

## Results of Directional Survey

|             |                     |           |                                  |
|-------------|---------------------|-----------|----------------------------------|
| API number: | <b>30-025-40732</b> |           |                                  |
| OGRID:      |                     | Operator: | <b>COG OPERATING LLC</b>         |
|             |                     | Property: | <b>LIGHTNING P-38 STATE</b> # 5H |

|         |        |   |    |      |     |     |     |
|---------|--------|---|----|------|-----|-----|-----|
| surface | ULSTR: | I | 01 | T    | 21S | R   | 33E |
|         |        |   |    | 3627 | FNL | 359 | FEL |

|        |        |         |     |      |     |      |     |
|--------|--------|---------|-----|------|-----|------|-----|
| BH Loc | ULSTR: | L       | 01  | T    | 21S | R    | 33E |
| 15957  | MD     | 11456.6 | TVD | 3341 | FNL | 291  | FWL |
|        |        |         |     |      |     | 4989 | FEL |

|             |        |         |     |      |     |     |     |
|-------------|--------|---------|-----|------|-----|-----|-----|
| Top Perf/OH | ULSTR: | I       | 01  | T    | 21S | R   | 33E |
| 11725       | MD     | 11526.0 | TVD | 3507 | FNL | 782 | FEL |

|             |        |         |     |      |     |      |     |
|-------------|--------|---------|-----|------|-----|------|-----|
| Bot Perf/OH | ULSTR: | L       | 01  | T    | 21S | R    | 33E |
| 15744       | MD     | 11471.9 | TVD | 3337 | FNL | 503  | FWL |
|             |        |         |     |      |     | 4777 | FEL |

|              |       |        |          |          |
|--------------|-------|--------|----------|----------|
|              | MD    | N/S    | E/W      | VD       |
|              | 11694 | 109.70 | -395.58  | 11516.51 |
| TOP PERFS/OH | 11725 | 120.46 | -423.04  | 11526.04 |
|              | 11725 | 120.46 | -423.04  | 11526.04 |
|              | 15715 | 290.48 | -4388.86 | 11473.76 |
| BOT PERFS/OH | 15744 | 289.97 | -4417.80 | 11471.89 |
|              | 15810 | 288.82 | -4483.65 | 11467.63 |

|              |       |        |          |          |
|--------------|-------|--------|----------|----------|
| NEXT TO LAST | 15810 | 288.82 | -4483.65 | 11467.63 |
| LAST READING | 15957 | 286.01 | -4630.21 | 11456.60 |
| TD           | 15957 | 286.01 | -4630.21 | 11456.60 |

|                  |      |    |      |    |
|------------------|------|----|------|----|
| Surface Location | 3627 | FN | 359  | FE |
| Projected BHL    | 3341 | FN | 4989 | FE |
| Location of      |      |    |      |    |
| Top Perfs/OH     | 3507 | FN | 782  | FE |
| Bottom Perfs/OH  | 3337 | FN | 4777 | FE |

### SUMMARY of Subsurface Locations

|                  |              |      |    |      |    |             |
|------------------|--------------|------|----|------|----|-------------|
| Surface Location | I-01-21S-33E | 3627 | FN | 359  | FE | Vert. Depth |
|                  |              |      |    |      |    |             |
| Top Perfs/OH     | I-01-21S-33E | 3507 | FN | 782  | FE | 11526.04    |
| Bottom Perfs/OH  | L-01-21S-33E | 3337 | FN | 4777 | FE | 11471.89    |
|                  |              |      |    |      |    |             |
| Projected TD     | L-01-21S-33E | 3341 | FN | 4989 | FE | 11456.60    |

AUG 28 2013



A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021  
Corpus Christi, Texas 78426  
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

HOBBS OCD

JUN 11 2013

RECEIVED

April 2, 2013

COG Operating LLC (Concho)  
One Concho Center  
600 W. Illinois Avenue  
Midland, TX 79701

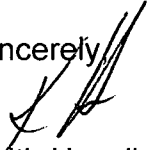
Attn: Kanicia Castillo

Re: **Lightning P-38 State No 005H**

Please find enclosed a copy of the survey from 0' to 10,931' ran on the above referenced well.

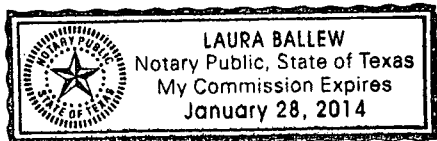
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

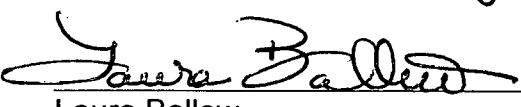
Sincerely,

  
Keith Havelka  
Operations

STATE OF TEXAS     §  
                                 §  
COUNTY OF NUECES §

This instrument was acknowledged before me on the 2<sup>nd</sup> day of April, A.D., 2013, by Keith Havelka.



  
\_\_\_\_\_  
Laura Ballew  
Notary Public, State of Texas

Company: COG Operating LLC (Concho)  
Lease/Well: Lightning P-38 State/No 005H



Rig Name: Precision #77  
State/County: New Mexico/Lea  
Latitude: 32.51, Longitude: -103.52  
GRID North is 0.44 Degrees East of True North  
VS-Azi: 0.00 Degrees



HOESS OGD

JUN 11 2013

RECEIVED

Depth Reference : RKB=30 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: lightning p-38 state #5h.ut

Minimum Curvature Method

Report Date/Time: 4/1/2013 / 15:36

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Logan Henry

Lightning P-38 State No 005H / API 30-025-40732

| 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                  | 0.19                 | 132.86                    | 100.00    | -0.11       | 0.12        | -0.11                     | 0.17                      | 132.86                      | 0.19                          |
| 200.00                  | 0.64                 | 149.52                    | 200.00    | -0.71       | 0.53        | -0.71                     | 0.89                      | 143.26                      | 0.46                          |
| 300.00                  | 0.73                 | 178.76                    | 299.99    | -1.83       | 0.83        | -1.83                     | 2.01                      | 155.62                      | 0.36                          |
| 400.00                  | 0.85                 | 180.79                    | 399.98    | -3.20       | 0.83        | -3.20                     | 3.31                      | 165.46                      | 0.13                          |
| 500.00                  | 0.63                 | 183.35                    | 499.97    | -4.50       | 0.79        | -4.50                     | 4.56                      | 170.05                      | 0.23                          |
| 600.00                  | 0.63                 | 181.42                    | 599.97    | -5.59       | 0.74        | -5.59                     | 5.64                      | 172.43                      | 0.02                          |
| 700.00                  | 0.41                 | 196.10                    | 699.96    | -6.48       | 0.63        | -6.48                     | 6.51                      | 174.44                      | 0.26                          |
| 800.00                  | 0.37                 | 193.51                    | 799.96    | -7.14       | 0.46        | -7.14                     | 7.15                      | 176.34                      | 0.04                          |
| 900.00                  | 0.22                 | 196.65                    | 899.96    | -7.64       | 0.32        | -7.64                     | 7.65                      | 177.57                      | 0.15                          |
| 1000.00                 | 0.13                 | 182.00                    | 999.96    | -7.95       | 0.27        | -7.95                     | 7.95                      | 178.09                      | 0.10                          |
| 1100.00                 | 0.18                 | 167.55                    | 1099.96   | -8.22       | 0.30        | -8.22                     | 8.22                      | 177.94                      | 0.06                          |
| 1200.00                 | 0.21                 | 164.34                    | 1199.96   | -8.55       | 0.38        | -8.55                     | 8.56                      | 177.47                      | 0.03                          |
| 1300.00                 | 0.26                 | 161.43                    | 1299.96   | -8.94       | 0.50        | -8.94                     | 8.95                      | 176.80                      | 0.05                          |
| 1400.00                 | 0.15                 | 235.60                    | 1399.96   | -9.23       | 0.46        | -9.23                     | 9.24                      | 177.14                      | 0.26                          |
| 1500.00                 | 0.39                 | 280.69                    | 1499.95   | -9.24       | 0.01        | -9.24                     | 9.24                      | 179.92                      | 0.31                          |
| 1600.00                 | 0.43                 | 291.08                    | 1599.95   | -9.04       | -0.68       | -9.04                     | 9.06                      | 184.28                      | 0.08                          |
| 1700.00                 | 0.76                 | 281.26                    | 1699.95   | -8.77       | -1.68       | -8.77                     | 8.93                      | 190.82                      | 0.34                          |
| 1800.00                 | 0.78                 | 286.63                    | 1799.94   | -8.45       | -2.98       | -8.45                     | 8.96                      | 199.42                      | 0.08                          |

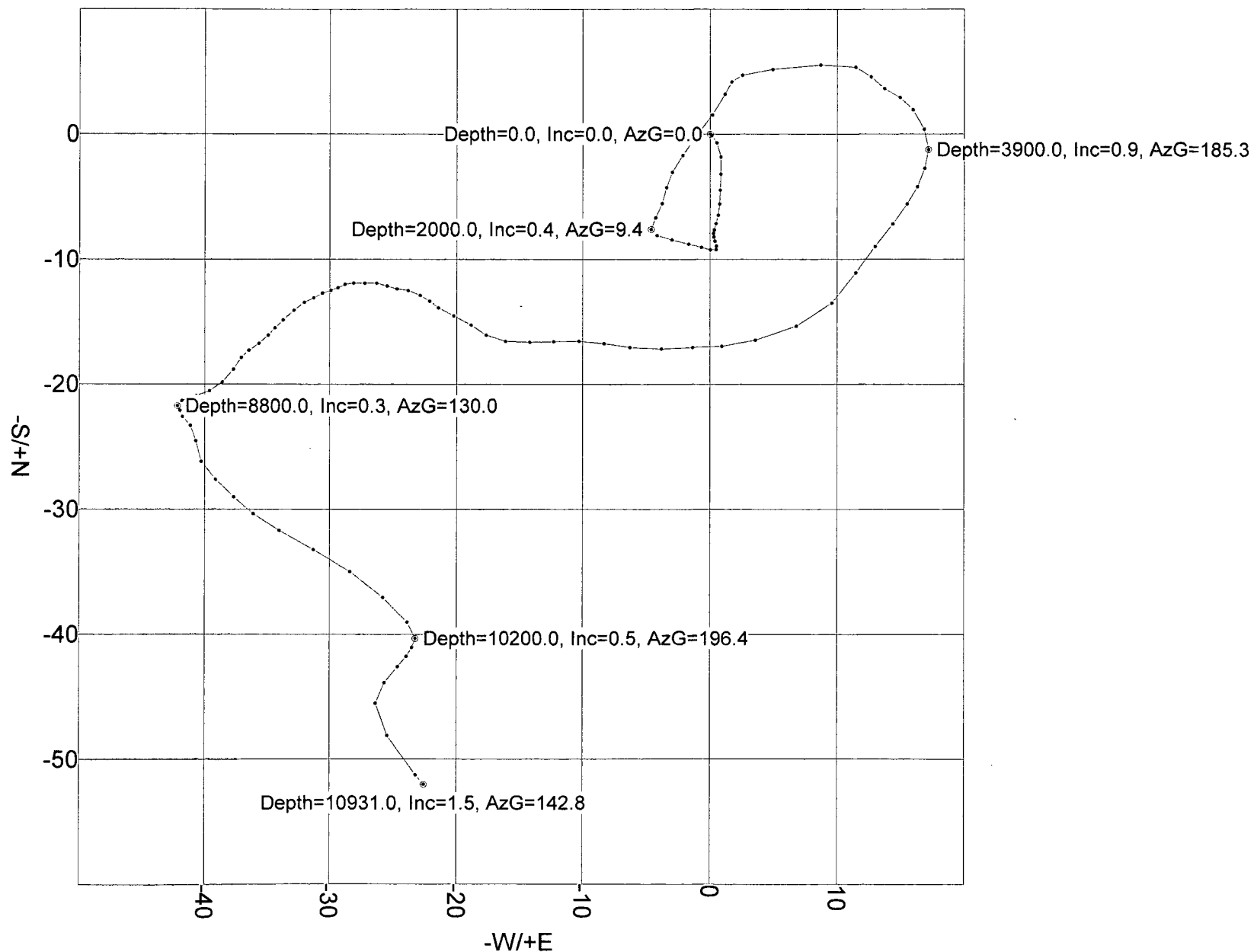
| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | TVD<br>FT | +N/-S<br>FT | +E/-W<br>FT | Vertical<br>Section<br>FT | Closure<br>Distance<br>FT | Closure<br>Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 1900.00                 | 0.62                 | 287.29                    | 1899.93   | -8.09       | -4.15       | -8.09                     | 9.10                      | 207.16                      | 0.16                          |
| 2000.00                 | 0.39                 | 9.39                      | 1999.93   | -7.60       | -4.61       | -7.60                     | 8.89                      | 211.28                      | 0.69                          |
| 2100.00                 | 0.76                 | 27.86                     | 2099.92   | -6.68       | -4.25       | -6.68                     | 7.91                      | 212.48                      | 0.41                          |
| 2200.00                 | 0.66                 | 19.95                     | 2199.91   | -5.55       | -3.74       | -5.55                     | 6.69                      | 214.01                      | 0.14                          |
| 2300.00                 | 0.84                 | 10.47                     | 2299.91   | -4.28       | -3.41       | -4.28                     | 5.48                      | 218.56                      | 0.22                          |
| 2400.00                 | 0.69                 | 31.92                     | 2399.90   | -3.05       | -2.96       | -3.05                     | 4.25                      | 224.19                      | 0.32                          |
| 2500.00                 | 1.10                 | 30.17                     | 2499.88   | -1.71       | -2.16       | -1.71                     | 2.76                      | 231.69                      | 0.41                          |
| 2600.00                 | 1.05                 | 39.27                     | 2599.87   | -0.17       | -1.10       | -0.17                     | 1.11                      | 261.14                      | 0.18                          |
| 2700.00                 | 1.39                 | 35.13                     | 2699.84   | 1.53        | 0.18        | 1.53                      | 1.54                      | 6.60                        | 0.35                          |
| 2800.00                 | 0.82                 | 22.24                     | 2799.83   | 3.19        | 1.15        | 3.19                      | 3.39                      | 19.79                       | 0.61                          |
| 2900.00                 | 0.49                 | 39.81                     | 2899.82   | 4.18        | 1.69        | 4.18                      | 4.51                      | 22.03                       | 0.39                          |
| 3000.00                 | 0.69                 | 69.37                     | 2999.81   | 4.72        | 2.53        | 4.72                      | 5.35                      | 28.18                       | 0.36                          |
| 3100.00                 | 2.11                 | 82.23                     | 3099.78   | 5.18        | 4.92        | 5.18                      | 7.14                      | 43.53                       | 1.45                          |
| 3200.00                 | 2.23                 | 87.06                     | 3199.71   | 5.53        | 8.69        | 5.53                      | 10.30                     | 57.54                       | 0.22                          |
| 3300.00                 | 0.98                 | 107.86                    | 3299.67   | 5.37        | 11.45       | 5.37                      | 12.64                     | 64.89                       | 1.36                          |
| 3400.00                 | 0.78                 | 140.79                    | 3399.66   | 4.58        | 12.69       | 4.58                      | 13.49                     | 70.17                       | 0.53                          |
| 3500.00                 | 0.86                 | 122.16                    | 3499.65   | 3.65        | 13.76       | 3.65                      | 14.23                     | 75.13                       | 0.28                          |
| 3600.00                 | 0.75                 | 119.48                    | 3599.64   | 2.93        | 14.96       | 2.93                      | 15.25                     | 78.93                       | 0.11                          |
| 3700.00                 | 0.92                 | 145.68                    | 3699.63   | 1.94        | 15.99       | 1.94                      | 16.11                     | 83.08                       | 0.41                          |
| 3800.00                 | 1.13                 | 154.97                    | 3799.61   | 0.39        | 16.86       | 0.39                      | 16.86                     | 88.69                       | 0.27                          |
| 3900.00                 | 0.85                 | 185.34                    | 3899.60   | -1.25       | 17.21       | -1.25                     | 17.25                     | 94.15                       | 0.58                          |
| 4000.00                 | 0.91                 | 196.62                    | 3999.59   | -2.75       | 16.91       | -2.75                     | 17.13                     | 99.24                       | 0.18                          |
| 4100.00                 | 0.90                 | 205.83                    | 4099.57   | -4.22       | 16.34       | -4.22                     | 16.88                     | 104.48                      | 0.15                          |
| 4200.00                 | 0.93                 | 215.27                    | 4199.56   | -5.59       | 15.53       | -5.59                     | 16.50                     | 109.79                      | 0.15                          |
| 4300.00                 | 1.31                 | 215.21                    | 4299.54   | -7.18       | 14.40       | -7.18                     | 16.09                     | 116.51                      | 0.38                          |
| 4400.00                 | 1.30                 | 220.48                    | 4399.52   | -8.98       | 13.01       | -8.98                     | 15.81                     | 124.60                      | 0.12                          |
| 4500.00                 | 1.67                 | 212.72                    | 4499.48   | -11.06      | 11.49       | -11.06                    | 15.95                     | 133.92                      | 0.43                          |
| 4600.00                 | 1.87                 | 223.00                    | 4599.43   | -13.48      | 9.59        | -13.48                    | 16.54                     | 144.58                      | 0.37                          |
| 4700.00                 | 2.10                 | 248.74                    | 4699.38   | -15.34      | 6.77        | -15.34                    | 16.77                     | 156.17                      | 0.91                          |
| 4800.00                 | 1.79                 | 252.66                    | 4799.32   | -16.47      | 3.58        | -16.47                    | 16.85                     | 167.74                      | 0.34                          |
| 4900.00                 | 1.34                 | 268.70                    | 4899.28   | -16.96      | 0.92        | -16.96                    | 16.98                     | 176.89                      | 0.62                          |
| 5000.00                 | 1.28                 | 267.13                    | 4999.26   | -17.04      | -1.36       | -17.04                    | 17.09                     | 184.58                      | 0.07                          |
| 5100.00                 | 1.50                 | 267.21                    | 5099.23   | -17.16      | -3.79       | -17.16                    | 17.57                     | 192.47                      | 0.22                          |
| 5200.00                 | 1.34                 | 278.69                    | 5199.19   | -17.05      | -6.27       | -17.05                    | 18.16                     | 200.18                      | 0.33                          |
| 5300.00                 | 1.04                 | 278.09                    | 5299.17   | -16.74      | -8.32       | -16.74                    | 18.70                     | 206.43                      | 0.31                          |
| 5400.00                 | 1.25                 | 272.93                    | 5399.15   | -16.56      | -10.30      | -16.56                    | 19.50                     | 211.89                      | 0.23                          |
| 5500.00                 | 1.06                 | 265.03                    | 5499.13   | -16.58      | -12.31      | -16.58                    | 20.65                     | 216.58                      | 0.25                          |
| 5600.00                 | 1.11                 | 271.75                    | 5599.12   | -16.63      | -14.20      | -16.63                    | 21.87                     | 220.48                      | 0.14                          |
| 5700.00                 | 1.10                 | 273.47                    | 5699.10   | -16.55      | -16.12      | -16.55                    | 23.10                     | 224.26                      | 0.04                          |

| 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 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 5800.00                 | 0.85                 | 304.89                    | 5799.08   | -16.06      | -17.68      | -16.06                    | 23.89                     | 227.75                      | 0.58                          |
| 5900.00                 | 0.81                 | 303.69                    | 5899.07   | -15.25      | -18.88      | -15.25                    | 24.27                     | 231.08                      | 0.04                          |
| 6000.00                 | 0.96                 | 293.67                    | 5999.06   | -14.52      | -20.24      | -14.52                    | 24.91                     | 234.35                      | 0.21                          |
| 6100.00                 | 0.63                 | 305.29                    | 6099.05   | -13.86      | -21.45      | -13.86                    | 25.54                     | 237.13                      | 0.36                          |
| 6200.00                 | 0.37                 | 312.28                    | 6199.05   | -13.33      | -22.14      | -13.33                    | 25.84                     | 238.96                      | 0.26                          |
| 6300.00                 | 0.62                 | 295.53                    | 6299.04   | -12.87      | -22.87      | -12.87                    | 26.25                     | 240.63                      | 0.28                          |
| 6400.00                 | 0.56                 | 288.42                    | 6399.04   | -12.49      | -23.83      | -12.49                    | 26.90                     | 242.34                      | 0.09                          |
| 6500.00                 | 0.45                 | 267.32                    | 6499.03   | -12.35      | -24.68      | -12.35                    | 27.60                     | 243.42                      | 0.22                          |
| 6600.00                 | 0.52                 | 301.84                    | 6599.03   | -12.13      | -25.46      | -12.13                    | 28.20                     | 244.53                      | 0.29                          |
| 6700.00                 | 0.51                 | 267.61                    | 6699.03   | -11.91      | -26.28      | -11.91                    | 28.86                     | 245.63                      | 0.30                          |
| 6800.00                 | 0.57                 | 272.30                    | 6799.02   | -11.91      | -27.22      | -11.91                    | 29.71                     | 246.38                      | 0.08                          |
| 6900.00                 | 0.44                 | 269.13                    | 6899.02   | -11.89      | -28.10      | -11.89                    | 30.52                     | 247.06                      | 0.13                          |
| 7000.00                 | 0.36                 | 252.25                    | 6999.02   | -11.99      | -28.78      | -11.99                    | 31.18                     | 247.38                      | 0.14                          |
| 7100.00                 | 0.36                 | 233.66                    | 7099.01   | -12.27      | -29.33      | -12.27                    | 31.80                     | 247.29                      | 0.12                          |
| 7200.00                 | 0.35                 | 266.85                    | 7199.01   | -12.48      | -29.89      | -12.48                    | 32.39                     | 247.34                      | 0.20                          |
| 7300.00                 | 0.49                 | 241.16                    | 7299.01   | -12.70      | -30.57      | -12.70                    | 33.11                     | 247.44                      | 0.23                          |
| 7400.00                 | 0.41                 | 241.91                    | 7399.01   | -13.08      | -31.26      | -13.08                    | 33.89                     | 247.30                      | 0.08                          |
| 7500.00                 | 0.53                 | 244.70                    | 7499.00   | -13.44      | -32.00      | -13.44                    | 34.71                     | 247.21                      | 0.12                          |
| 7600.00                 | 0.68                 | 223.80                    | 7599.00   | -14.07      | -32.83      | -14.07                    | 35.72                     | 246.80                      | 0.26                          |
| 7700.00                 | 0.63                 | 229.73                    | 7698.99   | -14.85      | -33.66      | -14.85                    | 36.79                     | 246.19                      | 0.08                          |
| 7800.00                 | 0.41                 | 219.73                    | 7798.99   | -15.49      | -34.31      | -15.49                    | 37.64                     | 245.71                      | 0.24                          |
| 7900.00                 | 0.50                 | 225.17                    | 7898.98   | -16.07      | -34.85      | -16.07                    | 38.37                     | 245.25                      | 0.10                          |
| 8000.00                 | 0.64                 | 231.12                    | 7998.98   | -16.73      | -35.59      | -16.73                    | 39.33                     | 244.83                      | 0.16                          |
| 8100.00                 | 0.47                 | 242.55                    | 8098.97   | -17.27      | -36.39      | -17.27                    | 40.28                     | 244.62                      | 0.21                          |
| 8200.00                 | 0.54                 | 212.20                    | 8198.97   | -17.85      | -37.00      | -17.85                    | 41.08                     | 244.25                      | 0.27                          |
| 8300.00                 | 0.77                 | 216.68                    | 8298.96   | -18.79      | -37.65      | -18.79                    | 42.08                     | 243.48                      | 0.24                          |
| 8400.00                 | 0.83                 | 228.11                    | 8398.95   | -19.81      | -38.59      | -19.81                    | 43.38                     | 242.83                      | 0.17                          |
| 8500.00                 | 0.63                 | 243.25                    | 8498.95   | -20.54      | -39.62      | -20.54                    | 44.63                     | 242.60                      | 0.27                          |
| 8600.00                 | 0.65                 | 257.88                    | 8598.94   | -20.91      | -40.67      | -20.91                    | 45.72                     | 242.79                      | 0.16                          |
| 8700.00                 | 0.73                 | 246.46                    | 8698.93   | -21.28      | -41.80      | -21.28                    | 46.91                     | 243.02                      | 0.16                          |
| 8800.00                 | 0.32                 | 129.97                    | 8798.93   | -21.72      | -42.18      | -21.72                    | 47.44                     | 242.76                      | 0.92                          |
| 8900.00                 | 0.22                 | 183.52                    | 8898.93   | -22.09      | -41.97      | -22.09                    | 47.43                     | 242.25                      | 0.26                          |
| 9000.00                 | 0.42                 | 146.83                    | 8998.93   | -22.58      | -41.78      | -22.58                    | 47.49                     | 241.61                      | 0.28                          |
| 9100.00                 | 0.67                 | 132.45                    | 9098.92   | -23.28      | -41.15      | -23.28                    | 47.28                     | 240.50                      | 0.28                          |
| 9200.00                 | 0.98                 | 178.99                    | 9198.91   | -24.52      | -40.71      | -24.52                    | 47.53                     | 238.93                      | 0.71                          |
| 9300.00                 | 1.02                 | 151.67                    | 9298.90   | -26.16      | -40.27      | -26.16                    | 48.02                     | 236.99                      | 0.47                          |
| 9400.00                 | 1.13                 | 131.57                    | 9398.88   | -27.60      | -39.11      | -27.60                    | 47.87                     | 234.79                      | 0.39                          |
| 9500.00                 | 1.23                 | 134.47                    | 9498.86   | -29.00      | -37.61      | -29.00                    | 47.50                     | 232.37                      | 0.12                          |
| 9600.00                 | 1.15                 | 126.34                    | 9598.84   | -30.34      | -36.05      | -30.34                    | 47.12                     | 229.91                      | 0.19                          |

| 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 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 9700.00                 | 1.68                 | 120.29                    | 9698.81   | -31.67      | -33.97      | -31.67                    | 46.45                     | 227.01                      | 0.55                          |
| 9800.00                 | 1.88                 | 118.85                    | 9798.76   | -33.20      | -31.27      | -33.20                    | 45.61                     | 223.28                      | 0.21                          |
| 9900.00                 | 2.02                 | 123.90                    | 9898.70   | -34.98      | -28.37      | -34.98                    | 45.04                     | 219.04                      | 0.22                          |
| 10000.00                | 1.78                 | 132.84                    | 9998.65   | -37.02      | -25.77      | -37.02                    | 45.10                     | 214.84                      | 0.39                          |
| 10100.00                | 1.36                 | 140.87                    | 10098.61  | -39.00      | -23.88      | -39.00                    | 45.73                     | 211.48                      | 0.47                          |
| 10200.00                | 0.47                 | 196.41                    | 10198.60  | -40.31      | -23.24      | -40.31                    | 46.53                     | 209.97                      | 1.16                          |
| 10300.00                | 0.42                 | 203.05                    | 10298.59  | -41.04      | -23.50      | -41.04                    | 47.30                     | 209.80                      | 0.07                          |
| 10400.00                | 0.54                 | 217.53                    | 10398.59  | -41.76      | -23.94      | -41.76                    | 48.13                     | 209.82                      | 0.17                          |
| 10500.00                | 0.68                 | 219.89                    | 10498.59  | -42.59      | -24.61      | -42.59                    | 49.19                     | 210.02                      | 0.14                          |
| 10600.00                | 1.21                 | 219.06                    | 10598.57  | -43.87      | -25.65      | -43.87                    | 50.82                     | 210.32                      | 0.54                          |
| 10700.00                | 0.95                 | 181.62                    | 10698.55  | -45.52      | -26.34      | -45.52                    | 52.59                     | 210.06                      | 0.74                          |
| 10800.00                | 2.29                 | 151.90                    | 10798.51  | -48.11      | -25.43      | -48.11                    | 54.42                     | 207.86                      | 1.54                          |
| 10900.00                | 2.15                 | 137.42                    | 10898.44  | -51.26      | -23.21      | -51.26                    | 56.27                     | 204.36                      | 0.58                          |
| 10931.00                | 1.52                 | 142.84                    | 10929.42  | -52.02      | -22.57      | -52.02                    | 56.70                     | 203.46                      | 2.10                          |



Vaughn Energy Services  
Midland, Texas  
432-563-5444  
Surveyor: Logan Henry  
Lightning P-38 State No 005H / API 30-025-40732



VES Survey Date: 03/26/2013



## **Concho COG Operating LLC**

**Lea County, New Mexico**

**Lightning P-38**

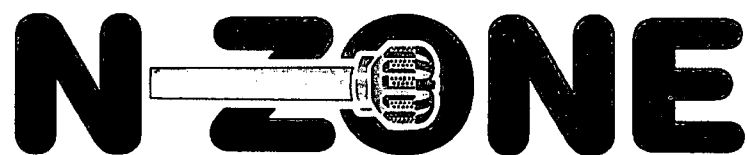
**Lightning P-38 State 5H**

**Original Hole**

**Design: Surveys Original Hole**

## **Survey Report - Geographic**

**19 April, 2013**





|                  |                          |                                     |                                          |
|------------------|--------------------------|-------------------------------------|------------------------------------------|
| <b>Company:</b>  | Concho COG Operating LLC | <b>Local Co-ordinate Reference:</b> | Well Lightning P-38 State 5H             |
| <b>Project:</b>  | Lea County, New Mexico   | <b>TVD Reference:</b>               | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Site:</b>     | Lightning P-38           | <b>MD Reference:</b>                | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Well:</b>     | Lightning P-38 State 5H  | <b>North Reference:</b>             | Grid                                     |
| <b>Wellbore:</b> | Original Hole            | <b>Survey Calculation Method:</b>   | Minimum Curvature                        |
| <b>Design:</b>   | Surveys Original Hole    | <b>Database:</b>                    | EDM 5000.1 Single User Db                |

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

|                              |                |                     |                 |                          |                     |
|------------------------------|----------------|---------------------|-----------------|--------------------------|---------------------|
| <b>Site</b>                  | Lightning P-38 |                     |                 |                          |                     |
| <b>Site Position:</b>        |                | <b>Northing:</b>    | 551,026.60 usft | <b>Latitude:</b>         | 32° 30' 44.068064 N |
| <b>From:</b>                 | Map            | <b>Easting:</b>     | 751,268.90 usft | <b>Longitude:</b>        | 103° 31' 5.600108 W |
| <b>Position Uncertainty:</b> | 0.00 usft      | <b>Slot Radius:</b> | 13-3/16 "       | <b>Grid Convergence:</b> | 0.44 °              |

|                             |                         |           |                            |                 |                      |                     |
|-----------------------------|-------------------------|-----------|----------------------------|-----------------|----------------------|---------------------|
| <b>Well</b>                 | Lightning P-38 State 5H |           |                            |                 |                      |                     |
| <b>Well Position</b>        | <b>+N/-S</b>            | 0.00 usft | <b>Northing:</b>           | 551,026.60 usft | <b>Latitude:</b>     | 32° 30' 44.068064 N |
|                             | <b>+E/-W</b>            | 0.00 usft | <b>Easting:</b>            | 751,268.90 usft | <b>Longitude:</b>    | 103° 31' 5.600108 W |
| <b>Position Uncertainty</b> |                         | 0.00 usft | <b>Wellhead Elevation:</b> | usft            | <b>Ground Level:</b> | 3,759.00 usft       |

|                  |                   |                    |                    |                  |                       |
|------------------|-------------------|--------------------|--------------------|------------------|-----------------------|
| <b>Wellbore</b>  | Original Hole     |                    |                    |                  |                       |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination</b> | <b>Dip Angle</b> | <b>Field Strength</b> |
|                  |                   |                    | (°)                | (°)              | (nT)                  |
|                  | IGRF2010          | 4/19/2013          | 7.35               | 60.42            | 48,609                |

|                          |                         |               |              |                      |      |
|--------------------------|-------------------------|---------------|--------------|----------------------|------|
| <b>Design</b>            | Surveys Original Hole   |               |              |                      |      |
| <b>Audit Notes:</b>      |                         |               |              |                      |      |
| <b>Version:</b>          | 1.0                     | <b>Phase:</b> | ACTUAL       | <b>Tie On Depth:</b> | 0.00 |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S</b>  | <b>+E/-W</b> | <b>Direction</b>     |      |
|                          | (usft)                  | (usft)        | (usft)       | (°)                  |      |
|                          | 0.00                    | 0.00          | 0.00         | 273.530              |      |

|                       |             |                          |                  |                                  |
|-----------------------|-------------|--------------------------|------------------|----------------------------------|
| <b>Survey Program</b> | <b>Date</b> | 4/19/2013                |                  |                                  |
| <b>From</b>           | <b>To</b>   | <b>Survey (Wellbore)</b> | <b>Tool Name</b> | <b>Description</b>               |
| (usft)                | (usft)      |                          |                  |                                  |
| 100.00                | 10,931.00   | Gyro (Original Hole)     | NS-GYRO-MS       | North sensing gyrocompassing m/s |
| 10,965.00             | 15,957.00   | MWD (Original Hole)      | MWD              | MWD - Standard                   |

|                 |                    |                |                 |               |               |                 |                |                     |                     |  |
|-----------------|--------------------|----------------|-----------------|---------------|---------------|-----------------|----------------|---------------------|---------------------|--|
| <b>Survey</b>   |                    |                |                 |               |               |                 |                |                     |                     |  |
| <b>Measured</b> | <b>Inclination</b> | <b>Azimuth</b> | <b>Vertical</b> | <b>+N/-S</b>  | <b>+E/-W</b>  | <b>Map</b>      | <b>Map</b>     | <b>Latitude</b>     | <b>Longitude</b>    |  |
| <b>Depth</b>    | <b>(°)</b>         | <b>(°)</b>     | <b>Depth</b>    | <b>(usft)</b> | <b>(usft)</b> | <b>Northing</b> | <b>Easting</b> |                     |                     |  |
| <b>(usft)</b>   |                    |                | <b>(usft)</b>   |               |               | <b>(usft)</b>   | <b>(usft)</b>  |                     |                     |  |
| 0.00            | 0.00               | 0.000          | 0.00            | 0.00          | 0.00          | 551,026.60      | 751,268.90     | 32° 30' 44.068064 N | 103° 31' 5.600108 W |  |
| 100.00          | 0.19               | 132.860        | 100.00          | -0.11         | 0.12          | 551,026.49      | 751,269.02     | 32° 30' 44.066939 N | 103° 31' 5.598699 W |  |
| <b>Gyro</b>     |                    |                |                 |               |               |                 |                |                     |                     |  |
| 200.00          | 0.64               | 149.520        | 200.00          | -0.71         | 0.53          | 551,025.90      | 751,269.42     | 32° 30' 44.061029 N | 103° 31' 5.594025 W |  |
| 300.00          | 0.73               | 178.760        | 299.99          | -1.83         | 0.82          | 551,024.78      | 751,269.72     | 32° 30' 44.049942 N | 103° 31' 5.590656 W |  |
| 400.00          | 0.85               | 180.790        | 399.98          | -3.20         | 0.83          | 551,023.40      | 751,269.72     | 32° 30' 44.036302 N | 103° 31' 5.590737 W |  |
| 500.00          | 0.63               | 183.350        | 499.97          | -4.49         | 0.78          | 551,022.11      | 751,269.68     | 32° 30' 44.023535 N | 103° 31' 5.591347 W |  |
| 600.00          | 0.63               | 181.420        | 599.97          | -5.59         | 0.74          | 551,021.01      | 751,269.64     | 32° 30' 44.012670 N | 103° 31' 5.591979 W |  |
| 700.00          | 0.41               | 196.100        | 699.96          | -6.49         | 0.63          | 551,020.12      | 751,269.52     | 32° 30' 44.003839 N | 103° 31' 5.593377 W |  |
| 800.00          | 0.37               | 193.510        | 799.96          | -7.14         | 0.45          | 551,019.46      | 751,269.35     | 32° 30' 43.997344 N | 103° 31' 5.595475 W |  |
| 900.00          | 0.22               | 196.650        | 899.96          | -7.64         | 0.32          | 551,018.96      | 751,269.22     | 32° 30' 43.992427 N | 103° 31' 5.597043 W |  |

Company: Concho COG Operating LLC

Project: Lea County, New Mexico

Site: Lightning P-38

Well: Lightning P-38 State 5H

Wellbore: Original Hole

Design: Surveys Original Hole

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well Lightning P-38 State 5H

RKB=3759+30 @ 3789.00usft (Precision 77)

RKB=3759+30 @ 3789.00usft (Precision 77)

Grid

Minimum Curvature

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) | Map<br>Northing<br>(usft) | Map<br>Easting<br>(usft) | Latitude            | Longitude           |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|---------------------------|--------------------------|---------------------|---------------------|
| 1,000.00                    | 0.13               | 182.000        | 999.96                      | -7.94           | 0.26            | 551,018.66                | 751,269.16               | 32° 30' 43.989490 N | 103° 31' 5.597758 W |
| 1,100.00                    | 0.18               | 167.550        | 1,099.96                    | -8.21           | 0.29            | 551,018.40                | 751,269.19               | 32° 30' 43.986848 N | 103° 31' 5.597432 W |
| 1,200.00                    | 0.21               | 164.340        | 1,199.96                    | -8.54           | 0.38            | 551,018.07                | 751,269.27               | 32° 30' 43.983578 N | 103° 31' 5.596489 W |
| 1,300.00                    | 0.26               | 161.430        | 1,299.96                    | -8.93           | 0.50            | 551,017.68                | 751,269.39               | 32° 30' 43.979695 N | 103° 31' 5.595102 W |
| 1,400.00                    | 0.15               | 235.600        | 1,399.96                    | -9.22           | 0.46            | 551,017.39                | 751,269.36               | 32° 30' 43.976837 N | 103° 31' 5.595546 W |
| 1,500.00                    | 0.39               | 280.690        | 1,499.95                    | -9.23           | 0.02            | 551,017.38                | 751,268.92               | 32° 30' 43.976764 N | 103° 31' 5.600713 W |
| 1,600.00                    | 0.43               | 291.080        | 1,599.95                    | -9.03           | -0.67           | 551,017.57                | 751,268.23               | 32° 30' 43.978776 N | 103° 31' 5.608689 W |
| 1,700.00                    | 0.76               | 281.260        | 1,699.95                    | -8.76           | -1.67           | 551,017.84                | 751,267.23               | 32° 30' 43.981468 N | 103° 31' 5.620350 W |
| 1,800.00                    | 0.78               | 286.630        | 1,799.94                    | -8.44           | -2.97           | 551,018.16                | 751,265.93               | 32° 30' 43.984776 N | 103° 31' 5.635532 W |
| 1,900.00                    | 0.62               | 287.290        | 1,899.93                    | -8.08           | -4.14           | 551,018.52                | 751,264.76               | 32° 30' 43.988383 N | 103° 31' 5.649148 W |
| 2,000.00                    | 0.39               | 9.390          | 1,999.93                    | -7.59           | -4.60           | 551,019.01                | 751,264.30               | 32° 30' 43.993331 N | 103° 31' 5.654488 W |
| 2,100.00                    | 0.76               | 27.860         | 2,099.92                    | -6.67           | -4.23           | 551,019.94                | 751,264.66               | 32° 30' 44.002428 N | 103° 31' 5.650138 W |
| 2,200.00                    | 0.66               | 19.950         | 2,199.91                    | -5.54           | -3.73           | 551,021.06                | 751,265.17               | 32° 30' 44.013548 N | 103° 31' 5.644124 W |
| 2,300.00                    | 0.84               | 10.470         | 2,299.91                    | -4.28           | -3.40           | 551,022.33                | 751,265.50               | 32° 30' 44.026013 N | 103° 31' 5.640161 W |
| 2,400.00                    | 0.69               | 31.920         | 2,399.90                    | -3.04           | -2.95           | 551,023.56                | 751,265.95               | 32° 30' 44.038168 N | 103° 31' 5.634778 W |
| 2,500.00                    | 1.10               | 30.170         | 2,499.88                    | -1.70           | -2.14           | 551,024.90                | 751,266.75               | 32° 30' 44.051376 N | 103° 31' 5.625307 W |
| 2,600.00                    | 1.05               | 39.270         | 2,599.87                    | -0.16           | -1.08           | 551,026.44                | 751,267.81               | 32° 30' 44.066525 N | 103° 31' 5.612764 W |
| 2,700.00                    | 1.39               | 35.130         | 2,699.84                    | 1.54            | 0.20            | 551,028.14                | 751,269.09               | 32° 30' 44.083263 N | 103° 31' 5.597690 W |
| 2,800.00                    | 0.82               | 22.240         | 2,799.83                    | 3.19            | 1.16            | 551,029.79                | 751,270.06               | 32° 30' 44.099559 N | 103° 31' 5.586229 W |
| 2,900.00                    | 0.49               | 39.810         | 2,899.82                    | 4.18            | 1.71            | 551,030.78                | 751,270.61               | 32° 30' 44.109321 N | 103° 31' 5.579781 W |
| 3,000.00                    | 0.69               | 69.370         | 2,999.81                    | 4.72            | 2.55            | 551,031.33                | 751,271.44               | 32° 30' 44.114607 N | 103° 31' 5.569956 W |
| 3,100.00                    | 2.11               | 82.230         | 3,099.78                    | 5.18            | 4.93            | 551,031.79                | 751,273.83               | 32° 30' 44.118989 N | 103° 31' 5.542033 W |
| 3,200.00                    | 2.23               | 87.060         | 3,199.71                    | 5.53            | 8.70            | 551,032.14                | 751,277.60               | 32° 30' 44.122154 N | 103° 31' 5.498014 W |
| 3,300.00                    | 0.98               | 107.860        | 3,299.67                    | 5.37            | 11.46           | 551,031.97                | 751,280.35               | 32° 30' 44.120337 N | 103° 31' 5.465833 W |
| 3,400.00                    | 0.78               | 140.790        | 3,399.66                    | 4.58            | 12.70           | 551,031.18                | 751,281.60               | 32° 30' 44.112429 N | 103° 31' 5.451374 W |
| 3,500.00                    | 0.86               | 122.160        | 3,499.65                    | 3.65            | 13.77           | 551,030.26                | 751,282.66               | 32° 30' 44.103178 N | 103° 31' 5.439013 W |
| 3,600.00                    | 0.75               | 119.480        | 3,599.64                    | 2.93            | 14.97           | 551,029.53                | 751,283.87               | 32° 30' 44.095947 N | 103° 31' 5.425006 W |
| 3,700.00                    | 0.92               | 145.680        | 3,699.63                    | 1.95            | 16.00           | 551,028.55                | 751,284.89               | 32° 30' 44.086122 N | 103° 31' 5.413155 W |
| 3,800.00                    | 1.13               | 154.970        | 3,799.61                    | 0.39            | 16.86           | 551,026.99                | 751,285.76               | 32° 30' 44.070654 N | 103° 31' 5.403137 W |
| 3,900.00                    | 0.85               | 185.340        | 3,899.60                    | -1.24           | 17.21           | 551,025.36                | 751,286.11               | 32° 30' 44.054480 N | 103° 31' 5.399217 W |
| 4,000.00                    | 0.91               | 196.620        | 3,999.59                    | -2.74           | 16.92           | 551,023.86                | 751,285.81               | 32° 30' 44.039665 N | 103° 31' 5.402809 W |
| 4,100.00                    | 0.90               | 205.830        | 4,099.57                    | -4.21           | 16.35           | 551,022.39                | 751,285.24               | 32° 30' 44.025185 N | 103° 31' 5.409589 W |
| 4,200.00                    | 0.93               | 215.270        | 4,199.56                    | -5.58           | 15.54           | 551,021.02                | 751,284.43               | 32° 30' 44.011695 N | 103° 31' 5.419179 W |
| 4,300.00                    | 1.31               | 215.210        | 4,299.54                    | -7.17           | 14.41           | 551,019.43                | 751,283.31               | 32° 30' 43.995983 N | 103° 31' 5.432490 W |
| 4,400.00                    | 1.30               | 220.480        | 4,399.52                    | -8.97           | 13.01           | 551,017.63                | 751,281.91               | 32° 30' 43.978309 N | 103° 31' 5.448946 W |
| 4,500.00                    | 1.67               | 212.720        | 4,499.48                    | -11.06          | 11.49           | 551,015.54                | 751,280.39               | 32° 30' 43.957756 N | 103° 31' 5.466929 W |
| 4,600.00                    | 1.87               | 223.000        | 4,599.43                    | -13.48          | 9.59            | 551,013.12                | 751,278.49               | 32° 30' 43.933962 N | 103° 31' 5.489336 W |
| 4,700.00                    | 2.10               | 248.740        | 4,699.38                    | -15.34          | 6.77            | 551,011.27                | 751,275.67               | 32° 30' 43.915794 N | 103° 31' 5.522436 W |
| 4,800.00                    | 1.79               | 252.660        | 4,799.32                    | -16.47          | 3.57            | 551,010.14                | 751,272.47               | 32° 30' 43.904857 N | 103° 31' 5.559885 W |
| 4,900.00                    | 1.34               | 268.700        | 4,899.28                    | -16.96          | 0.91            | 551,009.64                | 751,269.81               | 32° 30' 43.900189 N | 103° 31' 5.590988 W |
| 5,000.00                    | 1.28               | 267.130        | 4,999.26                    | -17.04          | -1.37           | 551,009.56                | 751,267.52               | 32° 30' 43.899546 N | 103° 31' 5.617672 W |
| 5,100.00                    | 1.50               | 267.210        | 5,099.23                    | -17.16          | -3.80           | 551,009.44                | 751,265.10               | 32° 30' 43.898546 N | 103° 31' 5.645975 W |
| 5,200.00                    | 1.34               | 278.690        | 5,199.20                    | -17.05          | -6.26           | 551,009.55                | 751,262.64               | 32° 30' 43.899850 N | 103° 31' 5.674728 W |
| 5,300.00                    | 1.04               | 278.090        | 5,299.17                    | -16.74          | -8.31           | 551,009.86                | 751,260.58               | 32° 30' 43.903017 N | 103° 31' 5.698689 W |
| 5,400.00                    | 1.25               | 272.930        | 5,399.15                    | -16.56          | -10.30          | 551,010.04                | 751,258.59               | 32° 30' 43.904983 N | 103° 31' 5.721885 W |
| 5,500.00                    | 1.06               | 265.030        | 5,499.13                    | -16.58          | -12.31          | 551,010.02                | 751,256.58               | 32° 30' 43.904894 N | 103° 31' 5.745368 W |
| 5,600.00                    | 1.11               | 271.750        | 5,599.12                    | -16.63          | -14.20          | 551,009.97                | 751,254.69               | 32° 30' 43.904537 N | 103° 31' 5.767439 W |
| 5,700.00                    | 1.10               | 273.470        | 5,699.10                    | -16.55          | -16.13          | 551,010.06                | 751,252.77               | 32° 30' 43.905550 N | 103° 31' 5.789925 W |
| 5,800.00                    | 0.85               | 304.890        | 5,799.08                    | -16.06          | -17.70          | 551,010.54                | 751,251.20               | 32° 30' 43.910442 N | 103° 31' 5.808174 W |
| 5,900.00                    | 0.81               | 303.690        | 5,899.07                    | -15.25          | -18.89          | 551,011.35                | 751,250.01               | 32° 30' 43.918610 N | 103° 31' 5.822074 W |
| 6,000.00                    | 0.96               | 293.670        | 5,999.06                    | -14.52          | -20.25          | 551,012.08                | 751,248.65               | 32° 30' 43.925920 N | 103° 31' 5.837836 W |
| 6,100.00                    | 0.63               | 305.290        | 6,099.05                    | -13.87          | -21.46          | 551,012.74                | 751,247.43               | 32° 30' 43.932482 N | 103° 31' 5.851977 W |
| 6,200.00                    | 0.37               | 312.280        | 6,199.05                    | -13.33          | -22.15          | 551,013.27                | 751,246.75               | 32° 30' 43.937827 N | 103° 31' 5.859959 W |
| 6,300.00                    | 0.62               | 295.530        | 6,299.04                    | -12.88          | -22.88          | 551,013.72                | 751,246.02               | 32° 30' 43.942338 N | 103° 31' 5.868409 W |
| 6,400.00                    | 0.56               | 288.420        | 6,399.04                    | -12.49          | -23.83          | 551,014.11                | 751,245.07               | 32° 30' 43.946245 N | 103° 31' 5.879490 W |

|                  |                          |                                     |                                          |
|------------------|--------------------------|-------------------------------------|------------------------------------------|
| <b>Company:</b>  | Concho COG Operating LLC | <b>Local Co-ordinate Reference:</b> | Well Lightning P-38 State 5H             |
| <b>Project:</b>  | Lea County, New Mexico   | <b>TVD Reference:</b>               | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Site:</b>     | Lightning P-38           | <b>MD Reference:</b>                | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Well:</b>     | Lightning P-38 State 5H  | <b>North Reference:</b>             | Grid                                     |
| <b>Wellbore:</b> | Original Hole            | <b>Survey Calculation Method:</b>   | Minimum Curvature                        |
| <b>Design:</b>   | Surveys Original Hole    | <b>Database:</b>                    | 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) | Map<br>Northing<br>(usft) | Map<br>Easting<br>(usft) | Latitude            | Longitude           |
| 6,500.00                    | 0.45               | 267.320        | 6,499.03                    | -12.36          | -24.69          | 551,014.24                | 751,244.21               | 32° 30' 43.947656 N | 103° 31' 5.889472 W |
| 6,600.00                    | 0.52               | 301.840        | 6,599.03                    | -12.14          | -25.46          | 551,014.47                | 751,243.43               | 32° 30' 43.949902 N | 103° 31' 5.898535 W |
| 6,700.00                    | 0.51               | 267.610        | 6,699.03                    | -11.92          | -26.29          | 551,014.69                | 751,242.60               | 32° 30' 43.952150 N | 103° 31' 5.908209 W |
| 6,800.00                    | 0.57               | 272.300        | 6,799.02                    | -11.91          | -27.24          | 551,014.69                | 751,241.66               | 32° 30' 43.952235 N | 103° 31' 5.919205 W |
| 6,900.00                    | 0.44               | 269.130        | 6,899.02                    | -11.90          | -28.12          | 551,014.70                | 751,240.78               | 32° 30' 43.952442 N | 103° 31' 5.929491 W |
| 7,000.00                    | 0.36               | 252.250        | 6,999.02                    | -12.00          | -28.80          | 551,014.60                | 751,240.10               | 32° 30' 43.951488 N | 103° 31' 5.937477 W |
| 7,100.00                    | 0.36               | 233.660        | 7,099.01                    | -12.28          | -29.35          | 551,014.32                | 751,239.55               | 32° 30' 43.948740 N | 103° 31' 5.943951 W |
| 7,200.00                    | 0.35               | 266.850        | 7,199.01                    | -12.49          | -29.91          | 551,014.12                | 751,238.99               | 32° 30' 43.946774 N | 103° 31' 5.950486 W |
| 7,300.00                    | 0.49               | 241.160        | 7,299.01                    | -12.71          | -30.59          | 551,013.89                | 751,238.31               | 32° 30' 43.944619 N | 103° 31' 5.958441 W |
| 7,400.00                    | 0.41               | 241.910        | 7,399.01                    | -13.08          | -31.28          | 551,013.52                | 751,237.62               | 32° 30' 43.940963 N | 103° 31' 5.966534 W |
| 7,500.00                    | 0.53               | 244.700        | 7,499.00                    | -13.45          | -32.01          | 551,013.15                | 751,236.88               | 32° 30' 43.937396 N | 103° 31' 5.975135 W |
| 7,600.00                    | 0.68               | 223.800        | 7,599.00                    | -14.08          | -32.84          | 551,012.53                | 751,236.05               | 32° 30' 43.931265 N | 103° 31' 5.984870 W |
| 7,700.00                    | 0.63               | 229.730        | 7,698.99                    | -14.86          | -33.67          | 551,011.74                | 751,235.22               | 32° 30' 43.923573 N | 103° 31' 5.994634 W |
| 7,800.00                    | 0.41               | 219.730        | 7,798.99                    | -15.49          | -34.32          | 551,011.11                | 751,234.58               | 32° 30' 43.917383 N | 103° 31' 6.002260 W |
| 7,900.00                    | 0.50               | 225.170        | 7,898.98                    | -16.07          | -34.86          | 551,010.53                | 751,234.04               | 32° 30' 43.911658 N | 103° 31' 6.008596 W |
| 8,000.00                    | 0.64               | 231.120        | 7,998.98                    | -16.73          | -35.60          | 551,009.87                | 751,233.29               | 32° 30' 43.905201 N | 103° 31' 6.017345 W |
| 8,100.00                    | 0.47               | 242.550        | 8,098.97                    | -17.27          | -36.40          | 551,009.33                | 751,232.50               | 32° 30' 43.899922 N | 103° 31' 6.026720 W |
| 8,200.00                    | 0.54               | 212.200        | 8,198.97                    | -17.86          | -37.02          | 551,008.74                | 751,231.88               | 32° 30' 43.894152 N | 103° 31' 6.033955 W |
| 8,300.00                    | 0.77               | 216.680        | 8,298.96                    | -18.80          | -37.67          | 551,007.81                | 751,231.23               | 32° 30' 43.884924 N | 103° 31' 6.041658 W |
| 8,400.00                    | 0.83               | 228.110        | 8,398.95                    | -19.82          | -38.61          | 551,006.78                | 751,230.29               | 32° 30' 43.874878 N | 103° 31' 6.052732 W |
| 8,500.00                    | 0.63               | 243.250        | 8,498.95                    | -20.55          | -39.64          | 551,006.05                | 751,229.26               | 32° 30' 43.867722 N | 103° 31' 6.064827 W |
| 8,600.00                    | 0.65               | 257.880        | 8,598.94                    | -20.92          | -40.69          | 551,005.69                | 751,228.21               | 32° 30' 43.864174 N | 103° 31' 6.077068 W |
| 8,700.00                    | 0.73               | 246.460        | 8,698.93                    | -21.29          | -41.82          | 551,005.31                | 751,227.07               | 32° 30' 43.860564 N | 103° 31' 6.090397 W |
| 8,800.00                    | 0.32               | 129.970        | 8,798.93                    | -21.72          | -42.19          | 551,004.88                | 751,226.70               | 32° 30' 43.856300 N | 103° 31' 6.094756 W |
| 8,900.00                    | 0.22               | 183.520        | 8,898.93                    | -22.09          | -41.99          | 551,004.51                | 751,226.91               | 32° 30' 43.852613 N | 103° 31' 6.092428 W |
| 9,000.00                    | 0.42               | 146.830        | 8,998.93                    | -22.59          | -41.80          | 551,004.01                | 751,227.09               | 32° 30' 43.847667 N | 103° 31' 6.090269 W |
| 9,100.00                    | 0.67               | 132.450        | 9,098.92                    | -23.29          | -41.17          | 551,003.31                | 751,227.73               | 32° 30' 43.840679 N | 103° 31' 6.082952 W |
| 9,200.00                    | 0.98               | 178.990        | 9,198.91                    | -24.54          | -40.72          | 551,002.06                | 751,228.17               | 32° 30' 43.828280 N | 103° 31' 6.077850 W |
| 9,300.00                    | 1.02               | 151.670        | 9,298.90                    | -26.18          | -40.29          | 551,000.42                | 751,228.61               | 32° 30' 43.812033 N | 103° 31' 6.072888 W |
| 9,400.00                    | 1.13               | 131.570        | 9,398.88                    | -27.62          | -39.13          | 550,998.98                | 751,229.77               | 32° 30' 43.797719 N | 103° 31' 6.059469 W |
| 9,500.00                    | 1.23               | 134.470        | 9,498.86                    | -29.03          | -37.62          | 550,997.58                | 751,231.27               | 32° 30' 43.783692 N | 103° 31' 6.042036 W |
| 9,600.00                    | 1.15               | 126.340        | 9,598.84                    | -30.37          | -36.05          | 550,996.23                | 751,232.85               | 32° 30' 43.770249 N | 103° 31' 6.023774 W |
| 9,700.00                    | 1.68               | 120.290        | 9,698.81                    | -31.71          | -33.97          | 550,994.89                | 751,234.92               | 32° 30' 43.756892 N | 103° 31' 5.999673 W |
| 9,800.00                    | 1.88               | 118.850        | 9,798.76                    | -33.24          | -31.27          | 550,993.36                | 751,237.62               | 32° 30' 43.741540 N | 103° 31' 5.968252 W |
| 9,900.00                    | 2.02               | 123.900        | 9,898.70                    | -35.01          | -28.37          | 550,991.59                | 751,240.52               | 32° 30' 43.723763 N | 103° 31' 5.934551 W |
| 10,000.00                   | 1.78               | 132.840        | 9,998.65                    | -37.05          | -25.77          | 550,989.55                | 751,243.13               | 32° 30' 43.703390 N | 103° 31' 5.904353 W |
| 10,100.00                   | 1.36               | 140.870        | 10,098.61                   | -39.03          | -23.88          | 550,987.57                | 751,245.01               | 32° 30' 43.683689 N | 103° 31' 5.882486 W |
| 10,200.00                   | 0.47               | 196.410        | 10,198.60                   | -40.34          | -23.25          | 550,986.26                | 751,245.65               | 32° 30' 43.670639 N | 103° 31' 5.875211 W |
| 10,300.00                   | 0.42               | 203.050        | 10,298.59                   | -41.07          | -23.51          | 550,985.53                | 751,245.39               | 32° 30' 43.663428 N | 103° 31' 5.878305 W |
| 10,400.00                   | 0.54               | 217.530        | 10,398.59                   | -41.78          | -23.94          | 550,984.82                | 751,244.96               | 32° 30' 43.656426 N | 103° 31' 5.883396 W |
| 10,500.00                   | 0.68               | 219.890        | 10,498.59                   | -42.61          | -24.61          | 550,983.99                | 751,244.29               | 32° 30' 43.648273 N | 103° 31' 5.891266 W |
| 10,600.00                   | 1.21               | 219.060        | 10,598.57                   | -43.89          | -25.65          | 550,982.71                | 751,243.24               | 32° 30' 43.635735 N | 103° 31' 5.903593 W |
| 10,700.00                   | 0.95               | 181.620        | 10,698.55                   | -45.54          | -26.34          | 550,981.07                | 751,242.55               | 32° 30' 43.619475 N | 103° 31' 5.911783 W |
| 10,800.00                   | 2.29               | 151.900        | 10,798.51                   | -48.13          | -25.42          | 550,978.47                | 751,243.47               | 32° 30' 43.593766 N | 103° 31' 5.901299 W |
| 10,900.00                   | 2.15               | 137.420        | 10,898.44                   | -51.27          | -23.21          | 550,975.33                | 751,245.68               | 32° 30' 43.562493 N | 103° 31' 5.875770 W |
| 10,931.00                   | 1.52               | 142.840        | 10,929.42                   | -52.03          | -22.57          | 550,974.57                | 751,246.32               | 32° 30' 43.554965 N | 103° 31' 5.868343 W |
| 10,965.00                   | 1.30               | 161.300        | 10,963.41                   | -52.75          | -22.18          | 550,973.85                | 751,246.72               | 32° 30' 43.547764 N | 103° 31' 5.863783 W |
| <b>MWD surveys</b>          |                    |                |                             |                 |                 |                           |                          |                     |                     |
| 10,997.00                   | 2.60               | 286.800        | 10,995.40                   | -52.89          | -22.76          | 550,973.72                | 751,246.14               | 32° 30' 43.546481 N | 103° 31' 5.870552 W |
| 11,029.00                   | 6.50               | 299.400        | 11,027.30                   | -51.79          | -25.03          | 550,974.82                | 751,243.87               | 32° 30' 43.557531 N | 103° 31' 5.897005 W |
| 11,060.00                   | 10.60              | 299.600        | 11,057.95                   | -49.52          | -29.04          | 550,977.09                | 751,239.86               | 32° 30' 43.580303 N | 103° 31' 5.943622 W |
| 11,092.00                   | 15.20              | 299.800        | 11,089.13                   | -45.98          | -35.24          | 550,980.63                | 751,233.66               | 32° 30' 43.615805 N | 103° 31' 6.015738 W |
| 11,124.00                   | 19.30              | 298.000        | 11,119.68                   | -41.41          | -43.55          | 550,985.20                | 751,225.34               | 32° 30' 43.661649 N | 103° 31' 6.112405 W |
| 11,155.00                   | 22.80              | 295.700        | 11,148.61                   | -36.39          | -53.49          | 550,990.21                | 751,215.40               | 32° 30' 43.711989 N | 103° 31' 6.228017 W |
| 11,187.00                   | 25.10              | 293.600        | 11,177.85                   | -30.99          | -65.30          | 550,995.61                | 751,203.60               | 32° 30' 43.766383 N | 103° 31' 6.365422 W |

|                  |                          |                                     |                                          |
|------------------|--------------------------|-------------------------------------|------------------------------------------|
| <b>Company:</b>  | Concho COG Operating LLC | <b>Local Co-ordinate Reference:</b> | Well Lightning P-38 State 5H             |
| <b>Project:</b>  | Lea County, New Mexico   | <b>TVD Reference:</b>               | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Site:</b>     | Lightning P-38           | <b>MD Reference:</b>                | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Well:</b>     | Lightning P-38 State 5H  | <b>North Reference:</b>             | Grid                                     |
| <b>Wellbore:</b> | Original Hole            | <b>Survey Calculation Method:</b>   | Minimum Curvature                        |
| <b>Design:</b>   | Surveys Original Hole    | <b>Database:</b>                    | 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) | Map<br>Northing<br>(usft) | Map<br>Easting<br>(usft) | Latitude            | Longitude            |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|---------------------------|--------------------------|---------------------|----------------------|
| 11,219.00                   | 27.90              | 291.200        | 11,206.49                   | -25.56          | -78.50          | 551,001.04                | 751,190.39               | 32° 30' 43.821071 N | 103° 31' 6.519110 W  |
| 11,250.00                   | 30.60              | 290.500        | 11,233.54                   | -20.17          | -92.66          | 551,006.43                | 751,176.24               | 32° 30' 43.875446 N | 103° 31' 6.683924 W  |
| 11,282.00                   | 33.00              | 291.200        | 11,260.73                   | -14.17          | -108.42         | 551,012.43                | 751,160.48               | 32° 30' 43.936051 N | 103° 31' 6.867372 W  |
| 11,314.00                   | 35.20              | 291.900        | 11,287.23                   | -7.58           | -125.10         | 551,019.02                | 751,143.80               | 32° 30' 44.002542 N | 103° 31' 7.061607 W  |
| 11,345.00                   | 37.50              | 293.800        | 11,312.19                   | -0.44           | -142.03         | 551,026.17                | 751,126.87               | 32° 30' 44.074486 N | 103° 31' 7.258621 W  |
| 11,377.00                   | 40.50              | 295.300        | 11,337.06                   | 7.94            | -160.34         | 551,034.54                | 751,108.56               | 32° 30' 44.158726 N | 103° 31' 7.471697 W  |
| 11,409.00                   | 42.70              | 296.100        | 11,360.99                   | 17.15           | -179.48         | 551,043.75                | 751,089.42               | 32° 30' 44.251360 N | 103° 31' 7.694391 W  |
| 11,440.00                   | 44.40              | 295.700        | 11,383.46                   | 26.48           | -198.69         | 551,053.08                | 751,070.21               | 32° 30' 44.345113 N | 103° 31' 7.917915 W  |
| 11,472.00                   | 48.00              | 295.000        | 11,405.60                   | 36.36           | -219.56         | 551,062.97                | 751,049.34               | 32° 30' 44.444483 N | 103° 31' 8.160745 W  |
| 11,504.00                   | 51.90              | 294.200        | 11,426.19                   | 46.55           | -241.83         | 551,073.16                | 751,027.07               | 32° 30' 44.547000 N | 103° 31' 8.419884 W  |
| 11,535.00                   | 55.30              | 294.200        | 11,444.58                   | 56.78           | -264.59         | 551,083.38                | 751,004.31               | 32° 30' 44.649913 N | 103° 31' 8.684697 W  |
| 11,567.00                   | 58.70              | 293.100        | 11,462.01                   | 67.54           | -289.17         | 551,094.14                | 750,979.73               | 32° 30' 44.758235 N | 103° 31' 8.970781 W  |
| 11,599.00                   | 61.40              | 291.700        | 11,477.98                   | 78.10           | -314.80         | 551,104.70                | 750,954.10               | 32° 30' 44.864664 N | 103° 31' 9.269165 W  |
| 11,631.00                   | 65.00              | 291.300        | 11,492.41                   | 88.57           | -341.37         | 551,115.17                | 750,927.52               | 32° 30' 44.970223 N | 103° 31' 9.578515 W  |
| 11,662.00                   | 67.30              | 291.200        | 11,504.94                   | 98.84           | -367.80         | 551,125.44                | 750,901.10               | 32° 30' 45.073893 N | 103° 31' 9.886153 W  |
| 11,694.00                   | 70.30              | 291.500        | 11,516.51                   | 109.70          | -395.58         | 551,136.30                | 750,873.32               | 32° 30' 45.183461 N | 103° 31' 10.209622 W |
| 11,725.00                   | 73.90              | 291.300        | 11,526.04                   | 120.46          | -423.04         | 551,147.07                | 750,845.86               | 32° 30' 45.292019 N | 103° 31' 10.529338 W |
| 11,757.00                   | 77.30              | 290.800        | 11,534.00                   | 131.59          | -451.96         | 551,158.20                | 750,816.93               | 32° 30' 45.404335 N | 103° 31' 10.866082 W |
| 11,789.00                   | 81.40              | 290.600        | 11,539.91                   | 142.71          | -481.37         | 551,169.31                | 750,787.52               | 32° 30' 45.516525 N | 103° 31' 11.208551 W |
| 11,821.00                   | 85.20              | 288.900        | 11,543.64                   | 153.44          | -511.28         | 551,180.04                | 750,757.62               | 32° 30' 45.625009 N | 103° 31' 11.556817 W |
| 11,853.00                   | 88.40              | 287.800        | 11,545.43                   | 163.50          | -541.60         | 551,190.10                | 750,727.29               | 32° 30' 45.726809 N | 103° 31' 11.909993 W |
| 11,885.00                   | 88.90              | 286.200        | 11,546.18                   | 172.85          | -572.19         | 551,199.45                | 750,696.70               | 32° 30' 45.821665 N | 103° 31' 12.266396 W |
| 11,916.00                   | 89.00              | 285.900        | 11,546.75                   | 181.42          | -601.98         | 551,208.02                | 750,666.92               | 32° 30' 45.908706 N | 103° 31' 12.613462 W |
| 12,010.00                   | 91.50              | 284.000        | 11,546.34                   | 205.67          | -692.79         | 551,232.27                | 750,576.11               | 32° 30' 46.155478 N | 103° 31' 13.671678 W |
| 12,105.00                   | 92.60              | 283.000        | 11,542.94                   | 227.83          | -785.10         | 551,254.43                | 750,483.80               | 32° 30' 46.381741 N | 103° 31' 14.747684 W |
| 12,200.00                   | 91.00              | 282.300        | 11,539.96                   | 248.62          | -877.74         | 551,275.23                | 750,391.15               | 32° 30' 46.594475 N | 103° 31' 15.827683 W |
| 12,294.00                   | 90.10              | 278.500        | 11,539.05                   | 265.59          | -970.18         | 551,292.19                | 750,298.72               | 32° 30' 46.769306 N | 103° 31' 16.905559 W |
| 12,389.00                   | 89.30              | 274.300        | 11,539.55                   | 276.18          | -1,064.56       | 551,302.78                | 750,204.33               | 32° 30' 46.881178 N | 103° 31' 18.006787 W |
| 12,485.00                   | 88.40              | 270.700        | 11,541.48                   | 280.36          | -1,160.44       | 551,306.96                | 750,108.46               | 32° 30' 46.929824 N | 103° 31' 19.125958 W |
| 12,580.00                   | 89.20              | 270.100        | 11,543.47                   | 281.02          | -1,255.41       | 551,307.63                | 750,013.49               | 32° 30' 46.943536 N | 103° 31' 20.234970 W |
| 12,675.00                   | 89.90              | 270.100        | 11,544.21                   | 281.19          | -1,350.41       | 551,307.79                | 749,918.49               | 32° 30' 46.952328 N | 103° 31' 21.344268 W |
| 12,770.00                   | 90.60              | 270.200        | 11,543.80                   | 281.44          | -1,445.41       | 551,308.04                | 749,823.49               | 32° 30' 46.961937 N | 103° 31' 22.453579 W |
| 12,865.00                   | 91.50              | 270.200        | 11,542.06                   | 281.77          | -1,540.39       | 551,308.37                | 749,728.51               | 32° 30' 46.972362 N | 103° 31' 23.562701 W |
| 12,960.00                   | 91.90              | 269.600        | 11,539.24                   | 281.60          | -1,635.35       | 551,308.21                | 749,633.55               | 32° 30' 46.977862 N | 103° 31' 24.671574 W |
| 13,055.00                   | 92.70              | 269.300        | 11,535.43                   | 280.69          | -1,730.26       | 551,307.30                | 749,538.63               | 32° 30' 46.975981 N | 103° 31' 25.780055 W |
| 13,150.00                   | 90.90              | 270.200        | 11,532.44                   | 280.28          | -1,825.21       | 551,306.88                | 749,443.69               | 32° 30' 46.979019 N | 103° 31' 26.888832 W |
| 13,245.00                   | 91.20              | 269.900        | 11,530.70                   | 280.36          | -1,920.19       | 551,306.97                | 749,348.70               | 32° 30' 46.986973 N | 103° 31' 27.997992 W |
| 13,340.00                   | 92.20              | 269.500        | 11,527.89                   | 279.87          | -2,015.15       | 551,306.47                | 749,253.75               | 32° 30' 46.989183 N | 103° 31' 29.106872 W |
| 13,435.00                   | 91.60              | 270.700        | 11,524.74                   | 280.03          | -2,110.10       | 551,306.63                | 749,158.80               | 32° 30' 46.997950 N | 103° 31' 30.215576 W |
| 13,530.00                   | 90.50              | 272.800        | 11,522.99                   | 282.93          | -2,205.03       | 551,309.53                | 749,063.87               | 32° 30' 47.033775 N | 103° 31' 31.323893 W |
| 13,625.00                   | 91.30              | 272.600        | 11,521.50                   | 287.41          | -2,299.91       | 551,314.01                | 748,968.99               | 32° 30' 47.085165 N | 103° 31' 32.431475 W |
| 13,720.00                   | 92.00              | 272.400        | 11,518.77                   | 291.55          | -2,394.78       | 551,318.15                | 748,874.12               | 32° 30' 47.133263 N | 103° 31' 33.538942 W |
| 13,815.00                   | 90.00              | 271.100        | 11,517.11                   | 294.45          | -2,489.71       | 551,321.05                | 748,779.18               | 32° 30' 47.169073 N | 103° 31' 34.647277 W |
| 13,910.00                   | 90.60              | 271.000        | 11,516.61                   | 296.19          | -2,584.70       | 551,322.79                | 748,684.20               | 32° 30' 47.193413 N | 103° 31' 35.756273 W |
| 14,005.00                   | 91.30              | 270.700        | 11,515.04                   | 297.60          | -2,679.67       | 551,324.20                | 748,589.22               | 32° 30' 47.214468 N | 103° 31' 36.865223 W |
| 14,100.00                   | 92.00              | 270.300        | 11,512.30                   | 298.43          | -2,774.63       | 551,325.03                | 748,494.27               | 32° 30' 47.229775 N | 103° 31' 37.973996 W |
| 14,195.00                   | 90.00              | 271.000        | 11,510.64                   | 299.51          | -2,869.60       | 551,326.11                | 748,399.29               | 32° 30' 47.247545 N | 103° 31' 39.082955 W |
| 14,290.00                   | 90.70              | 271.600        | 11,510.06                   | 301.66          | -2,964.58       | 551,328.26                | 748,304.32               | 32° 30' 47.275973 N | 103° 31' 40.191804 W |
| 14,385.00                   | 91.50              | 271.200        | 11,508.24                   | 303.98          | -3,059.53       | 551,330.58                | 748,209.37               | 32° 30' 47.306035 N | 103° 31' 41.300410 W |
| 14,480.00                   | 90.70              | 268.700        | 11,506.41                   | 303.90          | -3,154.50       | 551,330.50                | 748,114.39               | 32° 30' 47.312310 N | 103° 31' 42.409474 W |
| 14,575.00                   | 91.30              | 268.300        | 11,504.76                   | 301.41          | -3,249.46       | 551,328.01                | 748,019.44               | 32° 30' 47.294800 N | 103° 31' 43.518494 W |
| 14,670.00                   | 92.40              | 268.100        | 11,501.69                   | 298.43          | -3,344.36       | 551,325.03                | 747,924.54               | 32° 30' 47.272377 N | 103° 31' 44.626972 W |
| 14,765.00                   | 90.40              | 269.600        | 11,499.37                   | 296.52          | -3,439.30       | 551,323.13                | 747,829.59               | 32° 30' 47.260610 N | 103° 31' 45.735856 W |
| 14,860.00                   | 90.90              | 269.600        | 11,498.29                   | 295.86          | -3,534.29       | 551,322.46                | 747,734.60               | 32° 30' 47.261136 N | 103° 31' 46.845171 W |
| 14,955.00                   | 91.60              | 269.400        | 11,496.22                   | 295.03          | -3,629.27       | 551,321.63                | 747,639.63               | 32° 30' 47.260020 N | 103° 31' 47.954288 W |

|                  |                          |                                     |                                          |
|------------------|--------------------------|-------------------------------------|------------------------------------------|
| <b>Company:</b>  | Concho COG Operating LLC | <b>Local Co-ordinate Reference:</b> | Well Lightning P-38 State 5H             |
| <b>Project:</b>  | Lea County, New Mexico   | <b>TVD Reference:</b>               | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Site:</b>     | Lightning P-38           | <b>MD Reference:</b>                | RKB=3759+30 @ 3789.00usft (Precision 77) |
| <b>Well:</b>     | Lightning P-38 State 5H  | <b>North Reference:</b>             | Grid                                     |
| <b>Wellbore:</b> | Original Hole            | <b>Survey Calculation Method:</b>   | Minimum Curvature                        |
| <b>Design:</b>   | Surveys Original Hole    | <b>Database:</b>                    | EDM 5000.1 Single User Db                |

#### Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude            | Longitude            |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|---------------------|----------------------|
| 15,050.00             | 92.40           | 269.200     | 11,492.90             | 293.87       | -3,724.20    | 551,320.47          | 747,544.70         | 32° 30' 47.255621 N | 103° 31' 49.062980 W |
| 15,145.00             | 90.70           | 270.300     | 11,490.33             | 293.46       | -3,819.16    | 551,320.06          | 747,449.74         | 32° 30' 47.258602 N | 103° 31' 50.171901 W |
| 15,240.00             | 91.70           | 270.300     | 11,488.34             | 293.96       | -3,914.14    | 551,320.56          | 747,354.76         | 32° 30' 47.270599 N | 103° 31' 51.280943 W |
| 15,335.00             | 92.40           | 269.700     | 11,484.95             | 293.96       | -4,009.08    | 551,320.56          | 747,259.82         | 32° 30' 47.277671 N | 103° 31' 52.389580 W |
| 15,430.00             | 90.60           | 269.800     | 11,482.46             | 293.54       | -4,104.04    | 551,320.14          | 747,164.86         | 32° 30' 47.280641 N | 103° 31' 53.498538 W |
| 15,525.00             | 91.30           | 269.500     | 11,480.88             | 292.96       | -4,199.02    | 551,319.56          | 747,069.87         | 32° 30' 47.281968 N | 103° 31' 54.607767 W |
| 15,620.00             | 92.10           | 269.200     | 11,478.07             | 291.88       | -4,293.97    | 551,318.49          | 746,974.92         | 32° 30' 47.278373 N | 103° 31' 55.716650 W |
| 15,715.00             | 93.10           | 269.100     | 11,473.76             | 290.48       | -4,388.86    | 551,317.08          | 746,880.03         | 32° 30' 47.271499 N | 103° 31' 56.824855 W |
| 15,810.00             | 94.30           | 268.900     | 11,467.63             | 288.82       | -4,483.65    | 551,315.42          | 746,785.25         | 32° 30' 47.262175 N | 103° 31' 57.931857 W |
| 15,957.00             | 94.30           | 268.900     | 11,456.60             | 286.01       | -4,630.21    | 551,312.61          | 746,638.69         | 32° 30' 47.245218 N | 103° 31' 59.643544 W |

Survey projected

#### Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment          |
|-----------------------|-----------------------|-------------------|--------------|------------------|
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                  |
| 100.00                | 100.00                | -0.11             | 0.12         | Gyro             |
| 10,965.00             | 10,963.41             | -52.75            | -22.18       | MWD surveys      |
| 15,957.00             | 11,456.60             | 286.01            | -4,630.21    | Survey projected |

|                   |                    |             |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|