      | 5,624.25            | -25.32     | 28.61      | 555,475.8760        | 757,245.5147       | 32.5243432 | -103.4987230 |
| 5,650.00            | 1.43            | 118.08      | 5,649.25            | -25.55     | 29.11      | 555,475.6495        | 757,246.0094       | 32.5243426 | -103.4987214 |
| 5,675.00            | 1.62            | 96.89       | 5,674.24            | -25.74     | 29.74      | 555,475.4603        | 757,246.6355       | 32.5243420 | -103.4987193 |
| 5,700.00            | 1.48            | 87.83       | 5,699.23            | -25.77     | 30.41      | 555,475.4301        | 757,247.3089       | 32.5243419 | -103.4987172 |
| 5,725.00            | 1.21            | 89.29       | 5,724.22            | -25.75     | 31.00      | 555,475.4456        | 757,247.8955       | 32.5243420 | -103.4987152 |
| 5,750.00            | 1.35            | 107.80      | 5,749.22            | -25.84     | 31.54      | 555,475.3589        | 757,248.4398       | 32.5243417 | -103.4987135 |



# Integrity Directional Services, LLC

## Survey Report - Geographic



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | COG Operating L L C        | Local Co-ordinate Reference: | Well Stratojet 31 St Com #7H   |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=20' @ 3745.10ft (Patriot 2) |
| Site:     | Sec. 31, T 20 S., R 35 E   | MD Reference:                | KB=20' @ 3745.10ft (Patriot 2) |
| Well:     | Stratojet 31 St Com #7H    | North Reference:             | Grid                           |
| Wellbore: | Wellbore #1                | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Wellbore #1                | Database:                    | EDM 5000.1 Multi User Db       |

### Survey

| Measured Depth (ft)  | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude   | Longitude    |
|----------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------|--------------|
| 5,775.00             | 1.65            | 90.12       | 5,774.21            | -25.93     | 32.18      | 555,475.2681        | 757,249.0801       | 32.5243414 | -103.4987114 |
| 5,800.00             | 1.21            | 87.73       | 5,799.20            | -25.92     | 32.80      | 555,475.2778        | 757,249.7038       | 32.5243415 | -103.4987094 |
| 5,825.00             | 1.84            | 95.63       | 5,824.19            | -25.95     | 33.47      | 555,475.2489        | 757,250.3670       | 32.5243414 | -103.4987072 |
| 5,850.00             | 1.70            | 92.29       | 5,849.18            | -26.01     | 34.24      | 555,475.1947        | 757,251.1369       | 32.5243412 | -103.4987047 |
| 5,875.00             | 1.50            | 92.72       | 5,874.17            | -26.04     | 34.93      | 555,475.1643        | 757,251.8343       | 32.5243411 | -103.4987025 |
| 5,900.00             | 1.33            | 91.64       | 5,899.16            | -26.06     | 35.55      | 555,475.1405        | 757,252.4512       | 32.5243410 | -103.4987005 |
| 5,925.00             | 1.53            | 96.41       | 5,924.16            | -26.11     | 36.17      | 555,475.0949        | 757,253.0729       | 32.5243409 | -103.4986985 |
| 5,950.00             | 1.72            | 118.70      | 5,949.15            | -26.32     | 36.83      | 555,474.8775        | 757,253.7336       | 32.5243403 | -103.4986963 |
| 5,965.00             | 1.60            | 129.52      | 5,964.14            | -26.56     | 37.19      | 555,474.6361        | 757,254.0926       | 32.5243396 | -103.4986952 |
| Last Gyro Survey     |                 |             |                     |            |            |                     |                    |            |              |
| 6,019.00             | 1.60            | 114.20      | 6,018.12            | -27.35     | 38.46      | 555,473.8474        | 757,255.3618       | 32.5243374 | -103.4986911 |
| First IDS MWD Survey |                 |             |                     |            |            |                     |                    |            |              |
| 6,136.00             | 1.50            | 128.40      | 6,135.08            | -28.97     | 41.15      | 555,472.2266        | 757,258.0518       | 32.5243329 | -103.4986824 |
| 6,231.00             | 2.40            | 141.90      | 6,230.02            | -31.31     | 43.35      | 555,469.8889        | 757,260.2536       | 32.5243264 | -103.4986753 |
| 6,325.00             | 4.80            | 157.20      | 6,323.83            | -36.49     | 46.09      | 555,464.7137        | 757,262.9926       | 32.5243121 | -103.4986665 |
| 6,418.00             | 5.80            | 172.50      | 6,416.44            | -44.73     | 48.21      | 555,456.4672        | 757,265.1139       | 32.5242894 | -103.4986599 |
| 6,512.00             | 5.50            | 174.50      | 6,509.98            | -53.93     | 49.27      | 555,447.2741        | 757,266.1656       | 32.5242641 | -103.4986567 |
| 6,606.00             | 5.90            | 176.00      | 6,603.51            | -63.23     | 50.03      | 555,437.9706        | 757,266.9344       | 32.5242386 | -103.4986544 |
| 6,701.00             | 5.50            | 173.90      | 6,698.04            | -72.63     | 50.86      | 555,428.5729        | 757,267.7588       | 32.5242127 | -103.4986520 |
| 6,795.00             | 5.20            | 184.80      | 6,791.64            | -81.35     | 50.98      | 555,419.8487        | 757,267.8810       | 32.5241887 | -103.4986518 |
| 6,890.00             | 5.10            | 181.90      | 6,886.25            | -89.86     | 50.48      | 555,411.3386        | 757,267.3808       | 32.5241653 | -103.4986537 |
| 6,985.00             | 4.80            | 186.00      | 6,980.90            | -98.03     | 49.93      | 555,403.1655        | 757,266.8253       | 32.5241429 | -103.4986557 |
| 7,079.00             | 4.50            | 184.80      | 7,074.59            | -105.62    | 49.21      | 555,395.5795        | 757,266.1057       | 32.5241221 | -103.4986582 |
| 7,173.00             | 4.40            | 200.80      | 7,168.31            | -112.67    | 47.62      | 555,388.5338        | 757,264.5166       | 32.5241027 | -103.4986635 |
| 7,268.00             | 5.00            | 187.50      | 7,262.99            | -120.18    | 45.78      | 555,381.0224        | 757,262.6821       | 32.5240821 | -103.4986697 |
| 7,362.00             | 4.70            | 192.60      | 7,356.66            | -128.00    | 44.41      | 555,373.2027        | 757,261.3073       | 32.5240607 | -103.4986743 |
| 7,458.00             | 4.50            | 193.70      | 7,452.35            | -135.49    | 42.66      | 555,365.7055        | 757,259.5574       | 32.5240401 | -103.4986802 |
| 7,552.00             | 6.50            | 192.80      | 7,545.91            | -144.27    | 40.61      | 555,356.9336        | 757,257.5051       | 32.5240160 | -103.4986871 |
| 7,647.00             | 6.20            | 194.60      | 7,640.33            | -154.47    | 38.12      | 555,346.7258        | 757,255.0207       | 32.5239880 | -103.4986954 |
| 7,741.00             | 5.50            | 197.70      | 7,733.84            | -163.68    | 35.47      | 555,337.5221        | 757,252.3716       | 32.5239628 | -103.4987042 |
| 7,836.00             | 5.60            | 200.90      | 7,828.39            | -172.35    | 32.43      | 555,328.8547        | 757,249.3338       | 32.5239390 | -103.4987143 |
| 7,930.00             | 5.10            | 200.20      | 7,921.98            | -180.55    | 29.36      | 555,320.6490        | 757,246.2550       | 32.5239165 | -103.4987245 |
| 8,025.00             | 4.50            | 200.70      | 8,016.65            | -188.00    | 26.58      | 555,313.2000        | 757,243.4796       | 32.5238961 | -103.4987337 |
| 8,119.00             | 6.20            | 200.20      | 8,110.24            | -196.21    | 23.52      | 555,304.9861        | 757,240.4232       | 32.5238736 | -103.4987438 |
| 8,213.00             | 5.90            | 201.60      | 8,203.71            | -205.47    | 19.99      | 555,295.7303        | 757,236.8920       | 32.5238482 | -103.4987555 |
| 8,308.00             | 5.60            | 202.10      | 8,298.23            | -214.30    | 16.45      | 555,286.8959        | 757,233.3507       | 32.5238240 | -103.4987672 |
| 8,402.00             | 5.30            | 202.00      | 8,391.81            | -222.58    | 13.10      | 555,278.6212        | 757,229.9989       | 32.5238014 | -103.4987783 |
| 8,496.00             | 4.80            | 210.10      | 8,485.45            | -230.01    | 9.50       | 555,271.1933        | 757,226.4001       | 32.5237810 | -103.4987902 |
| 8,591.00             | 4.50            | 209.70      | 8,580.13            | -236.68    | 5.66       | 555,264.5173        | 757,222.5603       | 32.5237628 | -103.4988028 |
| 8,685.00             | 4.00            | 213.80      | 8,673.87            | -242.61    | 2.01       | 555,258.5897        | 757,218.9094       | 32.5237465 | -103.4988148 |
| 8,779.00             | 5.70            | 199.00      | 8,767.54            | -249.75    | -1.33      | 555,251.4508        | 757,215.5654       | 32.5237270 | -103.4988258 |
| 8,874.00             | 5.20            | 199.80      | 8,862.11            | -258.26    | -4.33      | 555,242.9396        | 757,212.5712       | 32.5237037 | -103.4988358 |
| 8,969.00             | 4.60            | 204.30      | 8,956.76            | -265.78    | -7.35      | 555,235.4170        | 757,209.5452       | 32.5236831 | -103.4988458 |
| 9,063.00             | 5.30            | 201.40      | 9,050.41            | -273.26    | -10.49     | 555,227.9394        | 757,206.4100       | 32.5236626 | -103.4988561 |
| 9,158.00             | 4.90            | 204.30      | 9,145.03            | -281.04    | -13.76     | 555,220.1564        | 757,203.1394       | 32.5236412 | -103.4988669 |
| 9,252.00             | 4.30            | 203.70      | 9,238.73            | -287.93    | -16.83     | 555,213.2707        | 757,200.0708       | 32.5236224 | -103.4988771 |
| 9,347.00             | 5.80            | 200.00      | 9,333.36            | -295.70    | -19.90     | 555,205.4984        | 757,196.9974       | 32.5236011 | -103.4988872 |
| 9,441.00             | 5.10            | 201.40      | 9,426.93            | -304.06    | -23.05     | 555,197.1451        | 757,193.8484       | 32.5235782 | -103.4988977 |
| 9,536.00             | 4.60            | 205.10      | 9,521.59            | -311.44    | -26.21     | 555,189.7640        | 757,190.6917       | 32.5235580 | -103.4989081 |
| 9,630.00             | 4.90            | 212.00      | 9,615.27            | -318.25    | -29.93     | 555,182.9460        | 757,186.9653       | 32.5235393 | -103.4989203 |
| 9,725.00             | 4.20            | 221.20      | 9,709.97            | -324.31    | -34.38     | 555,176.8875        | 757,182.5237       | 32.5235228 | -103.4989349 |
| 9,820.00             | 5.90            | 212.90      | 9,804.60            | -331.03    | -39.32     | 555,170.1699        | 757,177.5797       | 32.5235044 | -103.4989511 |
| 9,914.00             | 5.00            | 218.10      | 9,898.18            | -338.31    | -44.47     | 555,162.8897        | 757,172.4278       | 32.5234845 | -103.4989680 |
| 10,012.00            | 5.10            | 217.30      | 9,995.80            | -345.14    | -49.75     | 555,156.0641        | 757,167.1531       | 32.5234659 | -103.4989853 |
| 10,107.00            | 4.80            | 220.70      | 10,090.44           | -351.51    | -54.90     | 555,149.6919        | 757,162.0024       | 32.5234485 | -103.4990022 |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | COG Operating L L C        | Local Co-ordinate Reference: | Well Stratojet 31 St Com #7H   |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=20' @ 3745.10ft (Patriot 2) |
| Site:     | Sec. 31, T 20 S., R 35 E   | MD Reference:                | KB=20' @ 3745.10ft (Patriot 2) |
| Well:     | Stratojet 31 St Com #7H    | North Reference:             | Grid                           |
| Wellbore: | Wellbore #1                | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Wellbore #1                | Database:                    | EDM 5000.1 Multi User Db       |

Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude   | Longitude    |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------|--------------|
| 10,201.00           | 5.40            | 222.30      | 10,184.07           | -357.76    | -60.44     | 555,143.4387        | 757,156.4610       | 32.5234314 | -103.4990203 |
| 10,295.00           | 5.50            | 219.50      | 10,277.64           | -364.51    | -66.28     | 555,136.6913        | 757,150.6188       | 32.5234130 | -103.4990394 |
| 10,382.00           | 6.40            | 210.30      | 10,364.18           | -371.91    | -71.38     | 555,129.2873        | 757,145.5202       | 32.5233927 | -103.4990562 |
| 10,476.00           | 7.70            | 198.90      | 10,457.47           | -382.40    | -76.06     | 555,118.8052        | 757,140.8367       | 32.5233640 | -103.4990716 |
| 10,571.00           | 5.50            | 199.90      | 10,551.83           | -392.70    | -79.68     | 555,108.5019        | 757,137.2251       | 32.5233358 | -103.4990836 |
| 10,665.00           | 4.50            | 199.10      | 10,645.47           | -400.42    | -82.42     | 555,100.7814        | 757,134.4851       | 32.5233146 | -103.4990927 |
| 10,760.00           | 4.40            | 192.60      | 10,740.19           | -407.50    | -84.43     | 555,093.7033        | 757,132.4706       | 32.5232952 | -103.4990994 |
| 10,855.00           | 4.70            | 196.90      | 10,834.89           | -414.78    | -86.36     | 555,086.4229        | 757,130.5442       | 32.5232752 | -103.4991058 |
| 10,949.00           | 3.50            | 194.80      | 10,928.65           | -421.24    | -88.21     | 555,079.9638        | 757,128.6917       | 32.5232575 | -103.4991120 |
| 11,044.00           | 3.60            | 189.30      | 11,023.47           | -426.98    | -89.43     | 555,074.2169        | 757,127.4690       | 32.5232417 | -103.4991161 |
| 11,122.00           | 4.10            | 200.00      | 11,101.29           | -432.02    | -90.78     | 555,069.1799        | 757,126.1195       | 32.5232279 | -103.4991206 |
| 11,201.00           | 2.70            | 201.80      | 11,180.15           | -436.40    | -92.44     | 555,064.7982        | 757,124.4625       | 32.5232159 | -103.4991261 |
| 11,233.00           | 1.30            | 55.90       | 11,212.14           | -436.90    | -92.42     | 555,064.3017        | 757,124.4832       | 32.5232146 | -103.4991261 |
| 11,250.13           | 3.36            | 37.28       | 11,229.25           | -436.39    | -91.95     | 555,064.8105        | 757,124.9485       | 32.5232159 | -103.4991245 |
| Tgt 1               |                 |             |                     |            |            |                     |                    |            |              |
| 11,264.00           | 5.10            | 33.50       | 11,243.09           | -435.55    | -91.36     | 555,065.6484        | 757,125.5353       | 32.5232182 | -103.4991226 |
| 11,296.00           | 9.10            | 25.10       | 11,274.84           | -432.07    | -89.51     | 555,069.1275        | 757,127.3946       | 32.5232278 | -103.4991165 |
| 11,327.00           | 13.60           | 21.80       | 11,305.22           | -426.47    | -87.11     | 555,074.7344        | 757,129.7892       | 32.5232431 | -103.4991086 |
| 11,359.00           | 18.20           | 20.20       | 11,335.99           | -418.28    | -83.99     | 555,082.9221        | 757,132.9137       | 32.5232656 | -103.4990982 |
| 11,391.00           | 22.90           | 19.30       | 11,365.94           | -407.71    | -80.20     | 555,093.4941        | 757,136.6992       | 32.5232945 | -103.4990857 |
| 11,422.00           | 27.60           | 19.70       | 11,393.97           | -395.25    | -75.78     | 555,105.9543        | 757,141.1158       | 32.5233287 | -103.4990710 |
| 11,454.00           | 31.70           | 20.60       | 11,421.78           | -380.39    | -70.33     | 555,120.8095        | 757,146.5751       | 32.5233694 | -103.4990530 |
| 11,485.00           | 35.90           | 22.30       | 11,447.53           | -364.35    | -64.01     | 555,136.8501        | 757,152.8925       | 32.5234134 | -103.4990320 |
| 11,516.00           | 39.90           | 22.70       | 11,471.99           | -346.76    | -56.72     | 555,154.4385        | 757,160.1811       | 32.5234615 | -103.4990080 |
| 11,548.00           | 42.50           | 22.70       | 11,496.07           | -327.32    | -48.59     | 555,173.8821        | 757,168.3146       | 32.5235148 | -103.4989811 |
| 11,580.00           | 43.00           | 22.30       | 11,519.56           | -307.25    | -40.27     | 555,193.9503        | 757,176.6267       | 32.5235698 | -103.4989536 |
| 11,611.00           | 45.40           | 21.90       | 11,541.79           | -287.23    | -32.14     | 555,213.9735        | 757,184.7555       | 32.5236246 | -103.4989267 |
| 11,643.00           | 47.60           | 21.30       | 11,563.81           | -265.65    | -23.60     | 555,235.5547        | 757,193.2978       | 32.5236838 | -103.4988985 |
| 11,674.00           | 48.60           | 21.30       | 11,584.52           | -244.15    | -15.22     | 555,257.0519        | 757,201.6792       | 32.5237427 | -103.4988707 |
| 11,705.00           | 49.80           | 20.60       | 11,604.77           | -222.23    | -6.83      | 555,278.9672        | 757,210.0683       | 32.5238027 | -103.4988430 |
| 11,736.00           | 53.60           | 19.00       | 11,623.98           | -199.35    | 1.40       | 555,301.8545        | 757,218.2988       | 32.5238655 | -103.4988157 |
| 11,768.00           | 56.80           | 18.30       | 11,642.24           | -174.45    | 9.80       | 555,326.7489        | 757,226.6976       | 32.5239337 | -103.4987878 |
| 11,800.00           | 59.50           | 17.90       | 11,659.13           | -148.62    | 18.24      | 555,352.5836        | 757,235.1402       | 32.5240045 | -103.4987597 |
| 11,831.00           | 61.60           | 18.40       | 11,674.37           | -122.97    | 26.65      | 555,378.2328        | 757,243.5497       | 32.5240749 | -103.4987318 |
| 11,863.00           | 64.50           | 18.00       | 11,688.87           | -95.87     | 35.56      | 555,405.3280        | 757,252.4568       | 32.5241491 | -103.4987022 |
| 11,894.00           | 67.90           | 18.00       | 11,701.38           | -68.90     | 44.32      | 555,432.2996        | 757,261.2204       | 32.5242231 | -103.4986731 |
| 11,926.00           | 71.60           | 18.50       | 11,712.45           | -40.39     | 53.72      | 555,460.8059        | 757,270.6221       | 32.5243012 | -103.4986419 |
| 11,958.00           | 75.70           | 18.30       | 11,721.46           | -11.26     | 63.41      | 555,489.9359        | 757,280.3117       | 32.5243811 | -103.4986097 |
| 11,989.00           | 78.20           | 17.70       | 11,728.46           | 17.46      | 72.74      | 555,518.6550        | 757,289.6423       | 32.5244598 | -103.4985787 |
| 12,020.00           | 81.40           | 16.80       | 11,733.95           | 46.59      | 81.79      | 555,547.7889        | 757,298.6873       | 32.5245397 | -103.4985486 |
| 12,051.00           | 86.10           | 14.60       | 11,737.32           | 76.25      | 90.12      | 555,577.4455        | 757,307.0207       | 32.5246210 | -103.4985208 |
| 12,083.00           | 90.20           | 12.60       | 11,738.35           | 107.32     | 97.64      | 555,608.5239        | 757,314.5387       | 32.5247063 | -103.4984957 |
| 12,115.00           | 92.10           | 11.90       | 11,737.71           | 138.59     | 104.43     | 555,639.7873        | 757,321.3267       | 32.5247921 | -103.4984729 |
| 12,211.00           | 93.90           | 11.20       | 11,732.69           | 232.51     | 123.62     | 555,733.7097        | 757,340.5213       | 32.5250498 | -103.4984082 |
| 12,305.00           | 91.20           | 6.30        | 11,728.50           | 325.29     | 137.90     | 555,826.4871        | 757,354.7968       | 32.5253045 | -103.4983595 |
| 12,400.00           | 91.20           | 3.80        | 11,726.51           | 419.89     | 146.26     | 555,921.0899        | 757,363.1567       | 32.5255644 | -103.4983300 |
| 12,496.00           | 89.80           | 359.40      | 11,725.67           | 515.82     | 148.94     | 556,017.0227        | 757,365.8359       | 32.5258280 | -103.4983189 |
| 12,591.00           | 90.50           | 358.40      | 11,725.43           | 610.80     | 147.11     | 556,112.0029        | 757,364.0122       | 32.5260891 | -103.4983224 |
| 12,686.00           | 90.70           | 358.90      | 11,724.43           | 705.77     | 144.87     | 556,206.9707        | 757,361.7742       | 32.5263502 | -103.4983272 |
| 12,780.00           | 89.50           | 358.20      | 11,724.27           | 799.74     | 142.50     | 556,300.9379        | 757,359.3956       | 32.5266085 | -103.4983325 |
| 12,875.00           | 87.80           | 358.00      | 11,726.51           | 894.66     | 139.35     | 556,395.8556        | 757,356.2469       | 32.5268694 | -103.4983403 |
| 12,970.00           | 88.10           | 358.50      | 11,729.90           | 989.55     | 136.45     | 556,490.7500        | 757,353.3477       | 32.5271303 | -103.4983473 |
| 13,065.00           | 88.50           | 358.80      | 11,732.72           | 1,084.48   | 134.21     | 556,585.6813        | 757,351.1105       | 32.5273913 | -103.4983522 |
| 13,159.00           | 88.40           | 358.80      | 11,735.26           | 1,178.43   | 132.24     | 556,679.6261        | 757,349.1427       | 32.5276496 | -103.4983562 |
| 13,254.00           | 88.10           | 359.30      | 11,738.17           | 1,273.37   | 130.67     | 556,774.5681        | 757,347.5683       | 32.5279105 | -103.4983589 |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | COG Operating L L C        | Local Co-ordinate Reference: | Well Stratojet 31 St Com #7H   |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=20' @ 3745.10ft (Patriot 2) |
| Site:     | Sec. 31, T 20 S., R 35 E   | MD Reference:                | KB=20' @ 3745.10ft (Patriot 2) |
| Well:     | Stratojet 31 St Com #7H    | North Reference:             | Grid                           |
| Wellbore: | Wellbore #1                | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Wellbore #1                | Database:                    | EDM 5000.1 Multi User Db       |

| Survey                                                |                 |             |                     |            |            |                     |                    |            |              |
|-------------------------------------------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------|--------------|
| Measured Depth (ft)                                   | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude   | Longitude    |
| 13,349.00                                             | 88.00           | 359.20      | 11,741.40           | 1,368.31   | 129.43     | 556,869.5048        | 757,346.3255       | 32.5281715 | -103.4983605 |
| 13,444.00                                             | 89.10           | 358.60      | 11,743.80           | 1,463.26   | 127.60     | 556,964.4548        | 757,344.5022       | 32.5284325 | -103.4983640 |
| 13,539.00                                             | 90.50           | 358.30      | 11,744.13           | 1,558.22   | 125.03     | 557,059.4168        | 757,341.9326       | 32.5286936 | -103.4983699 |
| 13,633.00                                             | 90.90           | 359.60      | 11,742.99           | 1,652.19   | 123.31     | 557,153.3916        | 757,340.2102       | 32.5289519 | -103.4983731 |
| 13,728.00                                             | 91.40           | 359.90      | 11,741.08           | 1,747.17   | 122.90     | 557,248.3710        | 757,339.7958       | 32.5292130 | -103.4983720 |
| 13,823.00                                             | 90.50           | 0.40        | 11,739.50           | 1,842.16   | 123.14     | 557,343.3561        | 757,340.0445       | 32.5294741 | -103.4983688 |
| 13,918.00                                             | 88.90           | 0.10        | 11,740.00           | 1,937.15   | 123.56     | 557,438.3505        | 757,340.4590       | 32.5297351 | -103.4983651 |
| 14,012.00                                             | 89.00           | 359.60      | 11,741.72           | 2,031.14   | 123.31     | 557,532.3339        | 757,340.2130       | 32.5299935 | -103.4983635 |
| 14,107.00                                             | 89.40           | 359.50      | 11,743.05           | 2,126.13   | 122.57     | 557,627.3213        | 757,339.4669       | 32.5302546 | -103.4983635 |
| 14,201.00                                             | 88.80           | 358.80      | 11,744.53           | 2,220.10   | 121.17     | 557,721.2982        | 757,338.0727       | 32.5305129 | -103.4983656 |
| 14,296.00                                             | 90.00           | 358.80      | 11,745.52           | 2,315.07   | 119.18     | 557,816.2702        | 757,336.0833       | 32.5307740 | -103.4983696 |
| 14,390.00                                             | 87.60           | 357.80      | 11,747.49           | 2,409.00   | 116.40     | 557,910.2000        | 757,333.2959       | 32.5310322 | -103.4983763 |
| 14,485.00                                             | 86.50           | 358.10      | 11,752.38           | 2,503.82   | 113.00     | 558,005.0116        | 757,329.9020       | 32.5312929 | -103.4983849 |
| 14,579.00                                             | 86.90           | 358.20      | 11,757.79           | 2,597.61   | 109.97     | 558,098.8065        | 757,326.8725       | 32.5315507 | -103.4983923 |
| 14,674.00                                             | 87.30           | 358.70      | 11,762.60           | 2,692.45   | 107.41     | 558,193.6494        | 757,324.3062       | 32.5318115 | -103.4983983 |
| 14,768.00                                             | 87.70           | 358.80      | 11,766.70           | 2,786.34   | 105.36     | 558,287.5372        | 757,322.2576       | 32.5320696 | -103.4984025 |
| 14,863.00                                             | 88.30           | 359.70      | 11,770.01           | 2,881.28   | 104.12     | 558,382.4696        | 757,321.0150       | 32.5323305 | -103.4984041 |
| 14,958.00                                             | 88.20           | 1.00        | 11,772.91           | 2,976.23   | 104.70     | 558,477.4213        | 757,321.5950       | 32.5325915 | -103.4983998 |
| 15,052.00                                             | 88.40           | 0.40        | 11,775.70           | 3,070.18   | 105.84     | 558,571.3722        | 757,322.7428       | 32.5328497 | -103.4983937 |
| 15,147.00                                             | 89.50           | 0.70        | 11,777.44           | 3,165.16   | 106.75     | 558,666.3502        | 757,323.6546       | 32.5331107 | -103.4983884 |
| 15,241.00                                             | 89.50           | 0.80        | 11,778.26           | 3,259.14   | 107.99     | 558,760.3383        | 757,324.8850       | 32.5333691 | -103.4983820 |
| 15,336.00                                             | 90.00           | 0.30        | 11,778.68           | 3,354.14   | 108.90     | 558,855.3323        | 757,325.7969       | 32.5336301 | -103.4983766 |
| 15,431.00                                             | 90.80           | 0.60        | 11,778.01           | 3,449.13   | 109.64     | 558,950.3259        | 757,326.5430       | 32.5338912 | -103.4983718 |
| 15,524.00                                             | 89.10           | 1.20        | 11,778.10           | 3,542.12   | 111.10     | 559,043.3104        | 757,328.0037       | 32.5341468 | -103.4983647 |
| 15,618.00                                             | 89.20           | 1.00        | 11,779.49           | 3,636.09   | 112.91     | 559,137.2825        | 757,329.8080       | 32.5344050 | -103.4983564 |
| 15,712.00                                             | 89.70           | 0.30        | 11,780.39           | 3,730.08   | 113.97     | 559,231.2711        | 757,330.8743       | 32.5346633 | -103.4983506 |
| 15,807.00                                             | 90.50           | 0.10        | 11,780.23           | 3,825.08   | 114.31     | 559,326.2693        | 757,331.2059       | 32.5349244 | -103.4983471 |
| 15,901.00                                             | 91.30           | 359.80      | 11,778.75           | 3,919.06   | 114.22     | 559,420.2566        | 757,331.1239       | 32.5351828 | -103.4983450 |
| 15,996.00                                             | 90.60           | 0.40        | 11,777.17           | 4,014.05   | 114.39     | 559,515.2422        | 757,331.2898       | 32.5354438 | -103.4983420 |
| 16,091.00                                             | 91.50           | 0.00        | 11,775.43           | 4,109.03   | 114.72     | 559,610.2243        | 757,331.6214       | 32.5357049 | -103.4983385 |
| 16,133.87                                             | 91.54           | 359.57      | 11,774.30           | 4,151.89   | 114.56     | 559,653.0788        | 757,331.4597       | 32.5358227 | -103.4983379 |
| Stratojet 31 State Com 7H LTP                         |                 |             |                     |            |            |                     |                    |            |              |
| 16,134.06                                             | 91.54           | 359.57      | 11,774.29           | 4,152.08   | 114.56     | 559,653.2687        | 757,331.4583       | 32.5358232 | -103.4983379 |
| North 330' Hardline Crossing 16134.06'MD / 4153.61'VS |                 |             |                     |            |            |                     |                    |            |              |
| 16,210.00                                             | 91.60           | 358.80      | 11,772.21           | 4,227.98   | 113.48     | 559,729.1718        | 757,330.3757       | 32.5360318 | -103.4983395 |
| Final IDS MWD Survey                                  |                 |             |                     |            |            |                     |                    |            |              |
| 16,263.44                                             | 91.60           | 358.80      | 11,770.72           | 4,281.39   | 112.36     | 559,782.5836        | 757,329.2569       | 32.5361787 | -103.4983418 |
| Stratojet 31 State Com 7H BHL                         |                 |             |                     |            |            |                     |                    |            |              |
| 16,264.00                                             | 91.60           | 358.80      | 11,770.71           | 4,281.95   | 112.35     | 559,783.1388        | 757,329.2453       | 32.5361802 | -103.4983418 |
| Projection To TD                                      |                 |             |                     |            |            |                     |                    |            |              |

| Design Annotations  |                     |                   |            |                                                       |
|---------------------|---------------------|-------------------|------------|-------------------------------------------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment                                               |
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                                                       |
| 100.00              | 100.00              | -0.19             | 0.22       | 1st Gyro Survey                                       |
| 5,965.00            | 5,964.14            | -26.56            | 37.19      | Last Gyro Survey                                      |
| 6,019.00            | 6,018.12            | -27.35            | 38.46      | First IDS MWD Survey                                  |
| 16,134.06           | 11,774.29           | 4,152.08          | 114.56     | North 330' Hardline Crossing 16134.06'MD / 4153.61'VS |
| 16,210.00           | 11,772.21           | 4,227.98          | 113.48     | Final IDS MWD Survey                                  |
| 16,264.00           | 11,770.71           | 4,281.95          | 112.35     | Projection To TD                                      |