

30 025- 43179



June 14, 2016

Concho Resources, Inc.  
One Concho Center  
600 W. Illinois Avenue  
Midland, Texas 79701

HODDS OCD  
NOV 09 2016  
RECEIVED

Attn: Kanicia Castillo

RE: **Raspberry State Com No. 001H**

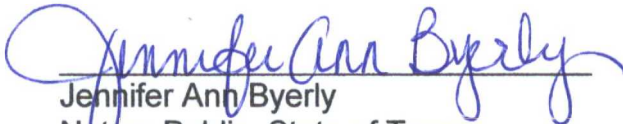
Please find enclosed a copy of the survey from 0' to 9783' ran on the above referenced well.

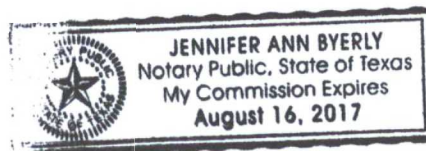
Sincerely,

Keith Havelka  
Operations

STATE OF TEXAS     §  
                                  §  
COUNTY OF NUECES §

This instrument was acknowledged before me on the 14th day of June, A.D., 2016, by Keith Havelka.

  
Jennifer Ann Byerly  
Notary Public, State of Texas





Company: Concho  
Lease/Well: Raspberry State Com No./001H

Rig Name: Scan Freedom  
State/County: New Mexico/Lea  
VS-Azi: 0.00 Degrees  
Latitude: 32.44333, Longitude: -103.55192  
Grid North = True North -0.42 degs (NAD 27)  
Grid Correction Applied = -0.42 degs



Depth Reference : RKB = 7 feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut  
Minimum Curvature Method  
Report Date/Time: 6/14/2016 / 08:58

VES Survey International  
Midland, Texas  
432-563-5444

Surveyor: Adam Askew  
Raspberry State Com No. 001H / API 30-025-43179

HOBBS OCD  
NOV 09 2016  
RECEIVED

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | TVD<br>FT | +N/-S<br>FT | +E/-W<br>FT | Vertical<br>Section<br>FT | Closure<br>Distance<br>FT | Closure<br>Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 0.00                    | 0.00                 | 0.00                      | 0.00      | 0.00        | 0.00        | 0.00                      | 0.00                      | 0.00                        | ****                          |
| 100.00                  | 0.62                 | 10.04                     | 100.00    | 0.53        | 0.09        | 0.53                      | 0.54                      | 10.04                       | 0.62                          |
| 200.00                  | 0.72                 | 13.22                     | 199.99    | 1.67        | 0.33        | 1.67                      | 1.70                      | 11.21                       | 0.11                          |
| 300.00                  | 0.73                 | 4.14                      | 299.98    | 2.92        | 0.52        | 2.92                      | 2.97                      | 10.11                       | 0.12                          |
| 400.00                  | 0.30                 | 0.62                      | 399.98    | 3.83        | 0.57        | 3.83                      | 3.87                      | 8.48                        | 0.43                          |
| 500.00                  | 0.06                 | 246.89                    | 499.98    | 4.07        | 0.53        | 4.07                      | 4.10                      | 7.36                        | 0.33                          |
| 600.00                  | 0.32                 | 212.48                    | 599.98    | 3.81        | 0.33        | 3.81                      | 3.83                      | 4.89                        | 0.28                          |
| 700.00                  | 0.51                 | 189.72                    | 699.98    | 3.13        | 0.10        | 3.13                      | 3.13                      | 1.81                        | 0.25                          |
| 800.00                  | 0.73                 | 193.43                    | 799.97    | 2.07        | -0.12       | 2.07                      | 2.08                      | 356.58                      | 0.22                          |
| 900.00                  | 0.49                 | 189.58                    | 899.96    | 1.03        | -0.34       | 1.03                      | 1.09                      | 341.61                      | 0.24                          |
| 1000.00                 | 0.33                 | 163.05                    | 999.96    | 0.33        | -0.33       | 0.33                      | 0.47                      | 315.06                      | 0.25                          |
| 1100.00                 | 0.29                 | 168.69                    | 1099.96   | -0.19       | -0.20       | -0.19                     | 0.27                      | 226.32                      | 0.05                          |
| 1200.00                 | 0.40                 | 184.60                    | 1199.96   | -0.78       | -0.18       | -0.78                     | 0.80                      | 192.74                      | 0.15                          |
| 1300.00                 | 0.59                 | 195.06                    | 1299.95   | -1.63       | -0.34       | -1.63                     | 1.66                      | 191.74                      | 0.21                          |
| 1400.00                 | 0.46                 | 221.84                    | 1399.95   | -2.43       | -0.74       | -2.43                     | 2.54                      | 196.98                      | 0.27                          |
| 1500.00                 | 0.31                 | 228.28                    | 1499.95   | -2.91       | -1.21       | -2.91                     | 3.15                      | 202.63                      | 0.16                          |
| 1600.00                 | 0.37                 | 210.06                    | 1599.95   | -3.36       | -1.57       | -3.36                     | 3.71                      | 205.08                      | 0.12                          |

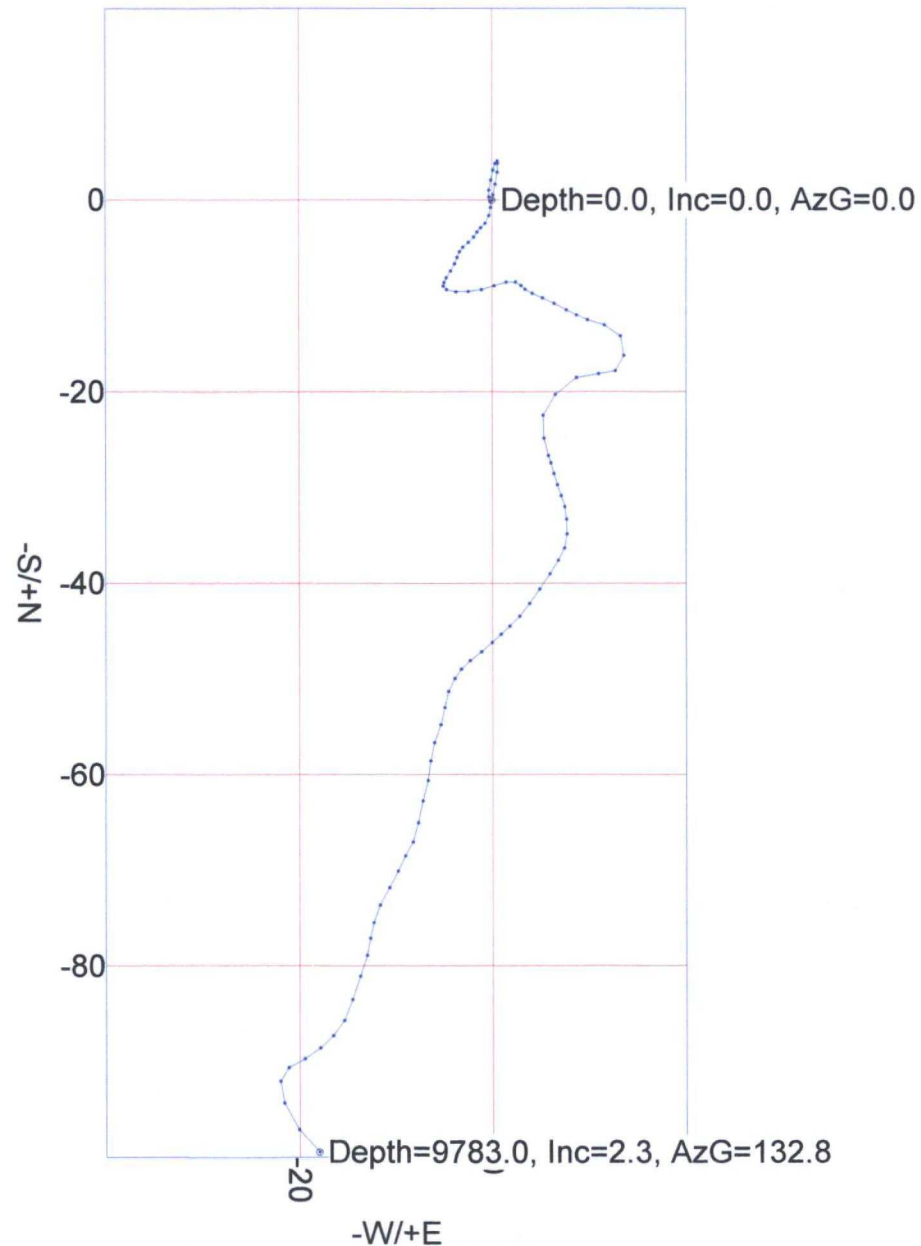
| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | TVD<br>FT | +N/-S<br>FT | +E/-W<br>FT | Vertical<br>Section<br>FT | Closure<br>Distance<br>FT | Closure<br>Direction<br>Deg | Dogleđ<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 1700.00                 | 0.35                 | 217.56                    | 1699.94   | -3.88       | -1.92       | -3.88                     | 4.33                      | 206.32                      | 0.05                          |
| 1800.00                 | 0.53                 | 230.04                    | 1799.94   | -4.42       | -2.46       | -4.42                     | 5.06                      | 209.10                      | 0.20                          |
| 1900.00                 | 0.36                 | 227.52                    | 1899.94   | -4.93       | -3.05       | -4.93                     | 5.80                      | 211.72                      | 0.17                          |
| 2000.00                 | 0.32                 | 202.22                    | 1999.94   | -5.40       | -3.38       | -5.40                     | 6.37                      | 212.08                      | 0.15                          |
| 2100.00                 | 0.42                 | 202.66                    | 2099.93   | -5.99       | -3.63       | -5.99                     | 7.00                      | 211.20                      | 0.10                          |
| 2200.00                 | 0.42                 | 198.95                    | 2199.93   | -6.67       | -3.89       | -6.67                     | 7.72                      | 210.23                      | 0.03                          |
| 2300.00                 | 0.56                 | 218.02                    | 2299.93   | -7.40       | -4.31       | -7.40                     | 8.56                      | 210.19                      | 0.21                          |
| 2400.00                 | 0.39                 | 202.22                    | 2399.92   | -8.10       | -4.73       | -8.10                     | 9.38                      | 210.31                      | 0.21                          |
| 2500.00                 | 0.26                 | 209.92                    | 2499.92   | -8.60       | -4.97       | -8.60                     | 9.94                      | 210.03                      | 0.14                          |
| 2600.00                 | 0.21                 | 173.91                    | 2599.92   | -8.98       | -5.07       | -8.98                     | 10.31                     | 209.41                      | 0.15                          |
| 2700.00                 | 0.43                 | 119.19                    | 2699.92   | -9.35       | -4.72       | -9.35                     | 10.48                     | 206.78                      | 0.35                          |
| 2800.00                 | 0.73                 | 94.17                     | 2799.92   | -9.58       | -3.76       | -9.58                     | 10.29                     | 201.42                      | 0.39                          |
| 2900.00                 | 0.74                 | 83.44                     | 2899.91   | -9.55       | -2.48       | -9.55                     | 9.87                      | 194.58                      | 0.14                          |
| 3000.00                 | 0.85                 | 78.71                     | 2999.90   | -9.33       | -1.11       | -9.33                     | 9.40                      | 186.80                      | 0.13                          |
| 3100.00                 | 0.70                 | 66.35                     | 3099.89   | -8.94       | 0.18        | -8.94                     | 8.94                      | 178.84                      | 0.23                          |
| 3200.00                 | 0.79                 | 77.95                     | 3199.88   | -8.55       | 1.41        | -8.55                     | 8.67                      | 170.62                      | 0.17                          |
| 3300.00                 | 0.41                 | 115.56                    | 3299.87   | -8.56       | 2.41        | -8.56                     | 8.89                      | 164.31                      | 0.52                          |
| 3400.00                 | 0.35                 | 134.58                    | 3399.87   | -8.93       | 2.95        | -8.93                     | 9.41                      | 161.74                      | 0.14                          |
| 3500.00                 | 0.34                 | 125.94                    | 3499.87   | -9.32       | 3.40        | -9.32                     | 9.92                      | 159.94                      | 0.05                          |
| 3600.00                 | 0.63                 | 116.96                    | 3599.87   | -9.74       | 4.13        | -9.74                     | 10.58                     | 157.03                      | 0.30                          |
| 3700.00                 | 0.69                 | 110.43                    | 3699.86   | -10.20      | 5.18        | -10.20                    | 11.44                     | 153.08                      | 0.10                          |
| 3800.00                 | 0.88                 | 120.61                    | 3799.85   | -10.80      | 6.40        | -10.80                    | 12.55                     | 149.34                      | 0.23                          |
| 3900.00                 | 0.74                 | 116.35                    | 3899.84   | -11.47      | 7.64        | -11.47                    | 13.78                     | 146.35                      | 0.15                          |
| 4000.00                 | 0.61                 | 115.00                    | 3999.83   | -11.99      | 8.70        | -11.99                    | 14.81                     | 144.02                      | 0.13                          |
| 4100.00                 | 0.80                 | 113.32                    | 4099.83   | -12.49      | 9.83        | -12.49                    | 15.89                     | 141.80                      | 0.19                          |
| 4200.00                 | 1.28                 | 103.72                    | 4199.81   | -13.03      | 11.56       | -13.03                    | 17.42                     | 138.43                      | 0.51                          |
| 4300.00                 | 1.21                 | 147.48                    | 4299.79   | -14.19      | 13.21       | -14.19                    | 19.38                     | 137.04                      | 0.93                          |
| 4400.00                 | 1.34                 | 190.24                    | 4399.77   | -16.23      | 13.57       | -16.23                    | 21.15                     | 140.10                      | 0.94                          |
| 4500.00                 | 0.92                 | 236.04                    | 4499.75   | -17.82      | 12.70       | -17.82                    | 21.88                     | 144.54                      | 0.96                          |
| 4600.00                 | 1.23                 | 276.57                    | 4599.73   | -18.15      | 10.97       | -18.15                    | 21.20                     | 148.86                      | 0.80                          |
| 4700.00                 | 1.50                 | 247.77                    | 4699.70   | -18.52      | 8.69        | -18.52                    | 20.46                     | 154.86                      | 0.73                          |
| 4800.00                 | 1.87                 | 217.78                    | 4799.66   | -20.30      | 6.48        | -20.30                    | 21.31                     | 162.29                      | 0.94                          |
| 4900.00                 | 1.04                 | 195.82                    | 4899.63   | -22.46      | 5.24        | -22.46                    | 23.07                     | 166.88                      | 0.98                          |
| 5000.00                 | 1.77                 | 167.63                    | 4999.60   | -24.85      | 5.32        | -24.85                    | 25.41                     | 167.92                      | 0.98                          |
| 5100.00                 | 0.39                 | 159.79                    | 5099.58   | -26.67      | 5.77        | -26.67                    | 27.29                     | 167.80                      | 1.39                          |
| 5200.00                 | 0.54                 | 163.39                    | 5199.58   | -27.44      | 6.02        | -27.44                    | 28.09                     | 167.63                      | 0.15                          |
| 5300.00                 | 0.76                 | 163.07                    | 5299.57   | -28.53      | 6.35        | -28.53                    | 29.22                     | 167.46                      | 0.23                          |
| 5400.00                 | 0.66                 | 163.67                    | 5399.56   | -29.71      | 6.70        | -29.71                    | 30.46                     | 167.29                      | 0.11                          |
| 5500.00                 | 0.72                 | 158.39                    | 5499.56   | -30.84      | 7.09        | -30.84                    | 31.65                     | 167.05                      | 0.09                          |

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | TVD<br>FT | +N/-S<br>FT | +E/-W<br>FT | Vertical<br>Section<br>FT | Closure<br>Distance<br>FT | Closure<br>Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 5600.00                 | 0.67                 | 165.94                    | 5599.55   | -32.00      | 7.47        | -32.00                    | 32.86                     | 166.87                      | 0.10                          |
| 5700.00                 | 0.86                 | 176.65                    | 5699.54   | -33.31      | 7.65        | -33.31                    | 34.18                     | 167.06                      | 0.23                          |
| 5800.00                 | 0.93                 | 178.83                    | 5799.53   | -34.87      | 7.71        | -34.87                    | 35.71                     | 167.53                      | 0.08                          |
| 5900.00                 | 0.82                 | 203.76                    | 5899.52   | -36.33      | 7.44        | -36.33                    | 37.09                     | 168.42                      | 0.39                          |
| 6000.00                 | 0.84                 | 211.45                    | 5999.51   | -37.61      | 6.77        | -37.61                    | 38.22                     | 169.79                      | 0.11                          |
| 6100.00                 | 1.07                 | 211.01                    | 6099.49   | -39.04      | 5.91        | -39.04                    | 39.49                     | 171.40                      | 0.23                          |
| 6200.00                 | 1.08                 | 216.78                    | 6199.47   | -40.60      | 4.86        | -40.60                    | 40.89                     | 173.17                      | 0.11                          |
| 6300.00                 | 1.05                 | 211.21                    | 6299.46   | -42.14      | 3.82        | -42.14                    | 42.31                     | 174.82                      | 0.11                          |
| 6400.00                 | 0.90                 | 224.65                    | 6399.44   | -43.48      | 2.79        | -43.48                    | 43.57                     | 176.33                      | 0.27                          |
| 6500.00                 | 0.75                 | 224.95                    | 6499.43   | -44.51      | 1.78        | -44.51                    | 44.54                     | 177.72                      | 0.15                          |
| 6600.00                 | 0.65                 | 230.62                    | 6599.43   | -45.33      | 0.87        | -45.33                    | 45.34                     | 178.90                      | 0.12                          |
| 6700.00                 | 0.80                 | 223.19                    | 6699.42   | -46.20      | -0.05       | -46.20                    | 46.20                     | 180.06                      | 0.18                          |
| 6800.00                 | 0.89                 | 234.11                    | 6799.41   | -47.17      | -1.15       | -47.17                    | 47.18                     | 181.40                      | 0.18                          |
| 6900.00                 | 0.83                 | 229.66                    | 6899.40   | -48.09      | -2.33       | -48.09                    | 48.15                     | 182.78                      | 0.09                          |
| 7000.00                 | 0.65                 | 221.01                    | 6999.39   | -48.99      | -3.26       | -48.99                    | 49.10                     | 183.81                      | 0.21                          |
| 7100.00                 | 0.68                 | 206.80                    | 7099.38   | -49.95      | -3.90       | -49.95                    | 50.10                     | 184.47                      | 0.17                          |
| 7200.00                 | 1.03                 | 205.66                    | 7199.37   | -51.29      | -4.56       | -51.29                    | 51.50                     | 185.08                      | 0.35                          |
| 7300.00                 | 0.99                 | 180.77                    | 7299.35   | -52.97      | -4.96       | -52.97                    | 53.20                     | 185.35                      | 0.44                          |
| 7400.00                 | 1.16                 | 203.07                    | 7399.34   | -54.76      | -5.37       | -54.76                    | 55.02                     | 185.60                      | 0.45                          |
| 7500.00                 | 1.11                 | 195.68                    | 7499.32   | -56.63      | -6.03       | -56.63                    | 56.95                     | 186.08                      | 0.16                          |
| 7600.00                 | 1.15                 | 187.94                    | 7599.30   | -58.55      | -6.43       | -58.55                    | 58.90                     | 186.27                      | 0.16                          |
| 7700.00                 | 1.21                 | 186.50                    | 7699.28   | -60.59      | -6.69       | -60.59                    | 60.96                     | 186.30                      | 0.07                          |
| 7800.00                 | 1.30                 | 200.46                    | 7799.25   | -62.71      | -7.21       | -62.71                    | 63.12                     | 186.55                      | 0.32                          |
| 7900.00                 | 1.41                 | 184.00                    | 7899.22   | -65.00      | -7.69       | -65.00                    | 65.45                     | 186.75                      | 0.40                          |
| 8000.00                 | 1.05                 | 210.24                    | 7999.20   | -67.02      | -8.24       | -67.02                    | 67.52                     | 187.01                      | 0.66                          |
| 8100.00                 | 0.90                 | 207.57                    | 8099.19   | -68.51      | -9.06       | -68.51                    | 69.10                     | 187.54                      | 0.16                          |
| 8200.00                 | 1.12                 | 203.34                    | 8199.17   | -70.10      | -9.81       | -70.10                    | 70.78                     | 187.97                      | 0.23                          |
| 8300.00                 | 1.13                 | 211.41                    | 8299.15   | -71.83      | -10.71      | -71.83                    | 72.63                     | 188.48                      | 0.16                          |
| 8400.00                 | 1.24                 | 204.73                    | 8399.13   | -73.65      | -11.68      | -73.65                    | 74.57                     | 189.01                      | 0.18                          |
| 8500.00                 | 1.00                 | 193.90                    | 8499.11   | -75.48      | -12.34      | -75.48                    | 76.48                     | 189.28                      | 0.32                          |
| 8600.00                 | 0.92                 | 190.23                    | 8599.10   | -77.11      | -12.69      | -77.11                    | 78.15                     | 189.34                      | 0.10                          |
| 8700.00                 | 1.16                 | 191.94                    | 8699.08   | -78.89      | -13.04      | -78.89                    | 79.96                     | 189.39                      | 0.24                          |
| 8800.00                 | 1.48                 | 202.71                    | 8799.06   | -81.07      | -13.75      | -81.07                    | 82.22                     | 189.62                      | 0.40                          |
| 8900.00                 | 1.49                 | 193.68                    | 8899.02   | -83.52      | -14.55      | -83.52                    | 84.78                     | 189.88                      | 0.23                          |
| 9000.00                 | 1.22                 | 210.76                    | 8998.99   | -85.70      | -15.41      | -85.70                    | 87.07                     | 190.19                      | 0.48                          |
| 9100.00                 | 1.04                 | 222.73                    | 9098.98   | -87.28      | -16.57      | -87.28                    | 88.84                     | 190.75                      | 0.30                          |
| 9200.00                 | 1.09                 | 227.78                    | 9198.96   | -88.59      | -17.89      | -88.59                    | 90.38                     | 191.41                      | 0.11                          |
| 9300.00                 | 1.16                 | 241.75                    | 9298.94   | -89.71      | -19.48      | -89.71                    | 91.80                     | 192.25                      | 0.28                          |
| 9400.00                 | 1.03                 | 239.45                    | 9398.92   | -90.64      | -21.14      | -90.64                    | 93.07                     | 193.13                      | 0.14                          |

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | TVD<br>FT | +N/-S<br>FT | +E/-W<br>FT | Vertical<br>Section<br>FT | Closure<br>Distance<br>FT | Closure<br>Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 9500.00                 | 1.09                 | 184.43                    | 9498.91   | -92.05      | -21.99      | -92.05                    | 94.64                     | 193.44                      | 0.98                          |
| 9600.00                 | 1.61                 | 160.46                    | 9598.88   | -94.32      | -21.59      | -94.32                    | 96.76                     | 192.89                      | 0.75                          |
| 9700.00                 | 2.07                 | 144.38                    | 9698.83   | -97.11      | -20.07      | -97.11                    | 99.17                     | 191.68                      | 0.69                          |
| 9783.00                 | 2.28                 | 132.76                    | 9781.77   | -99.45      | -17.99      | -99.45                    | 101.06                    | 190.25                      | 0.59                          |



VES Survey International  
Midland, Texas  
432-563-5444  
Surveyor: Adam Askew  
Rasberry State Com No. 001H / API 30-025-43179



VES Survey Date: 6/8/2016



I Adam Askew certify that I am employed by VES Survey International. That I did on the day(s) of 06/08/16 through 06/08/16 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 9,783.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of Concho for the Raspberry State Com Well # 1H API # 30-025-43179 in Lea County / Parish New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Vaughn Energy Services

A handwritten signature in blue ink, appearing to read "Adam Askew", is written over a horizontal line.

Adam Askew  
Service Technician  
Vaughn Energy Services



## COG Production L L C

Lea County, NM (NAD27 NME)

Sec. 27, T 21S. , R 33 E

Raspberry State Com 1H

Wellbore #2

Design: Wellbore #2

## Survey Report - Geographic

01 July, 2016

HOBBS OCD  
NOV 09 2016  
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Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                        |
|-----------|----------------------------|------------------------------|----------------------------------------|
| Company:  | COG Production L L C       | Local Co-ordinate Reference: | Well Raspberry State Com 1H            |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=27' @ 3736.00ft (Scandriil Freedom) |
| Site:     | Sec. 27, T 21S. , R 33 E   | MD Reference:                | KB=27' @ 3736.00ft (Scandriil Freedom) |
| Well:     | Raspberry State Com 1H     | North Reference:             | Grid                                   |
| Wellbore: | Wellbore #2                | Survey Calculation Method:   | Minimum Curvature                      |
| Design:   | Wellbore #2                | Database:                    | EDM 5000.1 Multi User Db               |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project     | Lea County, NM (NAD27 NME)           |               |                |
| 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                  | Sec. 27, T 21S. , R 33 E |              |                 |                   |                  |
| Site Position:        |                          | Northing:    | 525,881.09 usft | Latitude:         | 32° 26' 36.008 N |
| From:                 | Map                      | Easting:     | 741,064.50 usft | Longitude:        | 103° 33' 6.911 W |
| Position Uncertainty: | 5.00 ft                  | Slot Radius: | 13-3/16 "       | Grid Convergence: | 0.42 °           |

| Well                 | Raspberry State Com 1H |         |                     |                 |               |                  |
|----------------------|------------------------|---------|---------------------|-----------------|---------------|------------------|
| Well Position        | +N/-S                  | 0.00 ft | Northing:           | 525,881.10 usfl | Latitude:     | 32° 26' 36.008 N |
|                      | +E/-W                  | 0.00 ft | Easting:            | 741,064.50 usfl | Longitude:    | 103° 33' 6.911 W |
| Position Uncertainty | 5.00 ft                |         | Wellhead Elevation: | 0.00 ft         | Ground Level: | 3,709.00 ft      |

|           |             |             |                 |               |                     |
|-----------|-------------|-------------|-----------------|---------------|---------------------|
| Wellbore  | Wellbore #2 |             |                 |               |                     |
| Magnetics | Model Name  | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|           | IGRF2015    | 6/24/2016   | 7.07            | 60.28         | 48,170              |

|                   |                       |            |            |               |          |
|-------------------|-----------------------|------------|------------|---------------|----------|
| Design            | Wellbore #2           |            |            |               |          |
| Audit Notes:      |                       |            |            |               |          |
| Version:          | 1.0                   | Phase:     | ACTUAL     | Tie On Depth: | 9,783.00 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |          |
|                   | 0.00                  | 0.00       | 0.00       | 358.77        |          |

|                |               |                         |            |                                  |  |
|----------------|---------------|-------------------------|------------|----------------------------------|--|
| Survey Program | Date 7/1/2016 |                         |            |                                  |  |
| From (ft)      | To (ft)       | Survey (Wellbore)       | Tool Name  | Description                      |  |
| 100.00         | 9,783.00      | VES GYROS (Wellbore #1) | NS-GYRO-MS | North sensing gyrocompassing m/s |  |
| 9,834.00       | 21,044.00     | MWD (Wellbore #2)       | MWD        | MWD - Standard                   |  |

|                     |                 |             |                     |            |            |                     |                    |                  |                  |  |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------------|------------------|--|
| Survey              |                 |             |                     |            |            |                     |                    |                  |                  |  |
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude         | Longitude        |  |
| 0.00                | 0.00            | 0.00        | 0.00                | 0.00       | 0.00       | 525,881.10          | 741,064.50         | 32° 26' 36.008 N | 103° 33' 6.911 W |  |
| 100.00              | 0.62            | 10.04       | 100.00              | 0.53       | 0.09       | 525,881.63          | 741,064.59         | 32° 26' 36.014 N | 103° 33' 6.910 W |  |
| 200.00              | 0.72            | 13.22       | 199.99              | 1.68       | 0.33       | 525,882.78          | 741,064.83         | 32° 26' 36.025 N | 103° 33' 6.907 W |  |
| 300.00              | 0.73            | 4.14        | 299.98              | 2.92       | 0.52       | 525,884.03          | 741,065.02         | 32° 26' 36.037 N | 103° 33' 6.905 W |  |
| 400.00              | 0.30            | 0.62        | 399.98              | 3.82       | 0.57       | 525,884.92          | 741,065.07         | 32° 26' 36.046 N | 103° 33' 6.904 W |  |
| 500.00              | 0.06            | 246.89      | 499.98              | 4.06       | 0.53       | 525,885.16          | 741,065.02         | 32° 26' 36.049 N | 103° 33' 6.905 W |  |
| 600.00              | 0.32            | 212.48      | 599.98              | 3.81       | 0.33       | 525,884.91          | 741,064.82         | 32° 26' 36.046 N | 103° 33' 6.907 W |  |
| 700.00              | 0.51            | 189.72      | 699.98              | 3.13       | 0.10       | 525,884.23          | 741,064.60         | 32° 26' 36.039 N | 103° 33' 6.910 W |  |
| 800.00              | 0.73            | 193.43      | 799.97              | 2.07       | -0.12      | 525,883.18          | 741,064.38         | 32° 26' 36.029 N | 103° 33' 6.912 W |  |
| 900.00              | 0.49            | 189.58      | 899.96              | 1.03       | -0.34      | 525,882.13          | 741,064.16         | 32° 26' 36.019 N | 103° 33' 6.915 W |  |
| 1,000.00            | 0.33            | 163.05      | 999.96              | 0.34       | -0.33      | 525,881.44          | 741,064.17         | 32° 26' 36.012 N | 103° 33' 6.915 W |  |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                       |
|-----------|----------------------------|------------------------------|---------------------------------------|
| Company:  | COG Production L L C       | Local Co-ordinate Reference: | Well Raspberry State Com 1H           |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=27' @ 3736.00ft (Scandril Freedom) |
| Site:     | Sec. 27, T 21S. , R 33 E   | MD Reference:                | KB=27' @ 3736.00ft (Scandril Freedom) |
| Well:     | Raspberry State Com 1H     | North Reference:             | Grid                                  |
| Wellbore: | Wellbore #2                | Survey Calculation Method:   | Minimum Curvature                     |
| Design:   | Wellbore #2                | 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        |
| 1,100.00            | 0.29            | 168.69      | 1,099.96            | -0.19      | -0.19      | 525,880.91          | 741,064.30         | 32° 26' 36.007 N | 103° 33' 6.913 W |
| 1,200.00            | 0.40            | 184.60      | 1,199.96            | -0.78      | -0.17      | 525,880.32          | 741,064.32         | 32° 26' 36.001 N | 103° 33' 6.913 W |
| 1,300.00            | 0.59            | 195.06      | 1,299.95            | -1.63      | -0.33      | 525,879.47          | 741,064.16         | 32° 26' 35.992 N | 103° 33' 6.915 W |
| 1,400.00            | 0.46            | 221.84      | 1,399.95            | -2.43      | -0.74      | 525,878.68          | 741,063.76         | 32° 26' 35.984 N | 103° 33' 6.920 W |
| 1,500.00            | 0.31            | 228.28      | 1,499.95            | -2.90      | -1.20      | 525,878.20          | 741,063.29         | 32° 26' 35.980 N | 103° 33' 6.925 W |
| 1,600.00            | 0.37            | 210.06      | 1,599.95            | -3.36      | -1.57      | 525,877.74          | 741,062.93         | 32° 26' 35.975 N | 103° 33' 6.930 W |
| 1,700.00            | 0.35            | 217.56      | 1,699.94            | -3.89      | -1.92      | 525,877.22          | 741,062.58         | 32° 26' 35.970 N | 103° 33' 6.934 W |
| 1,800.00            | 0.53            | 230.04      | 1,799.94            | -4.42      | -2.46      | 525,876.68          | 741,062.04         | 32° 26' 35.965 N | 103° 33' 6.940 W |
| 1,900.00            | 0.36            | 227.52      | 1,899.94            | -4.93      | -3.04      | 525,876.17          | 741,061.45         | 32° 26' 35.960 N | 103° 33' 6.947 W |
| 2,000.00            | 0.32            | 202.22      | 1,999.94            | -5.40      | -3.38      | 525,875.70          | 741,061.12         | 32° 26' 35.955 N | 103° 33' 6.951 W |
| 2,100.00            | 0.42            | 202.66      | 2,099.93            | -6.00      | -3.63      | 525,875.10          | 741,060.87         | 32° 26' 35.949 N | 103° 33' 6.954 W |
| 2,200.00            | 0.42            | 198.95      | 2,199.93            | -6.69      | -3.89      | 525,874.42          | 741,060.61         | 32° 26' 35.943 N | 103° 33' 6.957 W |
| 2,300.00            | 0.56            | 218.02      | 2,299.93            | -7.42      | -4.31      | 525,873.68          | 741,060.19         | 32° 26' 35.935 N | 103° 33' 6.962 W |
| 2,400.00            | 0.39            | 202.22      | 2,399.92            | -8.12      | -4.74      | 525,872.98          | 741,059.76         | 32° 26' 35.928 N | 103° 33' 6.967 W |
| 2,500.00            | 0.26            | 209.92      | 2,499.92            | -8.63      | -4.98      | 525,872.47          | 741,059.52         | 32° 26' 35.923 N | 103° 33' 6.970 W |
| 2,600.00            | 0.21            | 173.91      | 2,599.92            | -9.01      | -5.07      | 525,872.09          | 741,059.42         | 32° 26' 35.920 N | 103° 33' 6.971 W |
| 2,700.00            | 0.43            | 119.19      | 2,699.92            | -9.37      | -4.73      | 525,871.73          | 741,059.77         | 32° 26' 35.916 N | 103° 33' 6.967 W |
| 2,800.00            | 0.73            | 94.17       | 2,799.92            | -9.60      | -3.76      | 525,871.50          | 741,060.73         | 32° 26' 35.914 N | 103° 33' 6.956 W |
| 2,900.00            | 0.74            | 83.44       | 2,899.91            | -9.58      | -2.49      | 525,871.53          | 741,062.01         | 32° 26' 35.914 N | 103° 33' 6.941 W |
| 3,000.00            | 0.85            | 78.71       | 2,999.90            | -9.36      | -1.12      | 525,871.75          | 741,063.38         | 32° 26' 35.916 N | 103° 33' 6.925 W |
| 3,100.00            | 0.70            | 66.35       | 3,099.89            | -8.97      | 0.17       | 525,872.14          | 741,064.67         | 32° 26' 35.920 N | 103° 33' 6.910 W |
| 3,200.00            | 0.79            | 77.95       | 3,199.88            | -8.58      | 1.40       | 525,872.52          | 741,065.90         | 32° 26' 35.923 N | 103° 33' 6.896 W |
| 3,300.00            | 0.41            | 115.56      | 3,299.87            | -8.59      | 2.40       | 525,872.51          | 741,066.90         | 32° 26' 35.923 N | 103° 33' 6.884 W |
| 3,400.00            | 0.35            | 134.58      | 3,399.87            | -8.96      | 2.94       | 525,872.15          | 741,067.44         | 32° 26' 35.920 N | 103° 33' 6.878 W |
| 3,500.00            | 0.34            | 125.94      | 3,499.87            | -9.35      | 3.40       | 525,871.76          | 741,067.89         | 32° 26' 35.916 N | 103° 33' 6.872 W |
| 3,600.00            | 0.63            | 116.96      | 3,599.87            | -9.77      | 4.13       | 525,871.33          | 741,068.63         | 32° 26' 35.911 N | 103° 33' 6.864 W |
| 3,700.00            | 0.69            | 110.43      | 3,699.86            | -10.23     | 5.18       | 525,870.87          | 741,069.68         | 32° 26' 35.907 N | 103° 33' 6.852 W |
| 3,800.00            | 0.88            | 120.61      | 3,799.85            | -10.83     | 6.41       | 525,870.27          | 741,070.90         | 32° 26' 35.901 N | 103° 33' 6.837 W |
| 3,900.00            | 0.74            | 116.35      | 3,899.84            | -11.51     | 7.65       | 525,869.59          | 741,072.14         | 32° 26' 35.894 N | 103° 33' 6.823 W |
| 4,000.00            | 0.61            | 115.00      | 3,999.83            | -12.02     | 8.71       | 525,869.08          | 741,073.21         | 32° 26' 35.889 N | 103° 33' 6.811 W |
| 4,100.00            | 0.80            | 113.32      | 4,099.83            | -12.52     | 9.83       | 525,868.58          | 741,074.33         | 32° 26' 35.884 N | 103° 33' 6.798 W |
| 4,200.00            | 1.28            | 103.72      | 4,199.81            | -13.06     | 11.56      | 525,868.04          | 741,076.05         | 32° 26' 35.878 N | 103° 33' 6.777 W |
| 4,300.00            | 1.21            | 147.48      | 4,299.79            | -14.22     | 13.21      | 525,866.89          | 741,077.71         | 32° 26' 35.867 N | 103° 33' 6.758 W |
| 4,400.00            | 1.34            | 190.24      | 4,399.77            | -16.26     | 13.57      | 525,864.84          | 741,078.07         | 32° 26' 35.847 N | 103° 33' 6.754 W |
| 4,500.00            | 0.92            | 236.04      | 4,499.75            | -17.86     | 12.70      | 525,863.25          | 741,077.19         | 32° 26' 35.831 N | 103° 33' 6.765 W |
| 4,600.00            | 1.23            | 276.57      | 4,599.73            | -18.18     | 10.96      | 525,862.92          | 741,075.46         | 32° 26' 35.828 N | 103° 33' 6.785 W |
| 4,700.00            | 1.50            | 247.77      | 4,699.70            | -18.55     | 8.69       | 525,862.55          | 741,073.18         | 32° 26' 35.824 N | 103° 33' 6.811 W |
| 4,800.00            | 1.87            | 217.78      | 4,799.66            | -20.34     | 6.48       | 525,860.76          | 741,070.97         | 32° 26' 35.807 N | 103° 33' 6.837 W |
| 4,900.00            | 1.04            | 195.82      | 4,899.63            | -22.50     | 5.23       | 525,858.60          | 741,069.73         | 32° 26' 35.785 N | 103° 33' 6.852 W |
| 5,000.00            | 1.77            | 167.63      | 4,999.60            | -24.88     | 5.31       | 525,856.22          | 741,069.81         | 32° 26' 35.762 N | 103° 33' 6.851 W |
| 5,100.00            | 0.39            | 159.79      | 5,099.58            | -26.71     | 5.76       | 525,854.39          | 741,070.26         | 32° 26' 35.744 N | 103° 33' 6.846 W |
| 5,200.00            | 0.54            | 163.39      | 5,199.58            | -27.48     | 6.01       | 525,853.62          | 741,070.51         | 32° 26' 35.736 N | 103° 33' 6.843 W |
| 5,300.00            | 0.76            | 163.07      | 5,299.57            | -28.57     | 6.34       | 525,852.53          | 741,070.84         | 32° 26' 35.725 N | 103° 33' 6.840 W |
| 5,400.00            | 0.66            | 163.67      | 5,399.56            | -29.76     | 6.70       | 525,851.35          | 741,071.19         | 32° 26' 35.713 N | 103° 33' 6.836 W |
| 5,500.00            | 0.72            | 158.39      | 5,499.56            | -30.89     | 7.09       | 525,850.21          | 741,071.59         | 32° 26' 35.702 N | 103° 33' 6.831 W |
| 5,600.00            | 0.67            | 165.94      | 5,599.55            | -32.04     | 7.46       | 525,849.06          | 741,071.96         | 32° 26' 35.691 N | 103° 33' 6.827 W |
| 5,700.00            | 0.86            | 176.65      | 5,699.54            | -33.36     | 7.65       | 525,847.74          | 741,072.15         | 32° 26' 35.678 N | 103° 33' 6.825 W |
| 5,800.00            | 0.93            | 178.83      | 5,799.53            | -34.92     | 7.71       | 525,846.18          | 741,072.21         | 32° 26' 35.662 N | 103° 33' 6.824 W |
| 5,900.00            | 0.82            | 203.76      | 5,899.52            | -36.39     | 7.44       | 525,844.71          | 741,071.93         | 32° 26' 35.648 N | 103° 33' 6.828 W |
| 6,000.00            | 0.84            | 211.45      | 5,999.51            | -37.67     | 6.77       | 525,843.43          | 741,071.26         | 32° 26' 35.635 N | 103° 33' 6.835 W |
| 6,100.00            | 1.07            | 211.01      | 6,099.49            | -39.09     | 5.90       | 525,842.01          | 741,070.40         | 32° 26' 35.621 N | 103° 33' 6.846 W |
| 6,200.00            | 1.08            | 216.78      | 6,199.47            | -40.65     | 4.86       | 525,840.45          | 741,069.35         | 32° 26' 35.606 N | 103° 33' 6.858 W |
| 6,300.00            | 1.05            | 211.21      | 6,299.46            | -42.19     | 3.82       | 525,838.92          | 741,068.32         | 32° 26' 35.591 N | 103° 33' 6.870 W |
| 6,400.00            | 0.90            | 224.65      | 6,399.44            | -43.53     | 2.79       | 525,837.57          | 741,067.29         | 32° 26' 35.577 N | 103° 33' 6.882 W |
| 6,500.00            | 0.75            | 224.95      | 6,499.43            | -44.55     | 1.78       | 525,836.55          | 741,066.27         | 32° 26' 35.567 N | 103° 33' 6.894 W |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                       |
|-----------|----------------------------|------------------------------|---------------------------------------|
| Company:  | COG Production L L C       | Local Co-ordinate Reference: | Well Raspberry State Com 1H           |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=27' @ 3736.00ft (Scandril Freedom) |
| Site:     | Sec. 27, T 21S. , R 33 E   | MD Reference:                | KB=27' @ 3736.00ft (Scandril Freedom) |
| Well:     | Raspberry State Com 1H     | North Reference:             | Grid                                  |
| Wellbore: | Wellbore #2                | Survey Calculation Method:   | Minimum Curvature                     |
| Design:   | Wellbore #2                | Database:                    | EDM 5000.1 Multi User Db              |

| Survey                    |                    |                |                           |               |               |                           |                          |                  |                  |  |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|---------------------------|--------------------------|------------------|------------------|--|
| Measured<br>Depth<br>(ft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Map<br>Northing<br>(usft) | Map<br>Easting<br>(usft) | Latitude         | Longitude        |  |
| 6,600.00                  | 0.65               | 230.62         | 6,599.42                  | -45.37        | 0.88          | 525,835.73                | 741,065.37               | 32° 26' 35.559 N | 103° 33' 6.905 W |  |
| 6,700.00                  | 0.80               | 223.19         | 6,699.42                  | -46.24        | -0.04         | 525,834.86                | 741,064.46               | 32° 26' 35.551 N | 103° 33' 6.916 W |  |
| 6,800.00                  | 0.89               | 234.11         | 6,799.41                  | -47.21        | -1.15         | 525,833.89                | 741,063.35               | 32° 26' 35.541 N | 103° 33' 6.929 W |  |
| 6,900.00                  | 0.83               | 229.66         | 6,899.39                  | -48.13        | -2.33         | 525,832.97                | 741,062.17               | 32° 26' 35.532 N | 103° 33' 6.942 W |  |
| 7,000.00                  | 0.65               | 221.01         | 6,999.39                  | -49.03        | -3.25         | 525,832.07                | 741,061.24               | 32° 26' 35.523 N | 103° 33' 6.953 W |  |
| 7,100.00                  | 0.68               | 206.80         | 7,099.38                  | -49.99        | -3.89         | 525,831.12                | 741,060.60               | 32° 26' 35.514 N | 103° 33' 6.961 W |  |
| 7,200.00                  | 1.03               | 205.66         | 7,199.37                  | -51.33        | -4.55         | 525,829.78                | 741,059.95               | 32° 26' 35.501 N | 103° 33' 6.969 W |  |
| 7,300.00                  | 0.99               | 180.77         | 7,299.35                  | -53.00        | -4.95         | 525,828.10                | 741,059.55               | 32° 26' 35.484 N | 103° 33' 6.973 W |  |
| 7,400.00                  | 1.16               | 203.07         | 7,399.34                  | -54.79        | -5.36         | 525,826.31                | 741,059.14               | 32° 26' 35.467 N | 103° 33' 6.978 W |  |
| 7,500.00                  | 1.11               | 195.68         | 7,499.32                  | -56.66        | -6.02         | 525,824.44                | 741,058.48               | 32° 26' 35.448 N | 103° 33' 6.986 W |  |
| 7,600.00                  | 1.15               | 187.94         | 7,599.30                  | -58.58        | -6.42         | 525,822.52                | 741,058.08               | 32° 26' 35.429 N | 103° 33' 6.991 W |  |
| 7,700.00                  | 1.21               | 186.50         | 7,699.28                  | -60.63        | -6.67         | 525,820.47                | 741,057.82               | 32° 26' 35.409 N | 103° 33' 6.994 W |  |
| 7,800.00                  | 1.30               | 200.46         | 7,799.25                  | -62.74        | -7.19         | 525,818.36                | 741,057.31               | 32° 26' 35.388 N | 103° 33' 7.000 W |  |
| 7,900.00                  | 1.41               | 184.00         | 7,899.22                  | -65.03        | -7.67         | 525,816.07                | 741,056.82               | 32° 26' 35.365 N | 103° 33' 7.006 W |  |
| 8,000.00                  | 1.05               | 210.24         | 7,999.20                  | -67.05        | -8.22         | 525,814.05                | 741,056.28               | 32° 26' 35.346 N | 103° 33' 7.013 W |  |
| 8,100.00                  | 0.90               | 207.57         | 8,099.19                  | -68.54        | -9.04         | 525,812.57                | 741,055.45               | 32° 26' 35.331 N | 103° 33' 7.023 W |  |
| 8,200.00                  | 1.12               | 203.34         | 8,199.17                  | -70.13        | -9.80         | 525,810.97                | 741,054.70               | 32° 26' 35.315 N | 103° 33' 7.031 W |  |
| 8,300.00                  | 1.13               | 211.41         | 8,299.15                  | -71.87        | -10.70        | 525,809.23                | 741,053.80               | 32° 26' 35.298 N | 103° 33' 7.042 W |  |
| 8,400.00                  | 1.24               | 204.73         | 8,399.13                  | -73.69        | -11.66        | 525,807.41                | 741,052.83               | 32° 26' 35.280 N | 103° 33' 7.054 W |  |
| 8,500.00                  | 1.00               | 193.90         | 8,499.11                  | -75.52        | -12.33        | 525,805.58                | 741,052.17               | 32° 26' 35.262 N | 103° 33' 7.061 W |  |
| 8,600.00                  | 0.92               | 190.23         | 8,599.10                  | -77.16        | -12.68        | 525,803.94                | 741,051.82               | 32° 26' 35.246 N | 103° 33' 7.066 W |  |
| 8,700.00                  | 1.16               | 191.94         | 8,699.08                  | -78.94        | -13.03        | 525,802.16                | 741,051.47               | 32° 26' 35.228 N | 103° 33' 7.070 W |  |
| 8,800.00                  | 1.48               | 202.71         | 8,799.06                  | -81.12        | -13.74        | 525,799.98                | 741,050.76               | 32° 26' 35.207 N | 103° 33' 7.078 W |  |
| 8,900.00                  | 1.49               | 193.68         | 8,899.02                  | -83.58        | -14.54        | 525,797.53                | 741,049.95               | 32° 26' 35.182 N | 103° 33' 7.088 W |  |
| 9,000.00                  | 1.22               | 210.76         | 8,998.99                  | -85.75        | -15.40        | 525,795.35                | 741,049.10               | 32° 26' 35.161 N | 103° 33' 7.098 W |  |
| 9,100.00                  | 1.04               | 222.73         | 9,098.98                  | -87.34        | -16.56        | 525,793.77                | 741,047.94               | 32° 26' 35.145 N | 103° 33' 7.112 W |  |
| 9,200.00                  | 1.09               | 227.78         | 9,198.96                  | -88.64        | -17.88        | 525,792.46                | 741,046.62               | 32° 26' 35.133 N | 103° 33' 7.127 W |  |
| 9,300.00                  | 1.16               | 241.75         | 9,298.94                  | -89.76        | -19.47        | 525,791.34                | 741,045.02               | 32° 26' 35.122 N | 103° 33' 7.146 W |  |
| 9,400.00                  | 1.03               | 239.45         | 9,398.92                  | -90.70        | -21.14        | 525,790.41                | 741,043.36               | 32° 26' 35.112 N | 103° 33' 7.166 W |  |
| 9,500.00                  | 1.09               | 184.43         | 9,498.91                  | -92.10        | -21.99        | 525,789.00                | 741,042.51               | 32° 26' 35.099 N | 103° 33' 7.176 W |  |
| 9,600.00                  | 1.61               | 160.46         | 9,598.88                  | -94.37        | -21.59        | 525,786.73                | 741,042.91               | 32° 26' 35.076 N | 103° 33' 7.171 W |  |
| 9,700.00                  | 2.07               | 144.38         | 9,698.83                  | -97.17        | -20.07        | 525,783.94                | 741,044.43               | 32° 26' 35.048 N | 103° 33' 7.154 W |  |
| 9,783.00                  | 2.28               | 132.76         | 9,781.77                  | -99.51        | -17.98        | 525,781.60                | 741,046.51               | 32° 26' 35.025 N | 103° 33' 7.129 W |  |
| 9,834.00                  | 1.50               | 129.40         | 9,832.74                  | -100.62       | -16.72        | 525,780.48                | 741,047.78               | 32° 26' 35.014 N | 103° 33' 7.115 W |  |
| First IDS MWD Survey      |                    |                |                           |               |               |                           |                          |                  |                  |  |
| 9,928.00                  | 0.40               | 22.80          | 9,926.73                  | -101.10       | -15.64        | 525,780.01                | 741,048.85               | 32° 26' 35.009 N | 103° 33' 7.102 W |  |
| 10,021.00                 | 0.40               | 19.10          | 10,019.73                 | -100.49       | -15.41        | 525,780.61                | 741,049.09               | 32° 26' 35.015 N | 103° 33' 7.100 W |  |
| 10,115.00                 | 0.50               | 22.70          | 10,113.72                 | -99.80        | -15.15        | 525,781.30                | 741,049.35               | 32° 26' 35.022 N | 103° 33' 7.096 W |  |
| 10,208.00                 | 0.50               | 2.50           | 10,206.72                 | -99.02        | -14.97        | 525,782.08                | 741,049.52               | 32° 26' 35.030 N | 103° 33' 7.094 W |  |
| 10,302.00                 | 0.60               | 343.50         | 10,300.72                 | -98.14        | -15.09        | 525,782.96                | 741,049.40               | 32° 26' 35.038 N | 103° 33' 7.096 W |  |
| 10,395.00                 | 0.20               | 315.70         | 10,393.71                 | -97.56        | -15.35        | 525,783.54                | 741,049.15               | 32° 26' 35.044 N | 103° 33' 7.099 W |  |
| 10,466.00                 | 1.60               | 334.70         | 10,464.70                 | -96.57        | -15.86        | 525,784.53                | 741,048.64               | 32° 26' 35.054 N | 103° 33' 7.104 W |  |
| 10,497.00                 | 5.20               | 339.40         | 10,495.64                 | -94.87        | -16.53        | 525,786.24                | 741,047.96               | 32° 26' 35.071 N | 103° 33' 7.112 W |  |
| 10,559.00                 | 10.90              | 349.30         | 10,557.01                 | -86.47        | -18.61        | 525,794.63                | 741,045.88               | 32° 26' 35.154 N | 103° 33' 7.136 W |  |
| 10,606.00                 | 16.10              | 354.90         | 10,602.70                 | -75.60        | -20.02        | 525,805.50                | 741,044.48               | 32° 26' 35.262 N | 103° 33' 7.151 W |  |
| 10,653.00                 | 21.80              | 349.20         | 10,647.14                 | -60.53        | -22.24        | 525,820.58                | 741,042.26               | 32° 26' 35.411 N | 103° 33' 7.176 W |  |
| 10,700.00                 | 26.60              | 346.00         | 10,689.99                 | -41.73        | -26.42        | 525,839.37                | 741,038.08               | 32° 26' 35.597 N | 103° 33' 7.223 W |  |
| 10,747.00                 | 31.30              | 346.70         | 10,731.11                 | -19.63        | -31.78        | 525,861.47                | 741,032.72               | 32° 26' 35.816 N | 103° 33' 7.284 W |  |
| 10,794.00                 | 37.10              | 348.30         | 10,769.97                 | 6.16          | -37.46        | 525,887.26                | 741,027.03               | 32° 26' 36.072 N | 103° 33' 7.348 W |  |
| 10,840.00                 | 41.30              | 349.20         | 10,805.61                 | 34.67         | -43.12        | 525,915.77                | 741,021.37               | 32° 26' 36.355 N | 103° 33' 7.411 W |  |
| 10,887.00                 | 47.20              | 346.80         | 10,839.26                 | 66.72         | -49.98        | 525,947.82                | 741,014.52               | 32° 26' 36.672 N | 103° 33' 7.489 W |  |
| 10,934.00                 | 51.80              | 344.50         | 10,869.78                 | 101.32        | -58.85        | 525,982.43                | 741,005.64               | 32° 26' 37.015 N | 103° 33' 7.589 W |  |
| 10,981.00                 | 58.60              | 343.60         | 10,896.59                 | 138.41        | -69.46        | 526,019.51                | 740,995.03               | 32° 26' 37.383 N | 103° 33' 7.710 W |  |
| 11,028.00                 | 65.00              | 344.70         | 10,918.79                 | 178.23        | -80.76        | 526,059.34                | 740,983.74               | 32° 26' 37.778 N | 103° 33' 7.838 W |  |
| 11,075.00                 | 71.10              | 345.50         | 10,936.35                 | 220.34        | -91.96        | 526,101.44                | 740,972.54               | 32° 26' 38.195 N | 103° 33' 7.965 W |  |



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                       |
|-----------|----------------------------|------------------------------|---------------------------------------|
| Company:  | COG Production L L C       | Local Co-ordinate Reference: | Well Raspberry State Com 1H           |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=27' @ 3736.00ft (Scandril Freedom) |
| Site:     | Sec. 27, T 21S. , R 33 E   | MD Reference:                | KB=27' @ 3736.00ft (Scandril Freedom) |
| Well:     | Raspberry State Com 1H     | North Reference:             | Grid                                  |
| Wellbore: | Wellbore #2                | Survey Calculation Method:   | Minimum Curvature                     |
| Design:   | Wellbore #2                | 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        |
| 11,121.00           | 77.80           | 346.50      | 10,948.67           | 263.32     | -102.67    | 526,144.42          | 740,961.83         | 32° 26' 38.621 N | 103° 33' 8.087 W |
| 11,155.00           | 82.90           | 347.30      | 10,954.37           | 295.96     | -110.26    | 526,177.06          | 740,954.24         | 32° 26' 38.945 N | 103° 33' 8.172 W |
| 11,248.00           | 89.10           | 350.30      | 10,960.85           | 386.91     | -128.26    | 526,268.01          | 740,936.24         | 32° 26' 39.846 N | 103° 33' 8.375 W |
| 11,341.00           | 90.60           | 349.40      | 10,961.10           | 478.45     | -144.65    | 526,359.55          | 740,919.85         | 32° 26' 40.753 N | 103° 33' 8.558 W |
| 11,435.00           | 91.50           | 349.90      | 10,959.38           | 570.90     | -161.53    | 526,452.00          | 740,902.96         | 32° 26' 41.669 N | 103° 33' 8.747 W |
| 11,529.00           | 87.20           | 354.10      | 10,960.44           | 663.94     | -174.61    | 526,545.04          | 740,889.89         | 32° 26' 42.591 N | 103° 33' 8.892 W |
| 11,623.00           | 86.30           | 358.10      | 10,965.77           | 757.55     | -180.99    | 526,638.65          | 740,883.50         | 32° 26' 43.518 N | 103° 33' 8.958 W |
| 11,716.00           | 88.70           | 0.30        | 10,969.83           | 850.44     | -182.29    | 526,731.54          | 740,882.21         | 32° 26' 44.437 N | 103° 33' 8.966 W |
| 11,810.00           | 91.40           | 359.70      | 10,969.75           | 944.43     | -182.29    | 526,825.53          | 740,882.21         | 32° 26' 45.367 N | 103° 33' 8.958 W |
| 11,903.00           | 92.40           | 359.90      | 10,966.66           | 1,037.38   | -182.61    | 526,918.48          | 740,881.88         | 32° 26' 46.287 N | 103° 33' 8.953 W |
| 11,997.00           | 90.00           | 359.60      | 10,964.70           | 1,131.35   | -183.02    | 527,012.45          | 740,881.47         | 32° 26' 47.216 N | 103° 33' 8.950 W |
| 12,090.00           | 90.20           | 359.50      | 10,964.53           | 1,224.35   | -183.75    | 527,105.45          | 740,880.74         | 32° 26' 48.137 N | 103° 33' 8.951 W |
| 12,184.00           | 90.90           | 359.40      | 10,963.63           | 1,318.34   | -184.65    | 527,199.44          | 740,879.84         | 32° 26' 49.067 N | 103° 33' 8.953 W |
| 12,277.00           | 91.10           | 359.50      | 10,962.01           | 1,411.32   | -185.55    | 527,292.42          | 740,878.95         | 32° 26' 49.987 N | 103° 33' 8.956 W |
| 12,371.00           | 92.00           | 359.40      | 10,959.47           | 1,505.28   | -186.45    | 527,386.38          | 740,878.05         | 32° 26' 50.917 N | 103° 33' 8.958 W |
| 12,465.00           | 92.70           | 359.20      | 10,955.61           | 1,599.19   | -187.60    | 527,480.29          | 740,876.90         | 32° 26' 51.846 N | 103° 33' 8.964 W |
| 12,558.00           | 91.00           | 359.20      | 10,952.61           | 1,692.13   | -188.89    | 527,573.23          | 740,875.60         | 32° 26' 52.766 N | 103° 33' 8.971 W |
| 12,652.00           | 89.20           | 0.10        | 10,952.45           | 1,786.13   | -189.47    | 527,667.22          | 740,875.03         | 32° 26' 53.696 N | 103° 33' 8.970 W |
| 12,745.00           | 90.00           | 359.60      | 10,953.09           | 1,879.12   | -189.71    | 527,760.22          | 740,874.78         | 32° 26' 54.616 N | 103° 33' 8.965 W |
| 12,838.00           | 90.50           | 359.80      | 10,952.69           | 1,972.12   | -190.20    | 527,853.22          | 740,874.30         | 32° 26' 55.536 N | 103° 33' 8.962 W |
| 12,932.00           | 92.20           | 359.10      | 10,950.47           | 2,066.08   | -191.10    | 527,947.18          | 740,873.40         | 32° 26' 56.466 N | 103° 33' 8.965 W |
| 13,025.00           | 89.80           | 358.70      | 10,948.85           | 2,159.05   | -192.89    | 528,040.14          | 740,871.61         | 32° 26' 57.386 N | 103° 33' 8.978 W |
| 13,118.00           | 90.20           | 358.10      | 10,948.85           | 2,252.01   | -195.48    | 528,133.11          | 740,869.01         | 32° 26' 58.306 N | 103° 33' 9.000 W |
| 13,212.00           | 88.20           | 359.50      | 10,950.16           | 2,345.97   | -197.45    | 528,227.07          | 740,867.05         | 32° 26' 59.236 N | 103° 33' 9.015 W |
| 13,305.00           | 88.90           | 358.60      | 10,952.52           | 2,438.93   | -198.99    | 528,320.03          | 740,865.50         | 32° 27' 0.156 N  | 103° 33' 9.025 W |
| 13,398.00           | 87.80           | 359.90      | 10,955.20           | 2,531.88   | -200.21    | 528,412.98          | 740,864.29         | 32° 27' 1.076 N  | 103° 33' 9.031 W |
| 13,492.00           | 88.00           | 359.40      | 10,958.64           | 2,625.81   | -200.78    | 528,506.91          | 740,863.71         | 32° 27' 2.006 N  | 103° 33' 9.030 W |
| 13,585.00           | 89.30           | 0.50        | 10,960.83           | 2,718.78   | -200.86    | 528,599.88          | 740,863.63         | 32° 27' 2.926 N  | 103° 33' 9.023 W |
| 13,678.00           | 90.20           | 359.70      | 10,961.24           | 2,811.78   | -200.70    | 528,692.88          | 740,863.79         | 32° 27' 3.846 N  | 103° 33' 9.013 W |
| 13,772.00           | 91.60           | 0.90        | 10,959.76           | 2,905.76   | -200.21    | 528,786.86          | 740,864.29         | 32° 27' 4.776 N  | 103° 33' 8.999 W |
| 13,866.00           | 92.50           | 0.50        | 10,956.40           | 2,999.70   | -199.06    | 528,880.79          | 740,865.43         | 32° 27' 5.705 N  | 103° 33' 8.978 W |
| 13,960.00           | 91.90           | 1.20        | 10,952.79           | 3,093.62   | -197.67    | 528,974.71          | 740,866.83         | 32° 27' 6.634 N  | 103° 33' 8.954 W |
| 14,054.00           | 92.30           | 0.60        | 10,949.34           | 3,187.54   | -196.19    | 529,068.64          | 740,868.30         | 32° 27' 7.564 N  | 103° 33' 8.928 W |
| 14,147.00           | 88.90           | 0.60        | 10,948.37           | 3,280.52   | -195.22    | 529,161.61          | 740,869.28         | 32° 27' 8.484 N  | 103° 33' 8.909 W |
| 14,241.00           | 89.60           | 359.70      | 10,949.60           | 3,374.51   | -194.97    | 529,255.60          | 740,869.52         | 32° 27' 9.414 N  | 103° 33' 8.898 W |
| 14,334.00           | 90.20           | 359.60      | 10,949.76           | 3,467.50   | -195.54    | 529,348.60          | 740,868.95         | 32° 27' 10.334 N | 103° 33' 8.897 W |
| 14,428.00           | 89.20           | 1.00        | 10,950.26           | 3,561.50   | -195.05    | 529,442.59          | 740,869.45         | 32° 27' 11.264 N | 103° 33' 8.883 W |
| 14,521.00           | 89.80           | 0.80        | 10,951.07           | 3,654.48   | -193.59    | 529,535.58          | 740,870.91         | 32° 27' 12.184 N | 103° 33' 8.858 W |
| 14,615.00           | 90.10           | 0.20        | 10,951.15           | 3,748.48   | -192.77    | 529,629.57          | 740,871.73         | 32° 27' 13.114 N | 103° 33' 8.841 W |
| 14,708.00           | 90.70           | 359.50      | 10,950.50           | 3,841.47   | -193.01    | 529,722.57          | 740,871.48         | 32° 27' 14.034 N | 103° 33' 8.836 W |
| 14,801.00           | 91.20           | 358.80      | 10,948.96           | 3,934.45   | -194.39    | 529,815.54          | 740,870.11         | 32° 27' 14.954 N | 103° 33' 8.844 W |
| 14,895.00           | 91.90           | 358.50      | 10,946.42           | 4,028.39   | -196.61    | 529,909.48          | 740,867.89         | 32° 27' 15.884 N | 103° 33' 8.862 W |
| 14,989.00           | 90.30           | 0.60        | 10,944.61           | 4,122.36   | -197.34    | 530,003.45          | 740,867.15         | 32° 27' 16.814 N | 103° 33' 8.862 W |
| 15,083.00           | 90.90           | 0.10        | 10,943.63           | 4,216.35   | -196.77    | 530,097.45          | 740,867.73         | 32° 27' 17.744 N | 103° 33' 8.847 W |
| 15,177.00           | 91.50           | 359.70      | 10,941.66           | 4,310.33   | -196.93    | 530,191.43          | 740,867.56         | 32° 27' 18.674 N | 103° 33' 8.841 W |
| 15,270.00           | 89.90           | 0.30        | 10,940.52           | 4,403.32   | -196.93    | 530,284.41          | 740,867.56         | 32° 27' 19.594 N | 103° 33' 8.833 W |
| 15,363.00           | 90.00           | 359.70      | 10,940.60           | 4,496.32   | -196.93    | 530,377.41          | 740,867.56         | 32° 27' 20.514 N | 103° 33' 8.825 W |
| 15,457.00           | 88.90           | 1.10        | 10,941.51           | 4,590.31   | -196.28    | 530,471.40          | 740,868.22         | 32° 27' 21.444 N | 103° 33' 8.810 W |
| 15,550.00           | 89.30           | 0.90        | 10,942.97           | 4,683.28   | -194.65    | 530,564.38          | 740,869.84         | 32° 27' 22.364 N | 103° 33' 8.783 W |
| 15,644.00           | 89.90           | 0.70        | 10,943.62           | 4,777.27   | -193.34    | 530,658.37          | 740,871.16         | 32° 27' 23.294 N | 103° 33' 8.760 W |
| 15,738.00           | 90.70           | 0.90        | 10,943.13           | 4,871.26   | -192.03    | 530,752.35          | 740,872.47         | 32° 27' 24.224 N | 103° 33' 8.736 W |
| 15,832.00           | 91.80           | 0.30        | 10,941.08           | 4,965.23   | -191.04    | 530,846.32          | 740,873.45         | 32° 27' 25.154 N | 103° 33' 8.717 W |
| 15,925.00           | 90.00           | 0.30        | 10,939.62           | 5,058.22   | -190.56    | 530,939.31          | 740,873.94         | 32° 27' 26.074 N | 103° 33' 8.703 W |
| 16,018.00           | 90.70           | 0.00        | 10,939.05           | 5,151.21   | -190.31    | 531,032.30          | 740,874.18         | 32° 27' 26.994 N | 103° 33' 8.692 W |
| 16,112.00           | 89.20           | 0.10        | 10,939.13           | 5,245.21   | -190.23    | 531,126.30          | 740,874.26         | 32° 27' 27.924 N | 103° 33' 8.683 W |



# Integrity Directional Services, LLC

## Survey Report - Geographic



|           |                            |                              |                                       |
|-----------|----------------------------|------------------------------|---------------------------------------|
| Company:  | COG Production L L C       | Local Co-ordinate Reference: | Well Raspberry State Com 1H           |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=27' @ 3736.00ft (Scandril Freedom) |
| Site:     | Sec. 27, T 21S. , R 33 E   | MD Reference:                | KB=27' @ 3736.00ft (Scandril Freedom) |
| Well:     | Raspberry State Com 1H     | North Reference:             | Grid                                  |
| Wellbore: | Wellbore #2                | Survey Calculation Method:   | Minimum Curvature                     |
| Design:   | Wellbore #2                | 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        |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------------|------------------|
| 16,205.00           | 89.90           | 359.80      | 10,939.86           | 5,338.21   | -190.31    | 531,219.30          | 740,874.18         | 32° 27' 28.844 N | 103° 33' 8.676 W |
| 16,299.00           | 90.80           | 359.60      | 10,939.29           | 5,432.20   | -190.81    | 531,313.29          | 740,873.69         | 32° 27' 29.774 N | 103° 33' 8.674 W |
| 16,393.00           | 91.40           | 359.30      | 10,937.48           | 5,526.18   | -191.71    | 531,407.27          | 740,872.79         | 32° 27' 30.704 N | 103° 33' 8.677 W |
| 16,483.00           | 89.50           | 359.20      | 10,936.78           | 5,616.17   | -192.89    | 531,497.26          | 740,871.61         | 32° 27' 31.595 N | 103° 33' 8.683 W |
| 16,577.00           | 89.20           | 359.70      | 10,937.84           | 5,710.16   | -193.79    | 531,591.25          | 740,870.71         | 32° 27' 32.525 N | 103° 33' 8.685 W |
| 16,671.00           | 90.60           | 359.60      | 10,938.01           | 5,804.15   | -194.36    | 531,685.24          | 740,870.13         | 32° 27' 33.455 N | 103° 33' 8.684 W |
| 16,764.00           | 89.50           | 0.30        | 10,937.93           | 5,897.15   | -194.44    | 531,778.24          | 740,870.05         | 32° 27' 34.375 N | 103° 33' 8.677 W |
| 16,858.00           | 90.90           | 0.20        | 10,937.60           | 5,991.14   | -194.03    | 531,872.23          | 740,870.46         | 32° 27' 35.305 N | 103° 33' 8.664 W |
| 16,950.00           | 92.30           | 359.70      | 10,935.03           | 6,083.11   | -194.11    | 531,964.20          | 740,870.38         | 32° 27' 36.215 N | 103° 33' 8.657 W |
| 17,043.00           | 90.80           | 0.10        | 10,932.51           | 6,176.07   | -194.28    | 532,057.16          | 740,870.22         | 32° 27' 37.135 N | 103° 33' 8.651 W |
| 17,137.00           | 88.50           | 0.50        | 10,933.09           | 6,270.06   | -193.78    | 532,151.15          | 740,870.71         | 32° 27' 38.065 N | 103° 33' 8.637 W |
| 17,230.00           | 90.00           | 359.70      | 10,934.31           | 6,363.05   | -193.62    | 532,244.14          | 740,870.88         | 32° 27' 38.985 N | 103° 33' 8.627 W |
| 17,323.00           | 91.40           | 358.80      | 10,933.17           | 6,456.03   | -194.84    | 532,337.12          | 740,869.66         | 32° 27' 39.905 N | 103° 33' 8.634 W |
| 17,417.00           | 90.40           | 359.80      | 10,931.69           | 6,550.01   | -195.99    | 532,431.10          | 740,868.51         | 32° 27' 40.835 N | 103° 33' 8.639 W |
| 17,511.00           | 91.70           | 359.10      | 10,929.97           | 6,643.99   | -196.89    | 532,525.07          | 740,867.61         | 32° 27' 41.765 N | 103° 33' 8.642 W |
| 17,605.00           | 89.90           | 359.60      | 10,928.66           | 6,737.97   | -197.95    | 532,619.06          | 740,866.54         | 32° 27' 42.695 N | 103° 33' 8.646 W |
| 17,698.00           | 88.40           | 0.40        | 10,930.04           | 6,830.95   | -197.95    | 532,712.04          | 740,866.54         | 32° 27' 43.616 N | 103° 33' 8.638 W |
| 17,791.00           | 88.80           | 359.70      | 10,932.31           | 6,923.92   | -197.87    | 532,805.01          | 740,866.62         | 32° 27' 44.535 N | 103° 33' 8.629 W |
| 17,885.00           | 88.70           | 359.10      | 10,934.36           | 7,017.90   | -198.86    | 532,898.98          | 740,865.64         | 32° 27' 45.465 N | 103° 33' 8.633 W |
| 17,979.00           | 87.90           | 358.10      | 10,937.15           | 7,111.83   | -201.15    | 532,992.91          | 740,863.34         | 32° 27' 46.395 N | 103° 33' 8.651 W |
| 18,045.00           | 86.30           | 358.40      | 10,940.49           | 7,177.71   | -203.17    | 533,058.80          | 740,861.33         | 32° 27' 47.047 N | 103° 33' 8.669 W |
| 18,073.00           | 85.70           | 0.20        | 10,942.44           | 7,205.64   | -203.51    | 533,086.72          | 740,860.99         | 32° 27' 47.323 N | 103° 33' 8.671 W |
| 18,166.00           | 90.10           | 1.30        | 10,945.85           | 7,298.54   | -202.29    | 533,179.63          | 740,862.21         | 32° 27' 48.243 N | 103° 33' 8.649 W |
| 18,259.00           | 92.50           | 1.40        | 10,943.74           | 7,391.49   | -200.10    | 533,272.57          | 740,864.40         | 32° 27' 49.162 N | 103° 33' 8.615 W |
| 18,353.00           | 94.20           | 0.60        | 10,938.25           | 7,485.31   | -198.46    | 533,366.39          | 740,866.04         | 32° 27' 50.090 N | 103° 33' 8.588 W |
| 18,447.00           | 93.20           | 0.50        | 10,932.18           | 7,579.10   | -197.56    | 533,460.19          | 740,866.94         | 32° 27' 51.018 N | 103° 33' 8.570 W |
| 18,540.00           | 92.10           | 359.60      | 10,927.88           | 7,672.00   | -197.48    | 533,553.09          | 740,867.02         | 32° 27' 51.938 N | 103° 33' 8.561 W |
| 18,634.00           | 90.20           | 359.10      | 10,925.99           | 7,765.97   | -198.55    | 533,647.06          | 740,865.95         | 32° 27' 52.868 N | 103° 33' 8.565 W |
| 18,728.00           | 90.00           | 358.10      | 10,925.83           | 7,859.94   | -200.84    | 533,741.03          | 740,863.65         | 32° 27' 53.798 N | 103° 33' 8.584 W |
| 18,822.00           | 88.50           | 358.60      | 10,927.06           | 7,953.89   | -203.55    | 533,834.98          | 740,860.95         | 32° 27' 54.727 N | 103° 33' 8.607 W |
| 18,915.00           | 90.10           | 358.00      | 10,928.20           | 8,046.84   | -206.31    | 533,927.93          | 740,858.19         | 32° 27' 55.647 N | 103° 33' 8.632 W |
| 19,009.00           | 88.20           | 359.10      | 10,929.59           | 8,140.80   | -208.69    | 534,021.88          | 740,855.81         | 32° 27' 56.577 N | 103° 33' 8.651 W |
| 19,102.00           | 90.30           | 358.80      | 10,930.81           | 8,233.77   | -210.39    | 534,114.85          | 740,854.11         | 32° 27' 57.497 N | 103° 33' 8.663 W |
| 19,197.00           | 88.60           | 358.80      | 10,931.72           | 8,328.74   | -212.38    | 534,209.82          | 740,852.12         | 32° 27' 58.437 N | 103° 33' 8.678 W |
| 19,291.00           | 90.20           | 358.30      | 10,932.70           | 8,422.70   | -214.76    | 534,303.78          | 740,849.74         | 32° 27' 59.367 N | 103° 33' 8.698 W |
| 19,385.00           | 92.00           | 358.10      | 10,930.90           | 8,516.63   | -217.71    | 534,397.72          | 740,846.79         | 32° 28' 0.297 N  | 103° 33' 8.725 W |
| 19,478.00           | 90.30           | 358.80      | 10,929.03           | 8,609.58   | -220.23    | 534,490.66          | 740,844.27         | 32° 28' 1.217 N  | 103° 33' 8.746 W |
| 19,573.00           | 88.50           | 0.80        | 10,930.03           | 8,704.56   | -220.56    | 534,585.65          | 740,843.94         | 32° 28' 2.157 N  | 103° 33' 8.742 W |
| 19,667.00           | 90.40           | 0.40        | 10,930.93           | 8,798.55   | -219.57    | 534,679.63          | 740,844.92         | 32° 28' 3.087 N  | 103° 33' 8.722 W |
| 19,760.00           | 91.40           | 0.10        | 10,929.47           | 8,891.53   | -219.17    | 534,772.62          | 740,845.33         | 32° 28' 4.007 N  | 103° 33' 8.710 W |
| 19,854.00           | 90.00           | 358.70      | 10,928.32           | 8,985.52   | -220.15    | 534,866.60          | 740,844.35         | 32° 28' 4.937 N  | 103° 33' 8.713 W |
| 19,948.00           | 90.10           | 358.70      | 10,928.24           | 9,079.49   | -222.28    | 534,960.58          | 740,842.21         | 32° 28' 5.867 N  | 103° 33' 8.730 W |
| 20,042.00           | 88.10           | 0.80        | 10,929.72           | 9,173.47   | -222.70    | 535,054.55          | 740,841.80         | 32° 28' 6.797 N  | 103° 33' 8.727 W |
| 20,136.00           | 90.30           | 0.30        | 10,931.03           | 9,267.45   | -221.79    | 535,148.53          | 740,842.70         | 32° 28' 7.727 N  | 103° 33' 8.708 W |
| 20,229.00           | 92.40           | 0.20        | 10,928.84           | 9,360.42   | -221.39    | 535,241.50          | 740,843.11         | 32° 28' 8.646 N  | 103° 33' 8.695 W |
| 20,323.00           | 90.70           | 0.70        | 10,926.29           | 9,454.38   | -220.65    | 535,335.46          | 740,843.85         | 32° 28' 9.576 N  | 103° 33' 8.679 W |
| 20,417.00           | 92.90           | 0.30        | 10,923.34           | 9,548.32   | -219.83    | 535,429.40          | 740,844.67         | 32° 28' 10.506 N | 103° 33' 8.661 W |
| 20,510.00           | 91.40           | 1.10        | 10,919.85           | 9,641.25   | -218.69    | 535,522.33          | 740,845.80         | 32° 28' 11.425 N | 103° 33' 8.640 W |
| 20,604.00           | 89.00           | 0.90        | 10,919.53           | 9,735.22   | -217.05    | 535,616.31          | 740,847.44         | 32° 28' 12.355 N | 103° 33' 8.613 W |
| 20,697.00           | 90.80           | 0.30        | 10,919.69           | 9,828.21   | -216.08    | 535,709.30          | 740,848.42         | 32° 28' 13.275 N | 103° 33' 8.594 W |
| 20,790.00           | 88.50           | 359.80      | 10,920.26           | 9,921.21   | -216.00    | 535,802.29          | 740,848.50         | 32° 28' 14.195 N | 103° 33' 8.585 W |
| 20,884.00           | 90.00           | 359.60      | 10,921.49           | 10,015.19  | -216.49    | 535,896.28          | 740,848.01         | 32° 28' 15.125 N | 103° 33' 8.582 W |
| 20,977.00           | 91.90           | 359.40      | 10,919.94           | 10,108.17  | -217.30    | 535,989.25          | 740,847.20         | 32° 28' 16.045 N | 103° 33' 8.584 W |

Final IDS MWD Survey



Integrity Directional Services, LLC  
Survey Report - Geographic



|           |                            |                              |                                       |
|-----------|----------------------------|------------------------------|---------------------------------------|
| Company:  | COG Production L L C       | Local Co-ordinate Reference: | Well Raspberry State Com 1H           |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB=27' @ 3736.00ft (Scandril Freedom) |
| Site:     | Sec. 27, T 21S. , R 33 E   | MD Reference:                | KB=27' @ 3736.00ft (Scandril Freedom) |
| Well:     | Raspberry State Com 1H     | North Reference:             | Grid                                  |
| Wellbore: | Wellbore #2                | Survey Calculation Method:   | Minimum Curvature                     |
| Design:   | Wellbore #2                | 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        |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|------------------|------------------|
| 21,044.00           | 91.90           | 359.40      | 10,917.72           | 10,175.13  | -218.00    | 536,056.21          | 740,846.49         | 32° 28' 16.708 N | 103° 33' 8.586 W |
| Projection to TD    |                 |             |                     |            |            |                     |                    |                  |                  |

Design Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment              |
|---------------------|---------------------|-------------------|------------|----------------------|
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                      |
| 9,834.00            | 9,832.74            | -100.62           | -16.72     | First IDS MWD Survey |
| 20,977.00           | 10,919.94           | 10,108.17         | -217.30    | Final IDS MWD Survey |
| 21,044.00           | 10,917.72           | 10,175.13         | -218.00    | Projection to TD     |

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