



NM OIL CONSERVATION  
ARTESIA DISTRICT

AUG 31 2015

RECEIVED

30-015-43074

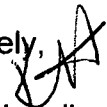
May 29, 2015

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

Attn: Kanicia Castillo

RE: Puckett 13 Federal Com 38H

Please find enclosed a copy of the survey from 0' to 4833' ran on the above referenced well.

Sincerely,  
  
Keith Havelka  
Operations

STATE OF TEXAS §  
§  
COUNTY OF NUECES §

This instrument was acknowledged before me on the 29 day of May,  
A.D., 2015, by Keith Havelka.

  
Jennifer Ann Byerly  
Notary Public, State of Texas





Company: Concho  
Lease/Well: Puckett 13 Federal Com/38H  
Location: S12 T17S R31E  
Rig Name: United 43  
State/County: New Mexico/Eddy  
VS-Azi: 0.00 Degrees  
Latitude: 32.84507, Longitude: -103.81553  
Grid Convergence Applied = -0.28 degs  
Grid North = True North -0.28 degs



Depth Reference : RKB = 12.5 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 5/29/2015 / 08:26

VES Survey International

Midland, TX

432-563-5444

Surveyor: Andrew Askew

Puckett 13 Federal Com 38H / API 30-015-43074

NM OIL CONSERVATION  
ARTESIA DISTRICT

AUG 31 2015

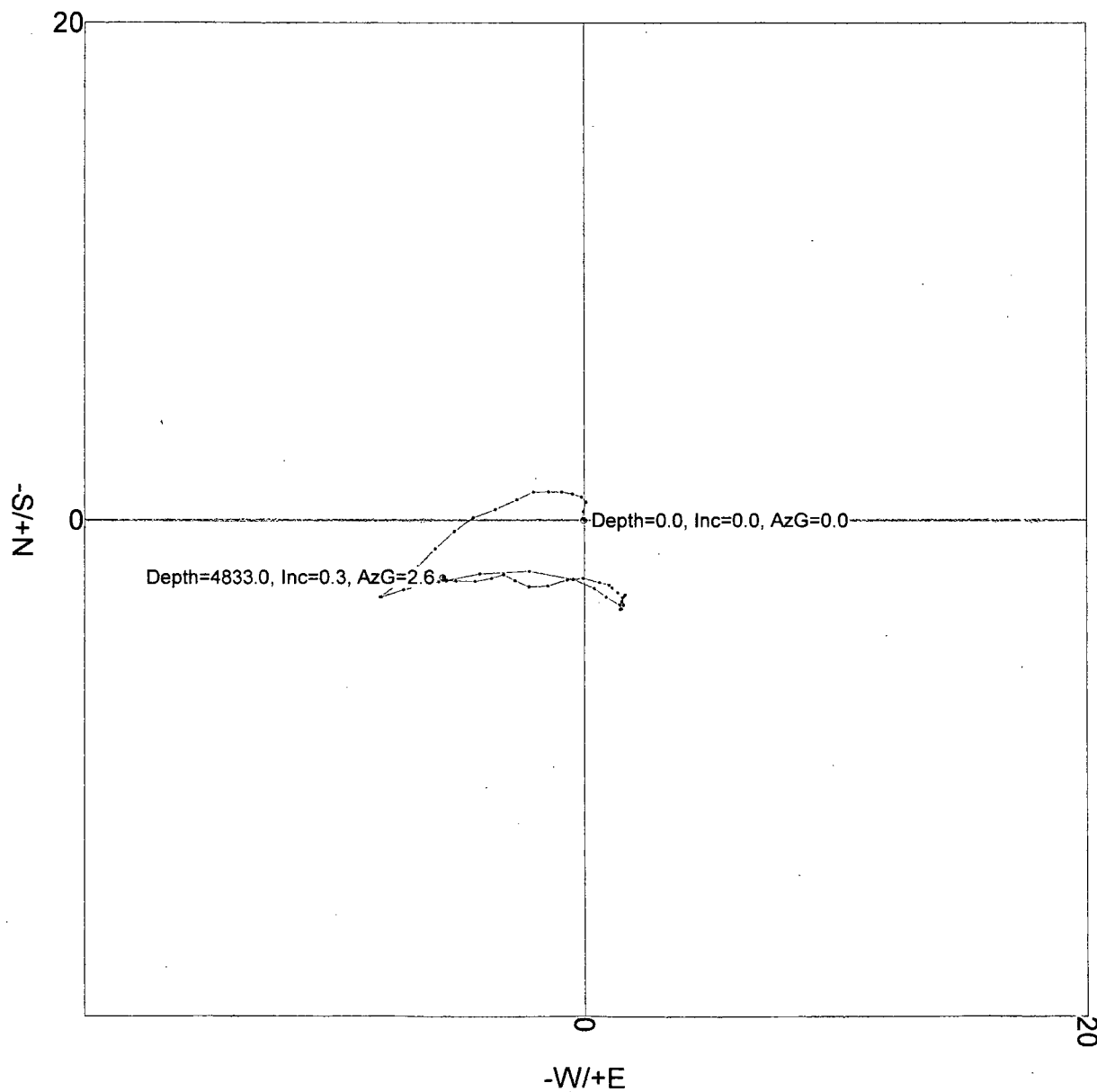
RECEIVED

| 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                  | 0.11                 | 318.50                    | 100.00    | 0.07        | -0.06       | 0.07                      | 0.10                      | 318.50                      | 0.11                          |
| 200.00                  | 0.25                 | 23.69                     | 200.00    | 0.35        | -0.04       | 0.35                      | 0.35                      | 353.04                      | 0.23                          |
| 300.00                  | 0.21                 | 6.08                      | 300.00    | 0.73        | 0.06        | 0.73                      | 0.73                      | 5.08                        | 0.08                          |
| 400.00                  | 0.22                 | 279.16                    | 400.00    | 0.94        | -0.10       | 0.94                      | 0.94                      | 353.73                      | 0.29                          |
| 500.00                  | 0.24                 | 296.14                    | 500.00    | 1.06        | -0.48       | 1.06                      | 1.16                      | 335.82                      | 0.07                          |
| 600.00                  | 0.28                 | 266.70                    | 600.00    | 1.14        | -0.90       | 1.14                      | 1.45                      | 321.56                      | 0.14                          |
| 700.00                  | 0.32                 | 273.94                    | 700.00    | 1.14        | -1.42       | 1.14                      | 1.82                      | 308.78                      | 0.06                          |
| 800.00                  | 0.37                 | 265.58                    | 799.99    | 1.13        | -2.02       | 1.13                      | 2.32                      | 299.31                      | 0.07                          |
| 900.00                  | 0.50                 | 229.86                    | 899.99    | 0.83        | -2.68       | 0.83                      | 2.80                      | 287.23                      | 0.29                          |
| 1000.00                 | 0.64                 | 256.67                    | 999.99    | 0.42        | -3.55       | 0.42                      | 3.57                      | 276.80                      | 0.30                          |
| 1100.00                 | 0.45                 | 240.06                    | 1099.98   | 0.10        | -4.43       | 0.10                      | 4.43                      | 271.29                      | 0.24                          |
| 1200.00                 | 0.62                 | 228.12                    | 1199.98   | -0.46       | -5.17       | -0.46                     | 5.19                      | 264.96                      | 0.20                          |
| 1300.00                 | 0.57                 | 226.66                    | 1299.97   | -1.16       | -5.93       | -1.16                     | 6.04                      | 258.97                      | 0.05                          |
| 1400.00                 | 0.57                 | 219.30                    | 1399.97   | -1.88       | -6.61       | -1.88                     | 6.87                      | 254.09                      | 0.07                          |
| 1500.00                 | 0.70                 | 236.16                    | 1499.96   | -2.61       | -7.43       | -2.61                     | 7.88                      | 250.64                      | 0.22                          |
| 1600.00                 | 0.27                 | 232.50                    | 1599.96   | -3.09       | -8.12       | -3.09                     | 8.69                      | 249.15                      | 0.43                          |

| 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 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 1700.00                 | 0.31                 | 59.47                     | 1699.96   | -3.10       | -8.08       | -3.10                     | 8.66                      | 249.00                      | 0.58                          |
| 1800.00                 | 0.79                 | 76.85                     | 1799.95   | -2.81       | -7.18       | -2.81                     | 7.71                      | 248.64                      | 0.50                          |
| 1900.00                 | 0.86                 | 77.52                     | 1899.94   | -2.49       | -5.78       | -2.49                     | 6.30                      | 246.69                      | 0.08                          |
| 2000.00                 | 1.03                 | 79.63                     | 1999.93   | -2.17       | -4.16       | -2.17                     | 4.69                      | 242.49                      | 0.18                          |
| 2100.00                 | 1.24                 | 93.19                     | 2099.91   | -2.06       | -2.19       | -2.06                     | 3.01                      | 226.68                      | 0.34                          |
| 2200.00                 | 0.82                 | 111.60                    | 2199.89   | -2.39       | -0.44       | -2.39                     | 2.43                      | 190.45                      | 0.53                          |
| 2300.00                 | 0.23                 | 120.60                    | 2299.89   | -2.75       | 0.40        | -2.75                     | 2.78                      | 171.78                      | 0.59                          |
| 2400.00                 | 0.43                 | 129.88                    | 2399.89   | -3.10       | 0.86        | -3.10                     | 3.21                      | 164.49                      | 0.21                          |
| 2500.00                 | 0.31                 | 104.99                    | 2499.88   | -3.41       | 1.41        | -3.41                     | 3.69                      | 157.49                      | 0.20                          |
| 2600.00                 | 0.15                 | 298.81                    | 2599.88   | -3.42       | 1.57        | -3.42                     | 3.76                      | 155.40                      | 0.46                          |
| 2700.00                 | 0.25                 | 175.36                    | 2699.88   | -3.57       | 1.47        | -3.57                     | 3.86                      | 157.64                      | 0.35                          |
| 2800.00                 | 0.24                 | 340.90                    | 2799.88   | -3.59       | 1.42        | -3.59                     | 3.86                      | 158.44                      | 0.48                          |
| 2900.00                 | 0.20                 | 50.95                     | 2899.88   | -3.28       | 1.49        | -3.28                     | 3.60                      | 155.64                      | 0.25                          |
| 3000.00                 | 0.19                 | 3.88                      | 2999.88   | -3.00       | 1.63        | -3.00                     | 3.42                      | 151.45                      | 0.16                          |
| 3100.00                 | 0.24                 | 193.89                    | 3099.88   | -3.04       | 1.60        | -3.04                     | 3.43                      | 152.32                      | 0.44                          |
| 3200.00                 | 0.14                 | 347.12                    | 3199.88   | -3.13       | 1.52        | -3.13                     | 3.48                      | 154.13                      | 0.37                          |
| 3300.00                 | 0.21                 | 300.32                    | 3299.88   | -2.92       | 1.33        | -2.92                     | 3.20                      | 155.49                      | 0.16                          |
| 3400.00                 | 0.13                 | 324.39                    | 3399.88   | -2.73       | 1.10        | -2.73                     | 2.94                      | 158.02                      | 0.11                          |
| 3500.00                 | 0.06                 | 298.60                    | 3499.88   | -2.61       | 0.99        | -2.61                     | 2.79                      | 159.26                      | 0.08                          |
| 3600.00                 | 0.39                 | 280.55                    | 3599.88   | -2.52       | 0.60        | -2.52                     | 2.59                      | 166.52                      | 0.34                          |
| 3700.00                 | 0.38                 | 290.20                    | 3699.88   | -2.34       | -0.05       | -2.34                     | 2.34                      | 181.18                      | 0.07                          |
| 3800.00                 | 0.42                 | 239.88                    | 3799.87   | -2.41       | -0.68       | -2.41                     | 2.50                      | 195.76                      | 0.34                          |
| 3900.00                 | 0.53                 | 262.53                    | 3899.87   | -2.65       | -1.46       | -2.65                     | 3.03                      | 208.78                      | 0.22                          |
| 4000.00                 | 0.33                 | 274.40                    | 3999.87   | -2.69       | -2.21       | -2.69                     | 3.48                      | 219.34                      | 0.22                          |
| 4100.00                 | 0.40                 | 310.39                    | 4099.87   | -2.45       | -2.76       | -2.45                     | 3.68                      | 228.42                      | 0.23                          |
| 4200.00                 | 0.23                 | 277.01                    | 4199.86   | -2.20       | -3.22       | -2.20                     | 3.90                      | 235.66                      | 0.24                          |
| 4300.00                 | 0.38                 | 237.25                    | 4299.86   | -2.35       | -3.70       | -2.35                     | 4.38                      | 237.51                      | 0.25                          |
| 4400.00                 | 0.43                 | 279.61                    | 4399.86   | -2.47       | -4.35       | -2.47                     | 5.00                      | 240.39                      | 0.30                          |
| 4500.00                 | 0.44                 | 263.32                    | 4499.86   | -2.45       | -5.10       | -2.45                     | 5.66                      | 244.32                      | 0.12                          |
| 4600.00                 | 0.07                 | 13.69                     | 4599.86   | -2.44       | -5.47       | -2.44                     | 5.99                      | 245.98                      | 0.47                          |
| 4700.00                 | 0.10                 | 209.88                    | 4699.86   | -2.45       | -5.50       | -2.45                     | 6.03                      | 245.96                      | 0.17                          |
| 4800.00                 | 0.14                 | 337.40                    | 4799.86   | -2.42       | -5.60       | -2.42                     | 6.09                      | 246.65                      | 0.22                          |
| 4833.00                 | 0.27                 | 2.57                      | 4832.86   | -2.30       | -5.61       | -2.30                     | 6.06                      | 247.70                      | 0.45                          |



VES Survey International  
Midland, TX  
432-563-5444  
Surveyor: Andrew Askew  
Puckett 13 Federal Com 38H / API 30-015-43074



V.E.S. Survey Date: 5/16/2015



NM OIL CONSERVATION  
ARTESIA DISTRICT

AUG 31 2015

RECEIVED

6/30/15

State of New Mexico  
County of Eddy

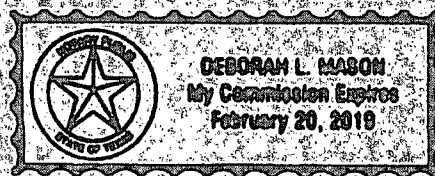
I, Donald D. Mason, certify that I am employed by Terra Directional Services LLC, that I did on the day(s) of 05/17/2015 through 06/24/2015 conduct or supervise the taking of a MWD survey from a depth of 4916 feet to a depth of 10463 feet, that the data is true, correct, complete and within the limitations of the tool as set forth by Terra Directional Services LLC, that I am authorized and qualified to make this report, that this survey was conducted at the request of Concho Oil & Gas for the Puckett 13 Federal Com #38H Well API 30-015-43074 in Eddy County, New Mexico, and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Terra Directional Services LLC

A handwritten signature of Donald D. Mason in black ink, written over a horizontal line.

Donald D. Mason  
President

State of Texas  
County of Burnet

Before me, a notary public, on this day personally appeared Donald D. Mason known to me to be the person whose name is subscribed to the foregoing document and being by me first duly sworn, declared that the statements therein contained are true and correct.



A handwritten signature of Deborah L. Mason in black ink, written over a horizontal line.  
Notary Public's Signature



Customer Name: COG

Well Name: Puckett 13 Federal Com #38H

API Number: 30-015-43074

County / Parish: Eddy Co, NM

M.W.D. Operator: Justin Campos

Directional Driller: John Overton

Total Magnetic Correction: 6.98

Job #: NM-536

Vertical Section: 178.56

Tie In Survey(s) Provided By:

|          | Meas. Depth | Inc.  | Azm.   | T.V.D.  | Ver. Sect. | +N / -S  | +E / -W | Dist.   | Angle  | DLS   |
|----------|-------------|-------|--------|---------|------------|----------|---------|---------|--------|-------|
| Tie - In |             |       |        |         |            |          |         |         |        |       |
| 0        | 4833.00     | 0.27  | 2.57   | 4832.86 | 2.16       | -2.30    | -5.61   | 6.06    | 247.70 | 0.45  |
| 1        | 4916.00     | 0.10  | 296.50 | 4915.86 | 1.93       | -2.07    | -5.67   | 6.03    | 249.91 | 0.30  |
| 2        | 4948.00     | 0.10  | 293.40 | 4947.86 | 1.90       | -2.05    | -5.72   | 6.07    | 250.28 | 0.02  |
| 3        | 4979.00     | 0.20  | 176.30 | 4978.86 | 1.95       | -2.09    | -5.74   | 6.11    | 249.97 | 0.84  |
| 4        | 5011.00     | 2.10  | 179.30 | 5010.85 | 2.59       | -2.73    | -5.73   | 6.35    | 244.48 | 5.94  |
| 5        | 5042.00     | 4.50  | 186.40 | 5041.80 | 4.36       | -4.51    | -5.86   | 7.39    | 232.39 | 7.84  |
| 6        | 5074.00     | 7.50  | 183.00 | 5073.62 | 7.69       | -7.84    | -6.11   | 9.94    | 217.89 | 9.44  |
| 7        | 5105.00     | 11.00 | 178.20 | 5104.21 | 12.66      | -12.82   | -6.12   | 14.21   | 205.51 | 11.55 |
| 8        | 5137.00     | 14.90 | 178.10 | 5135.39 | 19.83      | -19.99   | -5.89   | 20.84   | 196.41 | 12.19 |
| 9        | 5168.00     | 19.00 | 178.10 | 5165.04 | 28.87      | -29.02   | -5.59   | 29.55   | 190.90 | 13.23 |
| 10       | 5200.00     | 22.70 | 178.60 | 5194.94 | 40.26      | -40.40   | -5.26   | 40.74   | 187.42 | 11.58 |
| 11       | 5232.00     | 26.00 | 179.40 | 5224.09 | 53.45      | -53.59   | -5.04   | 53.83   | 185.37 | 10.36 |
| 12       | 5263.00     | 29.30 | 181.30 | 5251.54 | 67.82      | -67.97   | -5.14   | 68.17   | 184.32 | 11.02 |
| 13       | 5295.00     | 32.50 | 182.80 | 5279.00 | 84.22      | -84.39   | -5.74   | 84.59   | 183.89 | 10.28 |
| 14       | 5327.00     | 35.60 | 182.70 | 5305.51 | 102.09     | -102.29  | -6.60   | 102.50  | 183.69 | 9.69  |
| 15       | 5358.00     | 39.10 | 183.10 | 5330.15 | 120.84     | -121.07  | -7.55   | 121.30  | 183.57 | 11.32 |
| 16       | 5390.00     | 43.10 | 183.80 | 5354.26 | 141.79     | -142.06  | -8.82   | 142.33  | 183.55 | 12.58 |
| 17       | 5421.00     | 46.60 | 183.60 | 5376.23 | 163.57     | -163.87  | -10.23  | 164.19  | 183.57 | 11.30 |
| 18       | 5453.00     | 49.70 | 184.40 | 5397.58 | 187.29     | -187.65  | -11.90  | 188.03  | 183.63 | 9.86  |
| 19       | 5484.00     | 52.70 | 185.10 | 5417.00 | 211.31     | -211.72  | -13.90  | 212.18  | 183.76 | 9.84  |
| 20       | 5516.00     | 55.60 | 185.10 | 5435.74 | 237.07     | -237.56  | -16.21  | 238.11  | 183.90 | 9.06  |
| 21       | 5547.00     | 58.70 | 184.50 | 5452.56 | 262.96     | -263.50  | -18.38  | 264.14  | 183.99 | 10.13 |
| 22       | 5578.00     | 62.20 | 184.30 | 5467.84 | 289.78     | -290.39  | -20.45  | 291.11  | 184.03 | 11.30 |
| 23       | 5610.00     | 65.50 | 183.80 | 5481.94 | 318.37     | -319.04  | -22.48  | 319.83  | 184.03 | 10.41 |
| 24       | 5641.00     | 68.40 | 184.00 | 5494.08 | 346.77     | -347.49  | -24.42  | 348.35  | 184.02 | 9.37  |
| 25       | 5673.00     | 71.20 | 184.20 | 5505.13 | 376.66     | -377.44  | -26.56  | 378.38  | 184.03 | 8.77  |
| 26       | 5704.00     | 74.50 | 184.40 | 5514.27 | 406.13     | -406.98  | -28.79  | 408.00  | 184.05 | 10.66 |
| 27       | 5736.00     | 78.00 | 185.30 | 5521.87 | 437.02     | -437.95  | -31.41  | 439.07  | 184.10 | 11.27 |
| 28       | 5767.00     | 80.60 | 186.20 | 5527.63 | 467.24     | -468.25  | -34.47  | 469.52  | 184.21 | 8.86  |
| 29       | 5798.00     | 84.00 | 186.50 | 5531.78 | 497.67     | -498.78  | -37.87  | 500.21  | 184.34 | 11.01 |
| 30       | 5829.00     | 87.60 | 187.10 | 5534.05 | 528.26     | -529.47  | -41.53  | 531.10  | 184.48 | 11.77 |
| 31       | 5861.00     | 89.00 | 186.60 | 5535.00 | 559.91     | -561.23  | -45.34  | 563.06  | 184.62 | 4.65  |
| 32       | 5892.00     | 89.60 | 184.70 | 5535.38 | 590.67     | -592.07  | -48.39  | 594.05  | 184.67 | 6.43  |
| 33       | 5987.00     | 88.70 | 181.10 | 5536.79 | 685.37     | -686.92  | -53.20  | 688.98  | 184.43 | 3.91  |
| 34       | 6082.00     | 89.00 | 177.80 | 5538.70 | 780.33     | -781.89  | -52.29  | 783.63  | 183.83 | 3.49  |
| 35       | 6176.00     | 88.60 | 177.70 | 5540.66 | 874.30     | -875.79  | -48.60  | 877.14  | 183.18 | 0.44  |
| 36       | 6271.00     | 88.40 | 177.70 | 5543.15 | 969.25     | -970.69  | -44.78  | 971.72  | 182.64 | 0.21  |
| 37       | 6365.00     | 87.90 | 177.90 | 5546.19 | 1063.20    | -1064.57 | -41.18  | 1065.36 | 182.22 | 0.57  |
| 38       | 6459.00     | 89.40 | 178.30 | 5548.40 | 1157.16    | -1158.49 | -38.06  | 1159.11 | 181.88 | 1.65  |
| 39       | 6553.00     | 89.40 | 178.40 | 5549.38 | 1251.16    | -1252.44 | -35.36  | 1252.94 | 181.62 | 0.11  |
| 40       | 6648.00     | 89.20 | 177.90 | 5550.55 | 1346.15    | -1347.39 | -32.29  | 1347.77 | 181.37 | 0.57  |

|    |         |       |        |         |         |          |        |         |        |      |
|----|---------|-------|--------|---------|---------|----------|--------|---------|--------|------|
| 41 | 6743.00 | 89.50 | 177.70 | 5551.62 | 1441.13 | -1442.31 | -28.64 | 1442.59 | 181.14 | 0.38 |
| 42 | 6838.00 | 89.50 | 178.20 | 5552.45 | 1536.12 | -1537.24 | -25.24 | 1537.45 | 180.94 | 0.53 |
| 43 | 6932.00 | 88.60 | 178.50 | 5554.01 | 1630.11 | -1631.19 | -22.54 | 1631.35 | 180.79 | 1.01 |
| 44 | 7027.00 | 90.20 | 177.70 | 5555.01 | 1725.10 | -1726.13 | -19.39 | 1726.24 | 180.64 | 1.88 |
| 45 | 7121.00 | 89.90 | 177.50 | 5554.92 | 1819.08 | -1820.05 | -15.45 | 1820.11 | 180.49 | 0.38 |
| 46 | 7215.00 | 89.70 | 177.40 | 5555.25 | 1913.07 | -1913.95 | -11.27 | 1913.99 | 180.34 | 0.24 |
| 47 | 7310.00 | 91.20 | 177.60 | 5554.51 | 2008.04 | -2008.86 | -7.13  | 2008.87 | 180.20 | 1.59 |
| 48 | 7404.00 | 91.00 | 177.60 | 5552.70 | 2102.01 | -2102.76 | -3.19  | 2102.76 | 180.09 | 0.21 |
| 49 | 7499.00 | 90.70 | 177.60 | 5551.29 | 2196.99 | -2197.66 | 0.79   | 2197.66 | 179.98 | 0.32 |
| 50 | 7533.00 | 89.80 | 177.70 | 5551.14 | 2230.98 | -2231.63 | 2.18   | 2231.64 | 179.94 | 2.66 |
| 51 | 7566.00 | 88.80 | 178.70 | 5551.55 | 2263.98 | -2264.62 | 3.22   | 2264.62 | 179.92 | 4.29 |
| 52 | 7597.00 | 89.10 | 178.60 | 5552.11 | 2294.98 | -2295.60 | 3.95   | 2295.60 | 179.90 | 1.02 |
| 53 | 7629.00 | 89.30 | 178.90 | 5552.56 | 2326.97 | -2327.59 | 4.65   | 2327.60 | 179.89 | 1.13 |
| 54 | 7660.00 | 89.80 | 179.60 | 5552.80 | 2357.97 | -2358.59 | 5.05   | 2358.59 | 179.88 | 2.77 |
| 55 | 7692.00 | 90.50 | 179.40 | 5552.72 | 2389.96 | -2390.58 | 5.33   | 2390.59 | 179.87 | 2.28 |
| 56 | 7724.00 | 90.60 | 179.20 | 5552.41 | 2421.96 | -2422.58 | 5.72   | 2422.59 | 179.86 | 0.70 |
| 57 | 7756.00 | 91.30 | 178.90 | 5551.88 | 2453.95 | -2454.57 | 6.25   | 2454.58 | 179.85 | 2.38 |
| 58 | 7788.00 | 91.80 | 179.10 | 5551.02 | 2485.94 | -2486.56 | 6.81   | 2486.56 | 179.84 | 1.68 |
| 59 | 7821.00 | 91.60 | 179.10 | 5550.04 | 2518.93 | -2519.54 | 7.33   | 2519.55 | 179.83 | 0.61 |
| 60 | 7853.00 | 90.80 | 179.90 | 5549.37 | 2550.91 | -2551.53 | 7.61   | 2551.54 | 179.83 | 3.54 |
| 61 | 7885.00 | 90.20 | 180.00 | 5549.09 | 2582.90 | -2583.53 | 7.64   | 2583.54 | 179.83 | 1.90 |
| 62 | 7917.00 | 90.50 | 180.20 | 5548.89 | 2614.89 | -2615.53 | 7.58   | 2615.54 | 179.83 | 1.13 |
| 63 | 7949.00 | 90.70 | 180.30 | 5548.56 | 2646.87 | -2647.52 | 7.44   | 2647.53 | 179.84 | 0.70 |
| 64 | 7981.00 | 90.70 | 181.00 | 5548.17 | 2678.85 | -2679.52 | 7.08   | 2679.53 | 179.85 | 2.19 |
| 65 | 8014.00 | 90.60 | 179.90 | 5547.79 | 2711.83 | -2712.52 | 6.82   | 2712.52 | 179.86 | 3.35 |
| 66 | 8047.00 | 90.80 | 179.40 | 5547.39 | 2744.82 | -2745.51 | 7.02   | 2745.52 | 179.85 | 1.63 |
| 67 | 8080.00 | 91.30 | 179.90 | 5546.79 | 2777.81 | -2778.51 | 7.22   | 2778.52 | 179.85 | 2.14 |
| 68 | 8112.00 | 91.80 | 179.70 | 5545.92 | 2809.79 | -2810.49 | 7.33   | 2810.50 | 179.85 | 1.68 |
| 69 | 8143.00 | 92.40 | 179.90 | 5544.78 | 2840.76 | -2841.47 | 7.44   | 2841.48 | 179.85 | 2.04 |
| 70 | 8175.00 | 91.10 | 180.20 | 5543.81 | 2872.74 | -2873.46 | 7.41   | 2873.47 | 179.85 | 4.17 |
| 71 | 8206.00 | 91.30 | 180.40 | 5543.16 | 2903.71 | -2904.45 | 7.25   | 2904.46 | 179.86 | 0.91 |
| 72 | 8238.00 | 91.70 | 180.50 | 5542.32 | 2935.69 | -2936.44 | 7.00   | 2936.45 | 179.86 | 1.29 |
| 73 | 8269.00 | 92.20 | 180.30 | 5541.26 | 2966.65 | -2967.42 | 6.78   | 2967.43 | 179.87 | 1.74 |
| 74 | 8301.00 | 90.90 | 180.30 | 5540.40 | 2998.63 | -2999.41 | 6.62   | 2999.41 | 179.87 | 4.06 |
| 75 | 8332.00 | 90.60 | 180.10 | 5539.99 | 3029.61 | -3030.40 | 6.51   | 3030.41 | 179.88 | 1.16 |
| 76 | 8365.00 | 89.00 | 179.80 | 5540.11 | 3062.60 | -3063.40 | 6.54   | 3063.41 | 179.88 | 4.93 |
| 77 | 8397.00 | 88.50 | 179.60 | 5540.81 | 3094.58 | -3095.39 | 6.70   | 3095.40 | 179.88 | 1.68 |
| 78 | 8428.00 | 88.50 | 179.60 | 5541.62 | 3125.57 | -3126.38 | 6.92   | 3126.39 | 179.87 | 0.00 |
| 79 | 8460.00 | 88.70 | 179.60 | 5542.40 | 3157.55 | -3158.37 | 7.14   | 3158.38 | 179.87 | 0.63 |
| 80 | 8492.00 | 89.00 | 179.70 | 5543.04 | 3189.54 | -3190.37 | 7.34   | 3190.37 | 179.87 | 0.99 |
| 81 | 8524.00 | 88.90 | 179.70 | 5543.63 | 3221.53 | -3222.36 | 7.51   | 3222.37 | 179.87 | 0.31 |
| 82 | 8556.00 | 88.90 | 179.60 | 5544.24 | 3253.52 | -3254.35 | 7.70   | 3254.36 | 179.86 | 0.31 |
| 83 | 8587.00 | 89.10 | 179.40 | 5544.78 | 3284.51 | -3285.35 | 7.97   | 3285.36 | 179.86 | 0.91 |
| 84 | 8618.00 | 89.20 | 179.50 | 5545.24 | 3315.50 | -3316.34 | 8.27   | 3316.35 | 179.86 | 0.46 |
| 85 | 8650.00 | 89.50 | 179.50 | 5545.61 | 3347.50 | -3348.34 | 8.55   | 3348.35 | 179.85 | 0.94 |
| 86 | 8682.00 | 89.60 | 179.60 | 5545.86 | 3379.49 | -3380.34 | 8.80   | 3380.35 | 179.85 | 0.44 |
| 87 | 8713.00 | 89.60 | 179.60 | 5546.07 | 3410.48 | -3411.34 | 9.02   | 3411.35 | 179.85 | 0.00 |
| 88 | 8745.00 | 89.80 | 179.80 | 5546.24 | 3442.48 | -3443.33 | 9.18   | 3443.35 | 179.85 | 0.88 |
| 89 | 8776.00 | 90.00 | 179.20 | 5546.30 | 3473.47 | -3474.33 | 9.45   | 3474.35 | 179.84 | 2.04 |
| 90 | 8808.00 | 90.20 | 178.40 | 5546.24 | 3505.47 | -3506.33 | 10.12  | 3506.34 | 179.83 | 2.58 |
| 91 | 8903.00 | 90.90 | 178.60 | 5545.33 | 3600.47 | -3601.29 | 12.61  | 3601.31 | 179.80 | 0.77 |
| 92 | 8997.00 | 90.10 | 177.80 | 5544.51 | 3694.46 | -3695.24 | 15.56  | 3695.27 | 179.76 | 1.20 |
| 93 | 9094.00 | 90.40 | 177.80 | 5544.09 | 3791.45 | -3792.16 | 19.29  | 3792.21 | 179.71 | 0.31 |
| 94 | 9189.00 | 89.70 | 177.80 | 5544.00 | 3886.44 | -3887.09 | 22.93  | 3887.16 | 179.66 | 0.74 |
| 95 | 9285.00 | 88.60 | 176.80 | 5545.43 | 3982.41 | -3982.97 | 27.46  | 3983.07 | 179.61 | 1.55 |

|     |          |       |        |         |         |          |        |         |        |      |
|-----|----------|-------|--------|---------|---------|----------|--------|---------|--------|------|
| 96  | 9382.00  | 89.40 | 176.30 | 5547.12 | 4079.33 | -4079.78 | 33.29  | 4079.92 | 179.53 | 0.97 |
| 97  | 9479.00  | 89.80 | 176.30 | 5547.80 | 4176.25 | -4176.58 | 39.55  | 4176.76 | 179.46 | 0.41 |
| 98  | 9575.00  | 90.30 | 176.30 | 5547.71 | 4272.18 | -4272.38 | 45.75  | 4272.62 | 179.39 | 0.52 |
| 99  | 9608.00  | 90.70 | 176.30 | 5547.42 | 4305.15 | -4305.31 | 47.88  | 4305.57 | 179.36 | 1.21 |
| 100 | 9640.00  | 90.50 | 176.40 | 5547.09 | 4337.12 | -4337.24 | 49.91  | 4337.53 | 179.34 | 0.70 |
| 101 | 9672.00  | 90.50 | 176.50 | 5546.81 | 4369.10 | -4369.18 | 51.89  | 4369.49 | 179.32 | 0.31 |
| 102 | 9704.00  | 90.50 | 176.30 | 5546.53 | 4401.08 | -4401.11 | 53.90  | 4401.44 | 179.30 | 0.62 |
| 103 | 9736.00  | 90.90 | 176.40 | 5546.14 | 4433.05 | -4433.05 | 55.94  | 4433.40 | 179.28 | 1.29 |
| 104 | 9768.00  | 90.70 | 176.40 | 5545.69 | 4465.03 | -4464.98 | 57.95  | 4465.36 | 179.26 | 0.63 |
| 105 | 9863.00  | 88.70 | 176.30 | 5546.19 | 4559.95 | -4559.78 | 64.00  | 4560.23 | 179.20 | 2.11 |
| 106 | 9957.00  | 89.00 | 175.90 | 5548.08 | 4653.84 | -4653.54 | 70.39  | 4654.08 | 179.13 | 0.53 |
| 107 | 10053.00 | 89.50 | 176.10 | 5549.33 | 4749.74 | -4749.30 | 77.09  | 4749.93 | 179.07 | 0.56 |
| 108 | 10149.00 | 89.80 | 176.30 | 5549.92 | 4845.65 | -4845.09 | 83.45  | 4845.81 | 179.01 | 0.38 |
| 109 | 10246.00 | 90.30 | 176.40 | 5549.84 | 4942.58 | -4941.89 | 89.62  | 4942.70 | 178.96 | 0.53 |
| 110 | 10343.00 | 90.90 | 176.30 | 5548.82 | 5039.50 | -5038.69 | 95.80  | 5039.60 | 178.91 | 0.63 |
| 111 | 10463.00 | 90.90 | 176.30 | 5546.94 | 5159.40 | -5158.42 | 103.54 | 5159.46 | 178.85 | 0.00 |

AUG 31 2015

1 of 2

WELL NAME AND NUMBER Puckett 13 Federal Com No. 38H RECEIVED  
LOCATION Section 12, T17S, R31E, Unit P, 1180 FSL, 470 FEL, Eddy Cty  
OPERATOR COG Operating LLC  
DRILLING CONTRACTOR United Drilling, Inc.

The undersigned hereby certifies that he is an authorized representative of the drilling contractor who drilled the above described well and had conducted deviation test and obtained the following results:

| Degrees @ Depth | Degrees @ Depth | Degrees @ Depth |
|-----------------|-----------------|-----------------|
| .4° @ 350'      | 22.7° @ 5200'   | 89.6° @ 5892'   |
| .2° @ 798'      | 26.0° @ 5232'   | 88.7° @ 5987'   |
| .7° @ 1048'     | 29.3° @ 5263'   | 89.0° @ 6082'   |
| .8° @ 1348'     | 32.5° @ 5295'   | 88.6° @ 6176'   |
| .3° @ 1679'     | 35.7° @ 5327'   | 88.4° @ 6271'   |
| 1.1° @ 2066'    | 39.1° @ 5358'   | 89.4° @ 6553'   |
| .4° @ 2433'     | 43.1° @ 5390'   | 89.2° @ 6648'   |
| .2° @ 2844'     | 46.6° @ 5421'   | 89.5° @ 6838'   |
| .0° @ 3251'     | 49.7° @ 5453'   | 88.6° @ 6932'   |
| .1° @ 3641'     | 52.7° @ 5510'   | 90.2° @ 7027'   |
| .5° @ 4072'     | 58.7° @ 5547'   | 89.9° @ 7121'   |
| .3° @ 4415'     | 62.2° @ 5578'   | 89.7° @ 7215'   |
| .3° @ 4793'     | 65.5° @ 5610'   | 90.7° @ 7499'   |
| .3° @ 4883'     | 68.4° @ 5641'   | 90.5° @ 7593'   |
| .1° @ 4948'     | 71.2° @ 5673'   | 90.5° @ 7688'   |
| 4.5° @ 5042'    | 80.6° @ 5767'   | 90.5° @ 7782'   |
| 14.9° @ 5137'   | 84.0° @ 5798'   | 89.9° @ 7876'   |
| 19.0° @ 5168'   | 87.6° @ 5829'   | 89.5° @ 7971'   |

Drilling Contractor- UNITED DRILLING, INC.

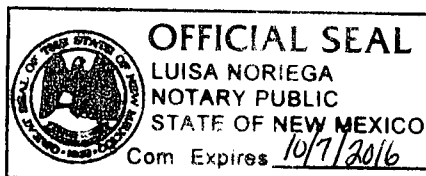
By: Angel Salazar  
(Angel Salazar)

Title: Vice President

Subscribed and sworn to before me this 29<sup>th</sup> day of June 2015.

Luisa Noriega  
Notary Public

My Commission Expires:



Chaves NM  
County State

AUG 31 2015

2 of 2

WELL NAME AND NUMBER Puckett 13 Federal Com No. 38H RECEIVED  
 LOCATION Section 12, T17S, R31E, Unit P, 1180 FSL, 470 FEL, Eddy Cty  
 OPERATOR COG Operating LLC  
 DRILLING CONTRACTOR United Drilling, Inc.

The undersigned hereby certifies that he is an authorized representative of the drilling contractor who drilled the above described well and had conducted deviation test and obtained the following results:

| Degrees @ Depth | Degrees @ Depth | Degrees @ Depth |
|-----------------|-----------------|-----------------|
| 90.7° @ 8065'   | 90.5° @ 7917'   | 90.1° @ 8997'   |
| 90.6° @ 8159'   | 90.7° @ 7949'   | 90.4° @ 9094'   |
| 90.5° @ 8254'   | 90.7° @ 7981'   | 89.7° @ 9189'   |
| 90.2° @ 8349'   | 90.6° @ 8014'   | 88.6° @ 9258'   |
| 90.0° @ 8443'   | 90.8° @ 8047'   | 89.4° @ 9382'   |
| 89.6° @ 8538'   | 91.3° @ 8080'   | 89.8° @ 9479'   |
| 89.4° @ 8632'   | 92.4° @ 8143'   | 90.3° @ 9575'   |
| 89.3° @ 8727'   | 91.3° @ 8706'   | 90.7° @ 9608'   |
| 90.5° @ 7501'   | 91.7° @ 8238'   | 90.5° @ 9640'   |
| 89.8° @ 7533'   | 92.2° @ 8269'   | 90.5° @ 9704'   |
| 88.8° @ 7566'   | 90.9° @ 8301'   | 90.7° @ 9768'   |
| 89.1° @ 7597'   | 90.6° @ 8332'   | 88.7° @ 9863'   |
| 89.3° @ 7629'   | 88.5° @ 8452'   | 89.0° @ 9957'   |
| 89.8° @ 7660'   | 88.5° @ 8483'   | 89.5° @ 10053'  |
| 90.5° @ 7692'   | 88.7° @ 8515'   | 89.8° @ 10149'  |
| 91.6° @ 7821'   | 89.6° @ 8682'   | 90.9° @ 10343'  |
| 90.8° @ 7853'   | 89.6° @ 8713'   |                 |
| 90.2° @ 7885'   | 89.8° @ 8745'   |                 |

Drilling Contractor- UNITED DRILLING, INC.

By: Angel Salazar  
 (Angel Salazar)

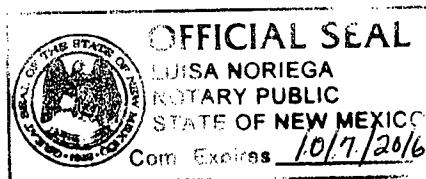
Title: Vice President

Subscribed and sworn to before me this 29th day of June 2015.

Luisa Noriega  
 Notary Public

Chavez NM  
 County State

My Commission Expires:





NM OIL CONSERVATION  
ARTESIA DISTRICT

AUG 31 2015

RECEIVED

## **COG Operating LLC**

Eddy County, NM

Puckett 13 Federal Com #38H

SHL: 1180' FSL, 470' FEL, Sec 12, T17S, R31E, Unit P

EOC: 659.2' FSL, 514.7' FEL, Sec 13, T17S, R31E, Unit P

BHL: 350' FSL, 350' FEL, Sec 13, T17S, R31E, Unit P

Design: BHL: 350' FSL, 350' FEL, Sec 13, T17S, R31E, Unit P

## **Standard Survey Report**

25 June, 2015





TDS  
Survey Report



|           |                                                |                              |                                  |
|-----------|------------------------------------------------|------------------------------|----------------------------------|
| Company:  | COG Operating LLC                              | Local Co-ordinate Reference: | Site Puckett 13 Federal Com #38H |
| Project:  | Eddy County, NM                                | TVD Reference:               | KB @ 3989.0usft (United 43)      |
| Site:     | Puckett 13 Federal Com #38H                    | MD Reference:                | KB @ 3989.0usft (United 43)      |
| Well:     | SHL 1180' FSL 470' FEL Sec 12 T17S R31E Unit P | North Reference:             | Grid                             |
| Wellbore: | BHL 350' FSL 350' FEL Sec 13 T17S R31E Unit P  | Survey Calculation Method:   | Minimum Curvature                |
| Design:   | BHL 350' FSL 350' FEL Sec 13 T17S R31E Unit P  | Database:                    | EDM 5000.1 Single User Db        |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project     | Eddy County, NM                      |               |                |
| 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                  | Puckett 13 Federal Com #38H |                   |                   |
| Site Position:        |                             | Northing:         | 671,536.90 usft   |
| From:                 | Map                         | Easting:          | 659,026.90 usft   |
| Position Uncertainty: | 0.0 usft                    | Slot Radius:      | 13-3/16 "         |
|                       |                             | Latitude:         | 32° 50' 42.247 N  |
|                       |                             | Longitude:        | 103° 48' 55.916 W |
|                       |                             | Grid Convergence: | 0.28 °            |

|                      |                                                |                     |                   |
|----------------------|------------------------------------------------|---------------------|-------------------|
| Well                 | SHL 1180' FSL 470' FEL Sec 12 T17S R31E Unit P |                     |                   |
| Well Position        | +N/-S                                          | 0.0 usft            | Northing:         |
|                      | +E/-W                                          | 0.0 usft            | Easting:          |
| Position Uncertainty | 0.0 usft                                       | Wellhead Elevation: | 0.0 usft          |
|                      |                                                | Latitude:           | 32° 50' 42.247 N  |
|                      |                                                | Longitude:          | 103° 48' 55.916 W |
|                      |                                                | Ground Level:       | 3,977.0 usft      |

|           |                                               |             |                |
|-----------|-----------------------------------------------|-------------|----------------|
| Wellbore  | BHL 350' FSL 350' FEL Sec 13 T17S R31E Unit P |             |                |
| Magnetics | Model Name                                    | Sample Date | Declination    |
|           | IGRF2010                                      | 5/5/2015    | 7.27           |
|           |                                               |             | Dip Angle      |
|           |                                               |             | 60.62          |
|           |                                               |             | Field Strength |
|           |                                               |             | 48,569         |

|                   |                                               |               |           |
|-------------------|-----------------------------------------------|---------------|-----------|
| Design            | BHL 350' FSL 350' FEL Sec 13 T17S R31E Unit P |               |           |
| Audit Notes:      |                                               |               |           |
| Version:          | 1.0                                           | Phase:        | ACTUAL    |
|                   |                                               | Tie On Depth: | 0.0       |
| Vertical Section: | Depth From (TVD)                              | +N/-S         | +E/-W     |
|                   | (usft)                                        | (usft)        | (usft)    |
|                   | 0.0                                           | 0.0           | 0.0       |
|                   |                                               |               | Direction |
|                   |                                               |               | (°)       |
|                   |                                               |               | 178.55    |

|                |                 |                                       |                      |
|----------------|-----------------|---------------------------------------|----------------------|
| Survey Program | Date: 6/25/2015 |                                       |                      |
| From           | To              | Survey (Wellbore)                     | Tool Name            |
| (usft)         | (usft)          |                                       |                      |
| 100.0          | 4,833.0         | Gyro #1 (BHL 350' FSL 350' FEL Sec 13 | NS-GYRO-SS           |
| 4,916.0        | 7,499.0         | MWD #2 (BHL 350' FSL 350' FEL Sec 13  | MWD                  |
| 7,533.0        | 10,463.0        | MWD #3 (BHL 350' FSL 350' FEL Sec 13  | MWD                  |
|                |                 |                                       | Description          |
|                |                 |                                       | NS Gyro single shots |
|                |                 |                                       | MWD - Standard       |
|                |                 |                                       | MWD - Standard       |

|          |             |         |          |        |        |          |             |             |             |  |
|----------|-------------|---------|----------|--------|--------|----------|-------------|-------------|-------------|--|
| Survey   |             |         |          |        |        |          |             |             |             |  |
| Measured | Inclination | Azimuth | Vertical | +N/-S  | +E/-W  | Vertical | Dogleg      | Build       | Turn        |  |
| Depth    | (°)         | (°)     | Depth    | (usft) | (usft) | Section  | Rate        | Rate        | Rate        |  |
| (usft)   |             |         | (usft)   |        |        | (usft)   | (°/100usft) | (°/100usft) | (°/100usft) |  |
| 0.0      | 0.00        | 0.00    | 0.0      | 0.0    | 0.0    | 0.0      | 0.00        | 0.00        | 0.00        |  |
| 100.0    | 0.11        | 318.50  | 100.0    | 0.1    | -0.1   | -0.1     | 0.11        | 0.11        | 0.00        |  |
| 200.0    | 0.25        | 23.69   | 200.0    | 0.3    | 0.0    | -0.3     | 0.23        | 0.14        | 65.19       |  |
| 300.0    | 0.21        | 6.08    | 300.0    | 0.7    | 0.1    | -0.7     | 0.08        | -0.04       | -17.61      |  |
| 400.0    | 0.22        | 279.16  | 400.0    | 0.9    | -0.1   | -0.9     | 0.30        | 0.01        | -86.92      |  |
| 500.0    | 0.24        | 296.14  | 500.0    | 1.1    | -0.5   | -1.1     | 0.07        | 0.02        | 16.98       |  |



TDS  
Survey Report



|           |                                                   |                              |                                  |
|-----------|---------------------------------------------------|------------------------------|----------------------------------|
| Company:  | COG Operating LLC                                 | Local Co-ordinate Reference: | Site Puckett 13 Federal Com #38H |
| Project:  | Eddy County, NM                                   | TVD Reference:               | KB @ 3989.0usft (United 43)      |
| Site:     | Puckett 13 Federal Com #38H                       | MD Reference:                | KB @ 3989.0usft (United 43)      |
| Well:     | SHL 1180' FSL 470' FEL Sec 12 T17S R31E<br>Unit P | North Reference:             | Grid                             |
| Wellbore: | BHL 350' FSL 350' FEL Sec 13 T17S R31E<br>Unit P  | Survey Calculation Method:   | Minimum Curvature                |
| Design:   | BHL 350' FSL 350' FEL Sec 13 T17S R31E<br>Unit P  | Database:                    | EDM 5000.1 Single User Db        |

| Survey                      |                    |                |                             |                 |                 |                               |                               |                              |                             |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
| 600.0                       | 0.28               | 266.70         | 600.0                       | 1.1             | -0.9            | -1.2                          | 0.14                          | 0.04                         | -29.44                      |
| 700.0                       | 0.32               | 273.94         | 700.0                       | 1.1             | -1.4            | -1.2                          | 0.06                          | 0.04                         | 7.24                        |
| 800.0                       | 0.37               | 265.58         | 800.0                       | 1.1             | -2.0            | -1.2                          | 0.07                          | 0.05                         | -8.36                       |
| 900.0                       | 0.50               | 229.86         | 900.0                       | 0.8             | -2.7            | -0.9                          | 0.29                          | 0.13                         | -35.72                      |
| 1,000.0                     | 0.64               | 256.67         | 1,000.0                     | 0.4             | -3.6            | -0.5                          | 0.30                          | 0.14                         | 26.81                       |
| 1,100.0                     | 0.45               | 240.06         | 1,100.0                     | 0.1             | -4.5            | -0.2                          | 0.25                          | -0.19                        | -16.61                      |
| 1,200.0                     | 0.62               | 228.12         | 1,200.0                     | -0.5            | -5.2            | 0.3                           | 0.20                          | 0.17                         | -11.94                      |
| 1,300.0                     | 0.57               | 226.66         | 1,300.0                     | -1.2            | -6.0            | 1.0                           | 0.05                          | -0.05                        | -1.46                       |
| 1,400.0                     | 0.57               | 219.30         | 1,400.0                     | -1.9            | -6.6            | 1.7                           | 0.07                          | 0.00                         | -7.36                       |
| 1,500.0                     | 0.70               | 236.16         | 1,500.0                     | -2.6            | -7.5            | 2.4                           | 0.23                          | 0.13                         | 16.86                       |
| 1,600.0                     | 0.27               | 232.50         | 1,600.0                     | -3.1            | -8.2            | 2.9                           | 0.43                          | -0.43                        | -3.66                       |
| 1,700.0                     | 0.31               | 59.47          | 1,700.0                     | -3.1            | -8.1            | 2.9                           | 0.58                          | 0.04                         | -173.03                     |
| 1,800.0                     | 0.79               | 76.85          | 1,800.0                     | -2.8            | -7.2            | 2.6                           | 0.50                          | 0.48                         | 17.38                       |
| 1,900.0                     | 0.86               | 77.52          | 1,899.9                     | -2.5            | -5.8            | 2.3                           | 0.07                          | 0.07                         | 0.67                        |
| 2,000.0                     | 1.03               | 79.63          | 1,999.9                     | -2.2            | -4.2            | 2.1                           | 0.17                          | 0.17                         | 2.11                        |
| 2,100.0                     | 1.24               | 93.19          | 2,099.9                     | -2.1            | -2.2            | 2.0                           | 0.34                          | 0.21                         | 13.56                       |
| 2,200.0                     | 0.82               | 111.60         | 2,199.9                     | -2.4            | -0.5            | 2.4                           | 0.53                          | -0.42                        | 18.41                       |
| 2,300.0                     | 0.23               | 120.60         | 2,299.9                     | -2.8            | 0.4             | 2.8                           | 0.59                          | -0.59                        | 9.00                        |
| 2,400.0                     | 0.43               | 129.88         | 2,399.9                     | -3.1            | 0.8             | 3.1                           | 0.21                          | 0.20                         | 9.28                        |
| 2,500.0                     | 0.31               | 104.99         | 2,499.9                     | -3.4            | 1.4             | 3.4                           | 0.20                          | -0.12                        | -24.89                      |
| 2,600.0                     | 0.15               | 298.81         | 2,599.9                     | -3.4            | 1.5             | 3.5                           | 0.46                          | -0.16                        | -166.18                     |
| 2,700.0                     | 0.25               | 175.36         | 2,699.9                     | -3.6            | 1.4             | 3.6                           | 0.36                          | 0.10                         | -123.45                     |
| 2,800.0                     | 0.24               | 340.90         | 2,799.9                     | -3.6            | 1.4             | 3.6                           | 0.49                          | -0.01                        | 165.54                      |
| 2,900.0                     | 0.20               | 50.95          | 2,899.9                     | -3.3            | 1.4             | 3.3                           | 0.25                          | -0.04                        | 70.05                       |
| 3,000.0                     | 0.19               | 3.88           | 2,999.9                     | -3.0            | 1.6             | 3.0                           | 0.16                          | -0.01                        | -47.07                      |
| 3,100.0                     | 0.24               | 193.89         | 3,099.9                     | -3.0            | 1.6             | 3.1                           | 0.43                          | 0.05                         | -169.99                     |
| 3,200.0                     | 0.14               | 347.12         | 3,199.9                     | -3.1            | 1.5             | 3.2                           | 0.37                          | -0.10                        | 153.23                      |
| 3,300.0                     | 0.21               | 300.32         | 3,299.9                     | -2.9            | 1.3             | 2.9                           | 0.15                          | 0.07                         | -46.80                      |
| 3,400.0                     | 0.13               | 324.39         | 3,399.9                     | -2.7            | 1.1             | 2.8                           | 0.11                          | -0.08                        | 24.07                       |
| 3,500.0                     | 0.06               | 298.60         | 3,499.9                     | -2.6            | 1.0             | 2.6                           | 0.08                          | -0.07                        | -25.79                      |
| 3,600.0                     | 0.39               | 280.55         | 3,599.9                     | -2.5            | 0.6             | 2.5                           | 0.33                          | 0.33                         | -18.05                      |
| 3,700.0                     | 0.38               | 290.20         | 3,699.9                     | -2.3            | -0.1            | 2.3                           | 0.07                          | -0.01                        | 9.65                        |
| 3,800.0                     | 0.42               | 239.88         | 3,799.9                     | -2.4            | -0.7            | 2.4                           | 0.34                          | 0.04                         | -50.32                      |
| 3,900.0                     | 0.53               | 262.53         | 3,899.9                     | -2.7            | -1.5            | 2.6                           | 0.22                          | 0.11                         | 22.65                       |
| 4,000.0                     | 0.33               | 274.40         | 3,999.9                     | -2.7            | -2.2            | 2.6                           | 0.22                          | -0.20                        | 11.87                       |
| 4,100.0                     | 0.40               | 310.39         | 4,099.9                     | -2.5            | -2.8            | 2.4                           | 0.24                          | 0.07                         | 35.99                       |
| 4,200.0                     | 0.23               | 277.01         | 4,199.9                     | -2.2            | -3.2            | 2.1                           | 0.24                          | -0.17                        | -33.38                      |
| 4,300.0                     | 0.38               | 237.25         | 4,299.9                     | -2.4            | -3.7            | 2.3                           | 0.25                          | 0.15                         | -39.76                      |
| 4,400.0                     | 0.43               | 279.61         | 4,399.9                     | -2.5            | -4.4            | 2.4                           | 0.30                          | 0.05                         | 42.36                       |
| 4,500.0                     | 0.44               | 263.32         | 4,499.9                     | -2.5            | -5.1            | 2.3                           | 0.12                          | 0.01                         | -16.29                      |
| 4,600.0                     | 0.07               | 13.69          | 4,599.9                     | -2.4            | -5.5            | 2.3                           | 0.47                          | -0.37                        | 110.37                      |
| 4,700.0                     | 0.10               | 209.88         | 4,699.9                     | -2.5            | -5.5            | 2.3                           | 0.17                          | 0.03                         | -163.81                     |



TDS  
Survey Report



|           |                                                     |                              |                                  |
|-----------|-----------------------------------------------------|------------------------------|----------------------------------|
| Company:  | COG Operating LLC                                   | Local Co-ordinate Reference: | Site Puckett 13 Federal Com #38H |
| Project:  | Eddy County, NM                                     | TVD Reference:               | KB @ 3989.0usft (United 43)      |
| Site:     | Puckett 13 Federal Com #38H                         | MD Reference:                | KB @ 3989.0usft (United 43)      |
| Well:     | SHL: 1180' FSL 470' FEL, Sec 12, T17S, R31E, Unit P | North Reference:             | Grid                             |
| Wellbore: | BHL: 350' FSL 350' FEL, Sec 13, T17S, R31E, Unit P  | Survey Calculation Method:   | Minimum Curvature                |
| Design:   | BHL: 350' FSL 350' FEL, Sec 13, T17S, R31E, Unit P  | Database:                    | EDM 5000.1 Single User Db        |

| Survey                |                 |             |                       |              |              |                         |                         |                        |                       |  |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |  |
| 4,800.0               | 0.14            | 337.40      | 4,799.9               | -2.4         | -5.6         | 2.3                     | 0.22                    | 0.04                   | 127.52                |  |
| 4,833.0               | 0.27            | 2.57        | 4,832.9               | -2.3         | -5.6         | 2.2                     | 0.47                    | 0.39                   | 76.27                 |  |
| TIE-IN to VES Gyro    |                 |             |                       |              |              |                         |                         |                        |                       |  |
| 4,916.0               | 0.10            | 296.50      | 4,915.9               | -2.1         | -5.7         | 1.9                     | 0.30                    | -0.20                  | -79.60                |  |
| 4,948.0               | 0.10            | 293.40      | 4,947.9               | -2.1         | -5.7         | 1.9                     | 0.02                    | 0.00                   | -9.69                 |  |
| 4,979.0               | 0.20            | 176.30      | 4,978.9               | -2.1         | -5.7         | 2.0                     | 0.84                    | 0.32                   | -377.74               |  |
| 5,011.0               | 2.10            | 179.30      | 5,010.8               | -2.7         | -5.7         | 2.6                     | 5.94                    | 5.94                   | 9.38                  |  |
| 5,042.0               | 4.50            | 186.40      | 5,041.8               | -4.5         | -5.9         | 4.4                     | 7.84                    | 7.74                   | 22.90                 |  |
| 5,074.0               | 7.50            | 183.00      | 5,073.6               | -7.8         | -6.1         | 7.7                     | 9.44                    | 9.38                   | -10.63                |  |
| 5,105.0               | 11.00           | 178.20      | 5,104.2               | -12.8        | -6.1         | 12.7                    | 11.55                   | 11.29                  | -15.48                |  |
| 5,137.0               | 14.90           | 178.10      | 5,135.4               | -20.0        | -5.9         | 19.8                    | 12.19                   | 12.19                  | -0.31                 |  |
| 5,168.0               | 19.00           | 178.10      | 5,165.0               | -29.0        | -5.6         | 28.9                    | 13.23                   | 13.23                  | 0.00                  |  |
| 5,200.0               | 22.70           | 178.60      | 5,194.9               | -40.4        | -5.3         | 40.3                    | 11.58                   | 11.56                  | 1.56                  |  |
| 5,232.0               | 26.00           | 179.40      | 5,224.1               | -53.6        | -5.0         | 53.5                    | 10.36                   | 10.31                  | 2.50                  |  |
| 5,263.0               | 29.30           | 181.30      | 5,251.5               | -68.0        | -5.1         | 67.8                    | 11.02                   | 10.65                  | 6.13                  |  |
| 5,295.0               | 32.50           | 182.80      | 5,279.0               | -84.4        | -5.7         | 84.2                    | 10.28                   | 10.00                  | 4.69                  |  |
| 5,327.0               | 35.60           | 182.70      | 5,305.5               | -102.3       | -6.6         | 102.1                   | 9.69                    | 9.69                   | -0.31                 |  |
| 5,358.0               | 39.10           | 183.10      | 5,330.1               | -121.1       | -7.6         | 120.8                   | 11.32                   | 11.29                  | 1.29                  |  |
| 5,390.0               | 43.10           | 183.80      | 5,354.3               | -142.1       | -8.8         | 141.8                   | 12.58                   | 12.50                  | 2.19                  |  |
| 5,421.0               | 46.60           | 183.60      | 5,376.2               | -163.9       | -10.2        | 163.6                   | 11.30                   | 11.29                  | -0.65                 |  |
| 5,453.0               | 49.70           | 184.40      | 5,397.6               | -187.7       | -11.9        | 187.3                   | 9.86                    | 9.69                   | 2.50                  |  |
| 5,484.0               | 52.70           | 185.10      | 5,417.0               | -211.7       | -13.9        | 211.3                   | 9.84                    | 9.68                   | 2.26                  |  |
| 5,516.0               | 55.60           | 185.10      | 5,435.7               | -237.6       | -16.2        | 237.1                   | 9.06                    | 9.06                   | 0.00                  |  |
| 5,547.0               | 58.70           | 184.50      | 5,452.6               | -263.5       | -18.4        | 263.0                   | 10.13                   | 10.00                  | -1.94                 |  |
| 5,578.0               | 62.20           | 184.30      | 5,467.8               | -290.4       | -20.5        | 289.8                   | 11.30                   | 11.29                  | -0.65                 |  |
| 5,610.0               | 65.50           | 183.80      | 5,481.9               | -319.0       | -22.5        | 318.4                   | 10.41                   | 10.31                  | -1.56                 |  |
| 5,641.0               | 68.40           | 184.00      | 5,494.1               | -347.5       | -24.4        | 346.8                   | 9.37                    | 9.35                   | 0.65                  |  |
| 5,673.0               | 71.20           | 184.20      | 5,505.1               | -377.4       | -26.6        | 376.7                   | 8.77                    | 8.75                   | 0.63                  |  |
| 5,704.0               | 74.50           | 184.40      | 5,514.3               | -407.0       | -28.8        | 406.1                   | 10.66                   | 10.65                  | 0.65                  |  |
| 5,736.0               | 78.00           | 185.30      | 5,521.9               | -437.9       | -31.4        | 437.0                   | 11.27                   | 10.94                  | 2.81                  |  |
| 5,767.0               | 80.60           | 186.20      | 5,527.6               | -468.3       | -34.5        | 467.2                   | 8.86                    | 8.39                   | 2.90                  |  |
| 5,798.0               | 84.00           | 186.50      | 5,531.8               | -498.8       | -37.9        | 497.7                   | 11.01                   | 10.97                  | 0.97                  |  |
| 5,829.0               | 87.60           | 187.10      | 5,534.0               | -529.5       | -41.5        | 528.3                   | 11.77                   | 11.61                  | 1.94                  |  |
| 5,861.0               | 89.00           | 186.60      | 5,535.0               | -561.2       | -45.3        | 559.9                   | 4.65                    | 4.38                   | -1.56                 |  |
| 5,892.0               | 89.60           | 184.70      | 5,535.4               | -592.1       | -48.4        | 590.7                   | 6.43                    | 1.94                   | -6.13                 |  |
| 5,987.0               | 88.70           | 181.10      | 5,536.8               | -686.9       | -53.2        | 685.4                   | 3.91                    | -0.95                  | -3.79                 |  |
| 6,082.0               | 89.00           | 177.80      | 5,538.7               | -781.9       | -52.3        | 780.3                   | 3.49                    | 0.32                   | -3.47                 |  |
| 6,176.0               | 88.60           | 177.70      | 5,540.7               | -875.8       | -48.6        | 874.3                   | 0.44                    | -0.43                  | -0.11                 |  |
| 6,271.0               | 88.40           | 177.70      | 5,543.1               | -970.7       | -44.8        | 969.2                   | 0.21                    | -0.21                  | 0.00                  |  |
| 6,365.0               | 87.90           | 177.90      | 5,546.2               | -1,064.6     | -41.2        | 1,063.2                 | 0.57                    | -0.53                  | 0.21                  |  |
| 6,459.0               | 89.40           | 178.30      | 5,548.4               | -1,158.5     | -38.1        | 1,157.2                 | 1.65                    | 1.60                   | 0.43                  |  |
| 6,553.0               | 89.40           | 178.40      | 5,549.4               | -1,252.4     | -35.4        | 1,251.2                 | 0.11                    | 0.00                   | 0.11                  |  |



TDS  
Survey Report



|           |                                                      |                              |                                    |
|-----------|------------------------------------------------------|------------------------------|------------------------------------|
| Company:  | COG Operating LLC                                    | Local Co-ordinate Reference: | Site: Puckett, 13 Federal Com #38H |
| Project:  | Eddy County, NM                                      | TVD Reference:               | KB @ 3989.0usft (United 43)        |
| Site:     | Puckett, 13 Federal Com #38H                         | MD Reference:                | KB @ 3989.0usft (United 43)        |
| Well:     | SHL: 1180' FSL: 470' FEL: Sec 12, T17S, R31E, Unit P | North Reference:             | Grid                               |
| Wellbore: | BHL: 350' FSL: 350' FEL: Sec 13, T17S, R31E, Unit P  | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | BHL: 350' FSL: 350' FEL: Sec 13, T17S, R31E, Unit P  | Database:                    | EDM 5000.1 Single User Db          |

| Survey                |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 6,648.0               | 89.20           | 177.90      | 5,550.5               | -1,347.4     | -32.3        | 1,346.1                 | 0.57                    | -0.21                  | -0.53                 |
| 6,743.0               | 89.50           | 177.70      | 5,551.6               | -1,442.3     | -28.7        | 1,441.1                 | 0.38                    | 0.32                   | -0.21                 |
| 6,838.0               | 89.50           | 178.20      | 5,552.4               | -1,537.2     | -25.3        | 1,536.1                 | 0.53                    | 0.00                   | 0.53                  |
| 6,932.0               | 88.60           | 178.50      | 5,554.0               | -1,631.2     | -22.5        | 1,630.1                 | 1.01                    | -0.96                  | 0.32                  |
| 7,027.0               | 90.20           | 177.70      | 5,555.0               | -1,726.1     | -19.4        | 1,725.1                 | 1.88                    | 1.68                   | -0.84                 |
| 7,121.0               | 89.90           | 177.50      | 5,554.9               | -1,820.1     | -15.5        | 1,819.1                 | 0.38                    | -0.32                  | -0.21                 |
| 7,215.0               | 89.70           | 177.40      | 5,555.2               | -1,914.0     | -11.3        | 1,913.1                 | 0.24                    | -0.21                  | -0.11                 |
| 7,310.0               | 91.20           | 177.60      | 5,554.5               | -2,008.9     | -7.1         | 2,008.0                 | 1.59                    | 1.58                   | 0.21                  |
| 7,404.0               | 91.00           | 177.60      | 5,552.7               | -2,102.8     | -3.2         | 2,102.0                 | 0.21                    | -0.21                  | 0.00                  |
| 7,499.0               | 90.70           | 177.60      | 5,551.3               | -2,197.7     | 0.8          | 2,197.0                 | 0.32                    | -0.32                  | 0.00                  |
| 7,533.0               | 89.80           | 177.70      | 5,551.1               | -2,231.6     | 2.2          | 2,231.0                 | 2.66                    | -2.65                  | 0.29                  |
| 7,566.0               | 88.80           | 178.70      | 5,551.5               | -2,264.6     | 3.2          | 2,264.0                 | 4.29                    | -3.03                  | 3.03                  |
| 7,597.0               | 89.10           | 178.60      | 5,552.1               | -2,295.6     | 3.9          | 2,295.0                 | 1.02                    | 0.97                   | -0.32                 |
| 7,629.0               | 89.30           | 178.90      | 5,552.6               | -2,327.6     | 4.6          | 2,327.0                 | 1.13                    | 0.63                   | 0.94                  |
| 7,660.0               | 89.80           | 179.60      | 5,552.8               | -2,358.6     | 5.0          | 2,358.0                 | 2.77                    | 1.61                   | 2.26                  |
| 7,692.0               | 90.50           | 179.40      | 5,552.7               | -2,390.6     | 5.3          | 2,390.0                 | 2.28                    | 2.19                   | -0.63                 |
| 7,724.0               | 90.60           | 179.20      | 5,552.4               | -2,422.6     | 5.7          | 2,422.0                 | 0.70                    | 0.31                   | -0.63                 |
| 7,756.0               | 91.30           | 178.90      | 5,551.9               | -2,454.6     | 6.2          | 2,453.9                 | 2.38                    | 2.19                   | -0.94                 |
| 7,788.0               | 91.80           | 179.10      | 5,551.0               | -2,486.6     | 6.8          | 2,485.9                 | 1.68                    | 1.56                   | 0.63                  |
| 7,821.0               | 91.60           | 179.10      | 5,550.0               | -2,519.5     | 7.3          | 2,518.9                 | 0.61                    | -0.61                  | 0.00                  |
| 7,853.0               | 90.80           | 179.90      | 5,549.4               | -2,551.5     | 7.6          | 2,550.9                 | 3.54                    | -2.50                  | 2.50                  |
| 7,885.0               | 90.20           | 180.00      | 5,549.1               | -2,583.5     | 7.6          | 2,582.9                 | 1.90                    | -1.88                  | 0.31                  |
| 7,917.0               | 90.50           | 180.20      | 5,548.9               | -2,615.5     | 7.6          | 2,614.9                 | 1.13                    | 0.94                   | 0.63                  |
| 7,949.0               | 90.70           | 180.30      | 5,548.6               | -2,647.5     | 7.4          | 2,646.9                 | 0.70                    | 0.63                   | 0.31                  |
| 7,981.0               | 90.70           | 181.00      | 5,548.2               | -2,679.5     | 7.1          | 2,678.8                 | 2.19                    | 0.00                   | 2.19                  |
| 8,014.0               | 90.60           | 179.90      | 5,547.8               | -2,712.5     | 6.8          | 2,711.8                 | 3.35                    | -0.30                  | -3.33                 |
| 8,047.0               | 90.80           | 179.40      | 5,547.4               | -2,745.5     | 7.0          | 2,744.8                 | 1.63                    | 0.61                   | -1.52                 |
| 8,080.0               | 91.30           | 179.90      | 5,546.8               | -2,778.5     | 7.2          | 2,777.8                 | 2.14                    | 1.52                   | 1.52                  |
| 8,112.0               | 91.80           | 179.70      | 5,545.9               | -2,810.5     | 7.3          | 2,809.8                 | 1.68                    | 1.56                   | -0.63                 |
| 8,143.0               | 92.40           | 179.90      | 5,544.8               | -2,841.5     | 7.4          | 2,840.8                 | 2.04                    | 1.94                   | 0.65                  |
| 8,175.0               | 91.10           | 180.20      | 5,543.8               | -2,873.5     | 7.4          | 2,872.7                 | 4.17                    | -4.06                  | 0.94                  |
| 8,206.0               | 91.30           | 180.40      | 5,543.2               | -2,904.5     | 7.2          | 2,903.7                 | 0.91                    | 0.65                   | 0.65                  |
| 8,238.0               | 91.70           | 180.50      | 5,542.3               | -2,936.4     | 7.0          | 2,935.7                 | 1.29                    | 1.25                   | 0.31                  |
| 8,269.0               | 92.20           | 180.30      | 5,541.3               | -2,967.4     | 6.8          | 2,966.6                 | 1.74                    | 1.61                   | -0.65                 |
| 8,301.0               | 90.90           | 180.30      | 5,540.4               | -2,999.4     | 6.6          | 2,998.6                 | 4.06                    | -4.06                  | 0.00                  |
| 8,332.0               | 90.60           | 180.10      | 5,540.0               | -3,030.4     | 6.5          | 3,029.6                 | 1.16                    | -0.97                  | -0.65                 |
| 8,365.0               | 89.00           | 179.80      | 5,540.1               | -3,063.4     | 6.5          | 3,062.6                 | 4.93                    | -4.85                  | -0.91                 |
| 8,397.0               | 88.50           | 179.60      | 5,540.8               | -3,095.4     | 6.7          | 3,094.6                 | 1.68                    | -1.56                  | -0.63                 |
| 8,428.0               | 88.50           | 179.60      | 5,541.6               | -3,126.4     | 6.9          | 3,125.6                 | 0.00                    | 0.00                   | 0.00                  |
| 8,460.0               | 88.70           | 179.60      | 5,542.4               | -3,158.4     | 7.1          | 3,157.5                 | 0.63                    | 0.63                   | 0.00                  |
| 8,492.0               | 89.00           | 179.70      | 5,543.0               | -3,190.4     | 7.3          | 3,189.5                 | 0.99                    | 0.94                   | 0.31                  |

|           |                                                      |                              |                                  |
|-----------|------------------------------------------------------|------------------------------|----------------------------------|
| Company:  | COG Operating LLC                                    | Local Co-ordinate Reference: | Site Puckett 13 Federal Com #38H |
| Project:  | Eddy County, NM                                      | TVD Reference:               | KB @ 3989.0usft (United 43)      |
| Site:     | Puckett 13 Federal Com #38H                          | MD Reference:                | KB @ 3989.0usft (United 43)      |
| Well:     | SHL: 1180' FSL: 470' FEL: Sec 12, T17S, R31E, Unit P | North Reference:             | Grid                             |
| Wellbore: | BHL: 350' FSL: 350' FEL: Sec 13, T17S, R31E, Unit P  | Survey Calculation Method:   | Minimum Curvature                |
| Design:   | BHL: 350' FSL: 350' FEL: Sec 13, T17S, R31E, Unit P  | Database:                    | EDM 5000.1 Single User Db        |

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 8,524.0               | 88.90           | 179.70      | 5,543.6               | -3,222.4     | 7.5          | 3,221.5                 | 0.31                    | -0.31                  | 0.00                  |
| 8,556.0               | 88.90           | 179.60      | 5,544.2               | -3,254.4     | 7.7          | 3,253.5                 | 0.31                    | 0.00                   | -0.31                 |
| 8,587.0               | 89.10           | 179.40      | 5,544.8               | -3,285.4     | 8.0          | 3,284.5                 | 0.91                    | 0.65                   | -0.65                 |
| 8,618.0               | 89.20           | 179.50      | 5,545.2               | -3,316.3     | 8.3          | 3,315.5                 | 0.46                    | 0.32                   | 0.32                  |
| 8,650.0               | 89.50           | 179.50      | 5,545.6               | -3,348.3     | 8.5          | 3,347.5                 | 0.94                    | 0.94                   | 0.00                  |
| 8,682.0               | 89.60           | 179.60      | 5,545.9               | -3,380.3     | 8.8          | 3,379.5                 | 0.44                    | 0.31                   | 0.31                  |
| 8,713.0               | 89.60           | 179.60      | 5,546.1               | -3,411.3     | 9.0          | 3,410.5                 | 0.00                    | 0.00                   | 0.00                  |
| 8,745.0               | 89.80           | 179.80      | 5,546.2               | -3,443.3     | 9.2          | 3,442.5                 | 0.88                    | 0.63                   | 0.63                  |
| 8,776.0               | 90.00           | 179.20      | 5,546.3               | -3,474.3     | 9.4          | 3,473.5                 | 2.04                    | 0.65                   | -1.94                 |
| 8,808.0               | 90.20           | 178.40      | 5,546.2               | -3,506.3     | 10.1         | 3,505.5                 | 2.58                    | 0.63                   | -2.50                 |
| 8,903.0               | 90.90           | 178.60      | 5,545.3               | -3,601.3     | 12.6         | 3,600.5                 | 0.77                    | 0.74                   | 0.21                  |
| 8,997.0               | 90.10           | 177.80      | 5,544.5               | -3,695.2     | 15.6         | 3,694.5                 | 1.20                    | -0.85                  | -0.85                 |
| 9,094.0               | 90.40           | 177.80      | 5,544.1               | -3,792.2     | 19.3         | 3,791.4                 | 0.31                    | 0.31                   | 0.00                  |
| 9,189.0               | 89.70           | 177.80      | 5,544.0               | -3,887.1     | 22.9         | 3,886.4                 | 0.74                    | -0.74                  | 0.00                  |
| 9,285.0               | 88.60           | 176.80      | 5,545.4               | -3,983.0     | 27.4         | 3,982.4                 | 1.55                    | -1.15                  | -1.04                 |
| 9,382.0               | 89.40           | 176.30      | 5,547.1               | -4,079.8     | 33.3         | 4,079.3                 | 0.97                    | 0.82                   | -0.52                 |
| 9,479.0               | 89.80           | 176.30      | 5,547.8               | -4,176.6     | 39.5         | 4,176.2                 | 0.41                    | 0.41                   | 0.00                  |
| 9,575.0               | 90.30           | 176.30      | 5,547.7               | -4,272.4     | 45.7         | 4,272.2                 | 0.52                    | 0.52                   | 0.00                  |
| 9,608.0               | 90.70           | 176.30      | 5,547.4               | -4,305.3     | 47.9         | 4,305.1                 | 1.21                    | 1.21                   | 0.00                  |
| 9,640.0               | 90.50           | 176.40      | 5,547.1               | -4,337.2     | 49.9         | 4,337.1                 | 0.70                    | -0.63                  | 0.31                  |
| 9,672.0               | 90.50           | 176.50      | 5,546.8               | -4,369.2     | 51.9         | 4,369.1                 | 0.31                    | 0.00                   | 0.31                  |
| 9,704.0               | 90.50           | 176.30      | 5,546.5               | -4,401.1     | 53.9         | 4,401.1                 | 0.62                    | 0.00                   | -0.63                 |
| 9,736.0               | 90.90           | 176.40      | 5,546.1               | -4,433.0     | 55.9         | 4,433.0                 | 1.29                    | 1.25                   | 0.31                  |
| 9,768.0               | 90.70           | 176.40      | 5,545.7               | -4,465.0     | 57.9         | 4,465.0                 | 0.63                    | -0.63                  | 0.00                  |
| 9,863.0               | 88.70           | 176.30      | 5,546.2               | -4,559.8     | 64.0         | 4,559.9                 | 2.11                    | -2.11                  | -0.11                 |
| 9,957.0               | 89.00           | 175.90      | 5,548.1               | -4,653.5     | 70.4         | 4,653.8                 | 0.53                    | 0.32                   | -0.43                 |
| 10,053.0              | 89.50           | 176.10      | 5,549.3               | -4,749.3     | 77.1         | 4,749.7                 | 0.56                    | 0.52                   | 0.21                  |
| 10,149.0              | 89.80           | 176.30      | 5,549.9               | -4,845.1     | 83.4         | 4,845.7                 | 0.38                    | 0.31                   | 0.21                  |
| 10,246.0              | 90.30           | 176.40      | 5,549.8               | -4,941.9     | 89.6         | 4,942.6                 | 0.53                    | 0.52                   | 0.10                  |
| 10,343.0              | 90.90           | 176.30      | 5,548.8               | -5,038.7     | 95.8         | 5,039.5                 | 0.63                    | 0.62                   | -0.10                 |
| Final MWD Survey      |                 |             |                       |              |              |                         |                         |                        |                       |
| 10,463.0              | 90.90           | 176.30      | 5,546.9               | -5,158.4     | 103.5        | 5,159.4                 | 0.00                    | 0.00                   | 0.00                  |
| Projection to Bit/TD  |                 |             |                       |              |              |                         |                         |                        |                       |

| Design Annotations    |                       |                   |              |                      |
|-----------------------|-----------------------|-------------------|--------------|----------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment              |
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                      |
| 4,833.0               | 4,832.9               | -2.3              | -5.6         | TIE-IN to VES Gyro   |
| 10,343.0              | 5,548.8               | -5,038.7          | 95.8         | Final MWD Survey     |
| 10,463.0              | 5,546.9               | -5,158.4          | 103.5        | Projection to Bit/TD |