

3001540935

# A Gyrodata Directional Survey

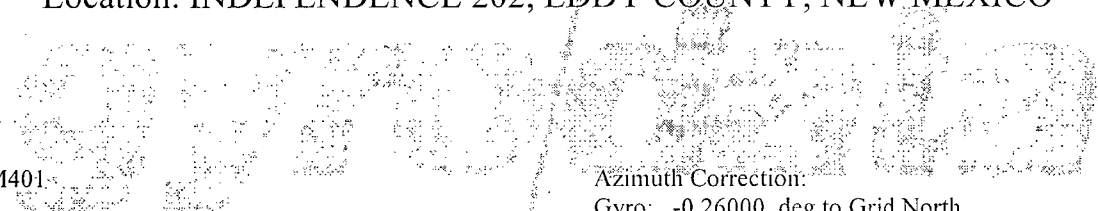
FINAL DEFINITIVE COPY

for

**BOPCO**

Lease: PKER LAKE UNIT Well: DELAWARE B-23 FED #1 SWD, 5 INCH DRILL PIPE

Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO



Job Number: MD0613GDM401

Azimuth Correction:

Gyro: -0.26000 deg to Grid North

Run Date: 22 Jun 2013

Report Generated: 24 Jun 2013 09:59

Depth Reference: Rotary Table

Surveyor: Che Garcia

Rotary Table Elevation: 26.00

Calculation Method: MINIMUM CURVATURE

Vertical Section Calculated from Well Head Location

Survey surface coordinates obtained from: Hand Held GPS

Closure Calculated from Well Head Location

Survey Latitude: 32.207444 deg. N Longitude: 103.852389 deg. W

Horizontal Coordinates Calculated from Well Head Location

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| MEASURED<br>DEPTH<br>feet                                                                                                                                                            | I N C L<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. feet | AZIMUTH<br>deg. | HORIZONTAL<br>COORDINATES<br>feet |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|-----------------------|-----------------|-----------------------------------|
| 0.00                                                                                                                                                                                 | 0.00            | 0.00            | N 0 0 E                           | 0.00                                   | 0.00                      | 0.0                   | 0.0             | 0.00 N 0.00 E                     |
| 0 - 16352.7FT RATE GYROSCOPIC MULTISHOT SHOT SURVEY TO RUN INSDE 5 INCH DRILLPIPE<br>ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO INDEPENDENCE 202 WITH A R.K.B HEIGHT OF 26 FT |                 |                 |                                   |                                        |                           |                       |                 |                                   |
| 67.24                                                                                                                                                                                | 0.39            | 268.78          | S 88 47 W                         | 0.58                                   | 67.24                     | 0.2                   | 268.8           | 0.00 S 0.23 W                     |
| 161.74                                                                                                                                                                               | 0.47            | 259.19          | S 79 11 W                         | 0.11                                   | 161.74                    | 0.9                   | 264.8           | 0.08 S 0.93 W                     |
| 256.24                                                                                                                                                                               | 0.45            | 247.36          | S 67 22 W                         | 0.10                                   | 256.23                    | 1.7                   | 259.7           | 0.30 S 1.65 W                     |
| 350.74                                                                                                                                                                               | 0.46            | 233.91          | S 53 55 W                         | 0.11                                   | 350.73                    | 2.4                   | 253.9           | 0.67 S 2.30 W                     |
| 445.24                                                                                                                                                                               | 0.36            | 213.44          | S 33 26 W                         | 0.19                                   | 445.23                    | 3.0                   | 247.7           | 1.14 S 2.77 W                     |
| 539.74                                                                                                                                                                               | 0.44            | 204.46          | S 24 28 W                         | 0.11                                   | 539.73                    | 3.5                   | 240.9           | 1.72 S 3.09 W                     |
| 634.24                                                                                                                                                                               | 0.85            | 197.16          | S 17 10 W                         | 0.44                                   | 634.22                    | 4.4                   | 231.7           | 2.72 S 3.44 W                     |
| 728.74                                                                                                                                                                               | 1.10            | 194.46          | S 14 28 W                         | 0.27                                   | 728.71                    | 5.8                   | 222.3           | 4.26 S 3.88 W                     |
| 823.24                                                                                                                                                                               | 1.28            | 186.81          | S 6 49 W                          | 0.25                                   | 823.19                    | 7.5                   | 214.3           | 6.19 S 4.23 W                     |
| 917.74                                                                                                                                                                               | 1.31            | 184.25          | S 4 15 W                          | 0.07                                   | 917.66                    | 9.4                   | 208.1           | 8.32 S 4.43 W                     |
| 1012.24                                                                                                                                                                              | 1.32            | 183.71          | S 3 43 W                          | 0.02                                   | 1012.14                   | 11.4                  | 203.6           | 10.48 S 4.59 W                    |
| 1106.74                                                                                                                                                                              | 1.29            | 182.92          | S 2 55 W                          | 0.04                                   | 1106.61                   | 13.5                  | 200.5           | 12.63 S 4.71 W                    |
| 1201.24                                                                                                                                                                              | 1.22            | 182.14          | S 2 8 W                           | 0.08                                   | 1201.09                   | 15.5                  | 198.1           | 14.69 S 4.80 W                    |
| 1232.74                                                                                                                                                                              | 1.01            | 177.96          | S 2 2 E                           | 0.71                                   | 1232.58                   | 16.0                  | 197.4           | 15.31 S 4.80 W                    |
| 1327.24                                                                                                                                                                              | 0.93            | 177.82          | S 2 11 E                          | 0.08                                   | 1327.07                   | 17.6                  | 195.7           | 16.91 S 4.75 W                    |
| 1421.74                                                                                                                                                                              | 0.93            | 178.44          | S 1 34 E                          | 0.01                                   | 1421.56                   | 19.0                  | 194.3           | 18.44 S 4.70 W                    |
| 1516.24                                                                                                                                                                              | 0.75            | 175.27          | S 4 44 E                          | 0.20                                   | 1516.05                   | 20.4                  | 193.1           | 19.82 S 4.62 W                    |
| 1610.74                                                                                                                                                                              | 0.54            | 173.28          | S 6 43 E                          | 0.22                                   | 1610.54                   | 21.4                  | 192.2           | 20.88 S 4.52 W                    |

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Lease: PKER LAKE UNIT Well: DELAWARE B-23 FED #1 SWD, 5 INCH DRILL PIPE

Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. feet | AZIMUTH<br>deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|-----------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|-----------------------|-----------------|-----------------------------------|
| 1705.24                   | 0.37            | 170.10          | S 9 54 E                          | 0.18                                   | 1705.04                   | 22.1                  | 191.5           | 21.62 S 4.42 W                    |
| 1799.74                   | 0.28            | 166.50          | S 13 30 E                         | 0.10                                   | 1799.54                   | 22.6                  | 191.0           | 22.15 S 4.31 W                    |
| 1894.24                   | 0.20            | 140.35          | S 39 39 E                         | 0.14                                   | 1894.04                   | 22.9                  | 190.5           | 22.50 S 4.15 W                    |
| 1988.74                   | 0.20            | 122.26          | S 57 44 E                         | 0.07                                   | 1988.54                   | 23.0                  | 189.8           | 22.72 S 3.91 W                    |
| 2083.24                   | 0.20            | 94.25           | S 85 45 E                         | 0.10                                   | 2083.03                   | 23.1                  | 189.0           | 22.82 S 3.60 W                    |
| 2177.74                   | 0.22            | 80.83           | N 80 50 E                         | 0.06                                   | 2177.53                   | 23.0                  | 188.1           | 22.80 S 3.26 W                    |
| 2272.24                   | 0.06            | 150.02          | S 29 59 E                         | 0.22                                   | 2272.03                   | 23.0                  | 187.6           | 22.81 S 3.05 W                    |
| 2366.74                   | 0.07            | 225.75          | S 45 45 W                         | 0.08                                   | 2366.53                   | 23.1                  | 187.6           | 22.90 S 3.07 W                    |
| 2461.24                   | 0.11            | 245.93          | S 65 56 W                         | 0.05                                   | 2461.03                   | 23.2                  | 187.9           | 22.97 S 3.19 W                    |
| 2555.74                   | 0.15            | 263.85          | S 83 51 W                         | 0.06                                   | 2555.53                   | 23.3                  | 188.4           | 23.02 S 3.40 W                    |
| 2650.24                   | 0.26            | 296.08          | N 63 55 W                         | 0.16                                   | 2650.03                   | 23.2                  | 189.2           | 22.94 S 3.72 W                    |
| 2744.74                   | 0.32            | 301.20          | N 58 48 W                         | 0.07                                   | 2744.53                   | 23.1                  | 190.3           | 22.71 S 4.13 W                    |
| 2839.24                   | 0.38            | 312.08          | N 47 55 W                         | 0.09                                   | 2839.03                   | 22.8                  | 191.6           | 22.36 S 4.59 W                    |
| 2933.74                   | 0.32            | 311.29          | N 48 43 W                         | 0.06                                   | 2933.53                   | 22.5                  | 192.9           | 21.98 S 5.02 W                    |
| 3028.24                   | 0.31            | 316.57          | N 43 26 W                         | 0.03                                   | 3028.03                   | 22.3                  | 194.0           | 21.62 S 5.40 W                    |
| 3122.74                   | 0.22            | 11.39           | N 11 23 E                         | 0.27                                   | 3122.53                   | 22.0                  | 194.6           | 21.26 S 5.54 W                    |
| 3217.24                   | 0.23            | 16.20           | N 16 12 E                         | 0.02                                   | 3217.03                   | 21.6                  | 194.6           | 20.90 S 5.45 W                    |
| 3311.74                   | 0.26            | 46.74           | N 46 44 E                         | 0.14                                   | 3311.52                   | 21.2                  | 194.3           | 20.57 S 5.24 W                    |
| 3406.24                   | 0.28            | 58.10           | N 58 6 E                          | 0.06                                   | 3406.02                   | 20.9                  | 193.5           | 20.30 S 4.89 W                    |
| 3500.74                   | 0.33            | 67.40           | N 67 24 E                         | 0.07                                   | 3500.52                   | 20.6                  | 192.5           | 20.07 S 4.44 W                    |
| 3595.24                   | 0.47            | 90.27           | S 89 44 E                         | 0.22                                   | 3595.02                   | 20.3                  | 190.8           | 19.97 S 3.80 W                    |

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Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. AZIMUTH<br>feet deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|-----------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|---------------------------------------|-----------------------------------|
| 3689.74                   | 0.61            | 106.94          | S 73 4 E                          | 0.22                                   | 3689.52                   | 20.3 188.3                            | 20.12 S 2.93 W                    |
| 3784.24                   | 0.72            | 119.60          | S 60 24 E                         | 0.19                                   | 3784.01                   | 20.6 185.4                            | 20.56 S 1.94 W                    |
| 3878.74                   | 0.75            | 130.28          | S 49 43 E                         | 0.15                                   | 3878.50                   | 21.3 182.6                            | 21.25 S 0.95 W                    |
| 3973.24                   | 0.42            | 136.10          | S 43 54 E                         | 0.35                                   | 3973.00                   | 21.9 180.6                            | 21.90 S 0.24 W                    |
| 4067.74                   | 0.27            | 131.97          | S 48 2 E                          | 0.16                                   | 4067.49                   | 22.3 179.6                            | 22.30 S 0.17 E                    |
| 4162.24                   | 0.13            | 136.05          | S 43 57 E                         | 0.15                                   | 4161.99                   | 22.5 179.0                            | 22.53 S 0.41 E                    |
| 4256.74                   | 0.15            | 141.38          | S 38 37 E                         | 0.03                                   | 4256.49                   | 22.7 178.6                            | 22.70 S 0.56 E                    |
| 4351.24                   | 0.15            | 146.85          | S 33 9 E                          | 0.02                                   | 4350.99                   | 22.9 178.2                            | 22.90 S 0.71 E                    |
| 4445.74                   | 0.20            | 154.59          | S 25 25 E                         | 0.06                                   | 4445.49                   | 23.2 177.9                            | 23.15 S 0.85 E                    |
| 4540.24                   | 0.25            | 180.17          | S 0 10 W                          | 0.12                                   | 4539.99                   | 23.5 177.8                            | 23.51 S 0.92 E                    |
| 4634.74                   | 0.28            | 180.94          | S 0 56 W                          | 0.03                                   | 4634.49                   | 24.0 177.8                            | 23.94 S 0.91 E                    |
| 4729.24                   | 0.29            | 182.69          | S 2 41 W                          | 0.01                                   | 4728.99                   | 24.4 177.9                            | 24.41 S 0.90 E                    |
| 4823.74                   | 0.33            | 180.25          | S 0 15 W                          | 0.04                                   | 4823.49                   | 24.9 178.0                            | 24.92 S 0.88 E                    |
| 4918.24                   | 0.26            | 177.25          | S 2 45 E                          | 0.08                                   | 4917.99                   | 25.4 178.0                            | 25.41 S 0.89 E                    |
| 5012.74                   | 0.21            | 175.93          | S 4 4 E                           | 0.05                                   | 5012.49                   | 25.8 178.0                            | 25.80 S 0.92 E                    |
| 5107.24                   | 0.37            | 135.00          | S 45 0 E                          | 0.27                                   | 5106.99                   | 26.2 177.5                            | 26.19 S 1.14 E                    |
| 5201.74                   | 0.39            | 132.81          | S 47 11 E                         | 0.03                                   | 5201.48                   | 26.7 176.6                            | 26.62 S 1.60 E                    |
| 5296.24                   | 0.38            | 130.05          | S 49 57 E                         | 0.02                                   | 5295.98                   | 27.1 175.6                            | 27.04 S 2.07 E                    |
| 5390.74                   | 0.36            | 123.60          | S 56 24 E                         | 0.05                                   | 5390.48                   | 27.5 174.7                            | 27.41 S 2.56 E                    |
| 5485.24                   | 0.38            | 117.16          | S 62 50 E                         | 0.05                                   | 5484.98                   | 27.9 173.6                            | 27.71 S 3.08 E                    |
| 5579.74                   | 0.38            | 128.88          | S 51 7 E                          | 0.08                                   | 5579.48                   | 28.3 172.7                            | 28.05 S 3.61 E                    |
| 5674.24                   | 0.39            | 145.43          | S 34 34 E                         | 0.12                                   | 5673.97                   | 28.8 171.9                            | 28.52 S 4.03 E                    |

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Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. feet | AZIMUTH<br>deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|-----------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|-----------------------|-----------------|-----------------------------------|
| 5768.74                   | 0.44            | 185.49          | S 5 29 W                          | 0.30                                   | 5768.47                   | 29.4                  | 171.8           | 29.14 S 4.18 E                    |
| 5863.24                   | 0.56            | 193.62          | S 13 37 W                         | 0.15                                   | 5862.97                   | 30.2                  | 172.3           | 29.95 S 4.04 E                    |
| 5957.74                   | 0.69            | 217.71          | S 37 43 W                         | 0.31                                   | 5957.46                   | 31.1                  | 173.4           | 30.85 S 3.58 E                    |
| 6052.24                   | 0.76            | 208.22          | S 28 13 W                         | 0.15                                   | 6051.95                   | 32.0                  | 174.7           | 31.85 S 2.94 E                    |
| 6146.74                   | 0.78            | 200.23          | S 20 14 W                         | 0.12                                   | 6146.45                   | 33.1                  | 175.8           | 33.01 S 2.42 E                    |
| 6241.24                   | 0.99            | 188.83          | S 8 50 W                          | 0.29                                   | 6240.93                   | 34.5                  | 176.6           | 34.42 S 2.07 E                    |
| 6335.74                   | 1.04            | 183.68          | S 3 41 W                          | 0.11                                   | 6335.42                   | 36.1                  | 177.0           | 36.08 S 1.89 E                    |
| 6430.24                   | 1.09            | 185.77          | S 5 46 W                          | 0.07                                   | 6429.90                   | 37.9                  | 177.4           | 37.83 S 1.74 E                    |
| 6524.74                   | 1.11            | 186.43          | S 6 26 W                          | 0.03                                   | 6524.39                   | 39.7                  | 177.8           | 39.64 S 1.55 E                    |
| 6619.24                   | 1.15            | 183.77          | S 3 46 W                          | 0.07                                   | 6618.87                   | 41.5                  | 178.1           | 41.49 S 1.39 E                    |
| 6713.74                   | 1.16            | 182.06          | S 2 4 W                           | 0.04                                   | 6713.35                   | 43.4                  | 178.3           | 43.39 S 1.29 E                    |
| 6808.24                   | 1.16            | 178.33          | S 1 40 E                          | 0.08                                   | 6807.83                   | 45.3                  | 178.4           | 45.31 S 1.28 E                    |
| 6902.74                   | 1.00            | 161.62          | S 18 23 E                         | 0.37                                   | 6902.31                   | 47.1                  | 178.1           | 47.04 S 1.57 E                    |
| 6997.24                   | 1.07            | 159.07          | S 20 56 E                         | 0.09                                   | 6996.80                   | 48.7                  | 177.5           | 48.65 S 2.15 E                    |
| 7091.74                   | 1.09            | 159.00          | S 21 0 E                          | 0.02                                   | 7091.28                   | 50.4                  | 176.8           | 50.31 S 2.78 E                    |
| 7186.24                   | 1.11            | 152.06          | S 27 56 E                         | 0.14                                   | 7185.76                   | 52.1                  | 176.1           | 51.96 S 3.53 E                    |
| 7280.74                   | 1.27            | 153.63          | S 26 22 E                         | 0.17                                   | 7280.24                   | 53.9                  | 175.3           | 53.71 S 4.43 E                    |
| 7375.24                   | 1.26            | 150.16          | S 29 50 E                         | 0.08                                   | 7374.72                   | 55.8                  | 174.4           | 55.55 S 5.41 E                    |
| 7469.74                   | 1.21            | 151.45          | S 28 33 E                         | 0.06                                   | 7469.20                   | 57.7                  | 173.6           | 57.33 S 6.40 E                    |
| 7564.24                   | 1.01            | 157.20          | S 22 48 E                         | 0.24                                   | 7563.68                   | 59.4                  | 173.0           | 58.97 S 7.20 E                    |
| 7658.74                   | 1.08            | 153.08          | S 26 55 E                         | 0.11                                   | 7658.16                   | 61.0                  | 172.5           | 60.53 S 7.93 E                    |
| 7753.24                   | 1.11            | 146.26          | S 33 44 E                         | 0.14                                   | 7752.65                   | 62.7                  | 171.9           | 62.09 S 8.84 E                    |

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Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. AZIMUTH<br>feet deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|-----------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|---------------------------------------|-----------------------------------|
| 7847.74                   | 1.24            | 148.62          | S 31 23 E                         | 0.15                                   | 7847.13                   | 64.5 171.2                            | 63.72 S 9.88 E                    |
| 7942.24                   | 1.13            | 159.30          | S 20 42 E                         | 0.26                                   | 7941.61                   | 66.3 170.7                            | 65.47 S 10.74 E                   |
| 8036.74                   | 0.98            | 168.16          | S 11 50 E                         | 0.23                                   | 8036.09                   | 68.1 170.5                            | 67.13 S 11.24 E                   |
| 8131.24                   | 0.99            | 181.25          | S 1 15 W                          | 0.24                                   | 8130.58                   | 69.7 170.6                            | 68.74 S 11.39 E                   |
| 8225.74                   | 1.58            | 224.69          | S 44 41 W                         | 1.16                                   | 8225.05                   | 71.2 171.6                            | 70.48 S 10.45 E                   |
| 8320.24                   | 2.62            | 245.41          | S 65 25 W                         | 1.35                                   | 8319.49                   | 72.7 174.0                            | 72.30 S 7.57 E                    |
| 8414.74                   | 3.40            | 236.59          | S 56 35 W                         | 0.96                                   | 8413.86                   | 74.8 177.5                            | 74.75 S 3.27 E                    |
| 8509.24                   | 3.27            | 230.65          | S 50 39 W                         | 0.39                                   | 8508.20                   | 78.0 180.8                            | 78.00 S 1.15 W                    |
| 8603.74                   | 2.89            | 229.35          | S 49 21 W                         | 0.41                                   | 8602.56                   | 81.4 183.6                            | 81.26 S 5.04 W                    |
| 8698.24                   | 2.81            | 226.16          | S 46 10 W                         | 0.19                                   | 8696.95                   | 84.8 185.8                            | 84.41 S 8.52 W                    |
| 8792.74                   | 3.32            | 228.35          | S 48 21 W                         | 0.55                                   | 8791.31                   | 88.7 187.9                            | 87.84 S 12.24 W                   |
| 8887.24                   | 3.36            | 232.72          | S 52 43 W                         | 0.27                                   | 8885.65                   | 92.8 190.2                            | 91.33 S 16.49 W                   |
| 8981.74                   | 2.95            | 232.87          | S 52 52 W                         | 0.43                                   | 8980.01                   | 96.7 192.3                            | 94.48 S 20.63 W                   |
| 9076.24                   | 2.78            | 236.69          | S 56 41 W                         | 0.27                                   | 9074.39                   | 100.2 194.1                           | 97.20 S 24.48 W                   |
| 9170.74                   | 2.99            | 241.81          | S 61 49 W                         | 0.35                                   | 9168.77                   | 103.6 196.0                           | 99.63 S 28.57 W                   |
| 9265.24                   | 2.86            | 215.47          | S 35 28 W                         | 1.42                                   | 9263.15                   | 107.6 197.4                           | 102.71 S 32.11 W                  |
| 9359.74                   | 2.57            | 211.43          | S 31 26 W                         | 0.37                                   | 9357.55                   | 111.9 198.0                           | 106.44 S 34.58 W                  |
| 9454.24                   | 2.60            | 202.99          | S 22 59 W                         | 0.40                                   | 9451.95                   | 116.1 198.3                           | 110.22 S 36.53 W                  |
| 9548.74                   | 2.61            | 192.22          | S 12 13 W                         | 0.52                                   | 9546.35                   | 120.4 198.3                           | 114.30 S 37.82 W                  |
| 9643.24                   | 2.10            | 181.62          | S 1 37 W                          | 0.71                                   | 9640.77                   | 124.2 198.0                           | 118.13 S 38.32 W                  |
| 9737.74                   | 2.02            | 177.31          | S 2 41 E                          | 0.18                                   | 9735.21                   | 127.4 197.5                           | 121.53 S 38.29 W                  |

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Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | INCL<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. AZIMUTH<br>feet deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|--------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|---------------------------------------|-----------------------------------|
| 9832.24                   | 1.77         | 165.26          | S 14 44 E                         | 0.50                                   | 9829.66                   | 130.2 196.9                           | 124.60 S 37.84 W                  |
| 9926.74                   | 1.66         | 167.10          | S 12 54 E                         | 0.13                                   | 9924.12                   | 132.7 196.3                           | 127.35 S 37.17 W                  |
| 10021.24                  | 1.42         | 188.62          | S 8 37 W                          | 0.66                                   | 10018.58                  | 135.0 195.9                           | 129.84 S 37.04 W                  |
| 10115.74                  | 1.79         | 195.85          | S 15 51 W                         | 0.45                                   | 10113.05                  | 137.7 195.9                           | 132.42 S 37.62 W                  |
| 10210.24                  | 2.14         | 190.34          | S 10 20 W                         | 0.42                                   | 10207.49                  | 140.9 195.8                           | 135.57 S 38.34 W                  |
| 10304.74                  | 2.45         | 201.16          | S 21 10 W                         | 0.56                                   | 10301.92                  | 144.7 195.8                           | 139.19 S 39.38 W                  |
| 10399.24                  | 2.21         | 207.66          | S 27 40 W                         | 0.38                                   | 10396.34                  | 148.4 196.0                           | 142.69 S 40.96 W                  |
| 10493.74                  | 2.32         | 212.94          | S 32 56 W                         | 0.25                                   | 10490.76                  | 152.1 196.4                           | 145.91 S 42.84 W                  |
| 10588.24                  | 2.58         | 215.32          | S 35 19 W                         | 0.30                                   | 10585.18                  | 155.9 196.8                           | 149.25 S 45.11 W                  |
| 10682.74                  | 2.61         | 208.24          | S 28 14 W                         | 0.34                                   | 10679.58                  | 160.0 197.2                           | 152.88 S 47.36 W                  |
| 10777.24                  | 3.20         | 217.44          | S 37 26 W                         | 0.79                                   | 10773.96                  | 164.6 197.7                           | 156.87 S 49.98 W                  |
| 10871.74                  | 3.12         | 220.85          | S 40 51 W                         | 0.22                                   | 10868.32                  | 169.5 198.3                           | 160.91 S 53.27 W                  |
| 10966.24                  | 2.95         | 221.40          | S 41 24 W                         | 0.18                                   | 10962.68                  | 174.1 199.0                           | 164.68 S 56.56 W                  |
| 11060.74                  | 2.80         | 221.35          | S 41 21 W                         | 0.16                                   | 11057.07                  | 178.5 199.5                           | 168.23 S 59.69 W                  |
| 11155.24                  | 2.81         | 220.49          | S 40 29 W                         | 0.05                                   | 11151.45                  | 182.8 200.1                           | 171.73 S 62.72 W                  |
| 11249.74                  | 2.77         | 219.34          | S 39 20 W                         | 0.07                                   | 11245.84                  | 187.2 200.5                           | 175.26 S 65.67 W                  |
| 11344.24                  | 2.42         | 217.69          | S 37 41 W                         | 0.38                                   | 11340.24                  | 191.2 200.9                           | 178.60 S 68.34 W                  |
| 11438.74                  | 2.09         | 218.87          | S 38 52 W                         | 0.35                                   | 11434.67                  | 194.8 201.3                           | 181.52 S 70.64 W                  |
| 11533.24                  | 1.93         | 217.04          | S 37 2 W                          | 0.18                                   | 11529.11                  | 198.0 201.5                           | 184.13 S 72.68 W                  |
| 11627.74                  | 1.82         | 221.78          | S 41 47 W                         | 0.20                                   | 11623.56                  | 200.9 201.8                           | 186.52 S 74.64 W                  |
| 11722.24                  | 1.74         | 222.02          | S 42 1 W                          | 0.09                                   | 11718.02                  | 203.7 202.1                           | 188.71 S 76.60 W                  |
| 11816.74                  | 2.23         | 234.90          | S 54 54 W                         | 0.70                                   | 11812.46                  | 206.6 202.5                           | 190.83 S 79.06 W                  |

# A Gyrodata Directional Survey

BOPCO

Lease: PKER LAKE UNIT Well: DELAWARE B-23 FED #1 SWD, 5 INCH DRILL PIPE

Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. AZIMUTH<br>feet deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|-----------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|---------------------------------------|-----------------------------------|
| 11911.24                  | 1.08            | 256.49          | S 76 29 W                         | 1.36                                   | 11906.92                  | 208.6 203.0                           | 192.10 S 81.43 W                  |
| 12005.74                  | 1.12            | 280.96          | N 79 2 W                          | 0.50                                   | 12001.40                  | 209.4 203.4                           | 192.13 S 83.20 W                  |
| 12100.24                  | 1.03            | 304.58          | N 55 25 W                         | 0.47                                   | 12095.89                  | 209.4 203.9                           | 191.47 S 84.81 W                  |
| 12194.74                  | 0.85            | 301.29          | N 58 43 W                         | 0.20                                   | 12190.37                  | 209.2 204.3                           | 190.62 S 86.11 W                  |
| 12289.24                  | 1.17            | 293.11          | N 66 53 W                         | 0.37                                   | 12284.86                  | 209.1 204.8                           | 189.88 S 87.60 W                  |
| 12383.74                  | 1.18            | 282.47          | N 77 32 W                         | 0.23                                   | 12379.34                  | 209.4 205.3                           | 189.29 S 89.43 W                  |
| 12478.24                  | 1.67            | 288.60          | N 71 24 W                         | 0.54                                   | 12473.81                  | 209.7 205.9                           | 188.64 S 91.69 W                  |
| 12572.74                  | 1.67            | 273.19          | N 86 49 W                         | 0.47                                   | 12568.27                  | 210.5 206.6                           | 188.13 S 94.37 W                  |
| 12667.24                  | 2.35            | 278.91          | N 81 5 W                          | 0.75                                   | 12662.71                  | 211.6 207.5                           | 187.75 S 97.66 W                  |
| 12761.74                  | 2.39            | 281.16          | N 78 50 W                         | 0.11                                   | 12757.13                  | 212.8 208.5                           | 187.07 S 101.50 W                 |
| 12856.24                  | 2.58            | 288.11          | N 71 53 W                         | 0.38                                   | 12851.54                  | 213.8 209.5                           | 186.03 S 105.46 W                 |
| 12950.74                  | 2.51            | 289.17          | N 70 50 W                         | 0.09                                   | 12945.95                  | 214.7 210.6                           | 184.69 S 109.44 W                 |
| 13045.24                  | 2.54            | 287.60          | N 72 24 W                         | 0.08                                   | 13040.36                  | 215.6 211.7                           | 183.37 S 113.39 W                 |
| 13139.74                  | 2.41            | 290.37          | N 69 38 W                         | 0.19                                   | 13134.77                  | 216.5 212.8                           | 182.05 S 117.24 W                 |
| 13234.24                  | 2.38            | 291.85          | N 68 9 W                          | 0.07                                   | 13229.19                  | 217.4 213.8                           | 180.63 S 120.93 W                 |
| 13328.74                  | 2.50            | 288.67          | N 71 20 W                         | 0.19                                   | 13323.60                  | 218.3 214.8                           | 179.24 S 124.70 W                 |
| 13423.24                  | 2.60            | 287.43          | N 72 34 W                         | 0.12                                   | 13418.01                  | 219.6 215.9                           | 177.93 S 128.70 W                 |
| 13517.74                  | 2.38            | 288.74          | N 71 16 W                         | 0.24                                   | 13512.42                  | 220.9 216.9                           | 176.66 S 132.60 W                 |
| 13612.24                  | 2.25            | 292.00          | N 68 0 W                          | 0.20                                   | 13606.84                  | 222.0 217.8                           | 175.34 S 136.18 W                 |
| 13706.74                  | 1.96            | 299.08          | N 60 55 W                         | 0.41                                   | 13701.28                  | 222.8 218.7                           | 173.86 S 139.31 W                 |
| 13801.24                  | 2.25            | 297.98          | N 62 1 W                          | 0.31                                   | 13795.71                  | 223.4 219.6                           | 172.20 S 142.36 W                 |
| 13895.74                  | 2.17            | 294.60          | N 65 24 W                         | 0.16                                   | 13890.14                  | 224.3 220.5                           | 170.59 S 145.63 W                 |

# A Gyrodata Directional Survey

BOPCO

Lease: PKER LAKE UNIT Well: DELAWARE B-23 FED #1 SWD, 5 INCH DRILL PIPE

Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | INCL<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. feet | AZIMUTH<br>deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|--------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|-----------------------|-----------------|-----------------------------------|
| 13990.24                  | 2.31         | 291.87          | N 68 8 W                          | 0.19                                   | 13984.57                  | 225.4                 | 221.4           | 169.13 S 149.02 W                 |
| 14084.74                  | 2.39         | 296.50          | N 63 30 W                         | 0.22                                   | 14078.99                  | 226.6                 | 222.3           | 167.54 S 152.55 W                 |
| 14179.24                  | 2.58         | 302.59          | N 57 25 W                         | 0.34                                   | 14173.40                  | 227.5                 | 223.3           | 165.52 S 156.11 W                 |
| 14273.74                  | 2.32         | 312.47          | N 47 32 W                         | 0.52                                   | 14267.82                  | 228.0                 | 224.3           | 163.08 S 159.31 W                 |
| 14368.24                  | 2.50         | 307.91          | N 52 5 W                          | 0.28                                   | 14362.23                  | 228.3                 | 225.3           | 160.52 S 162.35 W                 |
| 14462.74                  | 2.20         | 283.08          | N 76 55 W                         | 1.11                                   | 14456.65                  | 229.6                 | 226.2           | 158.85 S 165.74 W                 |
| 14557.24                  | 2.26         | 260.05          | S 80 3 W                          | 0.94                                   | 14551.09                  | 232.1                 | 226.8           | 158.76 S 169.34 W                 |
| 14651.74                  | 2.27         | 250.82          | S 70 49 W                         | 0.39                                   | 14645.51                  | 235.4                 | 227.3           | 159.69 S 172.95 W                 |
| 14746.24                  | 2.38         | 260.77          | S 80 46 W                         | 0.44                                   | 14739.93                  | 238.8                 | 227.7           | 160.62 S 176.65 W                 |
| 14840.74                  | 1.91         | 282.13          | N 77 52 W                         | 0.97                                   | 14834.37                  | 241.3                 | 228.3           | 160.61 S 180.13 W                 |
| 14935.24                  | 1.66         | 292.73          | N 67 16 W                         | 0.44                                   | 14928.82                  | 242.9                 | 228.9           | 159.75 S 182.93 W                 |
| 15029.74                  | 1.29         | 284.69          | N 75 19 W                         | 0.45                                   | 15023.29                  | 244.1                 | 229.4           | 158.95 S 185.22 W                 |
| 15124.24                  | 1.19         | 291.13          | N 68 52 W                         | 0.18                                   | 15117.77                  | 245.1                 | 229.8           | 158.33 S 187.16 W                 |
| 15218.74                  | 1.60         | 298.46          | N 61 32 W                         | 0.47                                   | 15212.24                  | 246.1                 | 230.3           | 157.34 S 189.24 W                 |
| 15313.24                  | 1.25         | 290.46          | N 69 32 W                         | 0.43                                   | 15306.71                  | 247.1                 | 230.7           | 156.35 S 191.37 W                 |
| 15407.74                  | 1.74         | 295.06          | N 64 56 W                         | 0.53                                   | 15401.18                  | 248.3                 | 231.3           | 155.39 S 193.63 W                 |
| 15502.24                  | 1.77         | 304.42          | N 55 35 W                         | 0.30                                   | 15495.64                  | 249.3                 | 231.9           | 153.95 S 196.13 W                 |
| 15596.74                  | 1.78         | 306.84          | N 53 10 W                         | 0.08                                   | 15590.09                  | 250.2                 | 232.5           | 152.25 S 198.51 W                 |
| 15691.24                  | 2.01         | 315.09          | N 44 55 W                         | 0.38                                   | 15684.54                  | 250.8                 | 233.2           | 150.20 S 200.86 W                 |
| 15785.74                  | 2.89         | 323.51          | N 36 29 W                         | 1.00                                   | 15778.95                  | 251.1                 | 234.1           | 147.11 S 203.44 W                 |
| 15880.24                  | 3.80         | 326.82          | N 33 11 W                         | 0.98                                   | 15873.29                  | 251.0                 | 235.4           | 142.57 S 206.58 W                 |

# A Gyrodata Directional Survey

BOPCO

Lease: PKER LAKE UNIT Well: DELAWARE B-23 FED #1 SWD, 5 INCH DRILL PIPE

Location: INDEPENDENCE 202, EDDY COUNTY, NEW MEXICO

Job Number: MD0613GDM401

| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | AZIMUTH<br>deg. | BORE HOLE<br>BEARING<br>deg. min. | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. AZIMUTH<br>feet deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|-----------------|-----------------|-----------------------------------|----------------------------------------|---------------------------|---------------------------------------|-----------------------------------|
| 15974.74                  | 5.74            | 322.86          | N 37 8 W                          | 2.08                                   | 15967.46                  | 251.3 237.2                           | 136.18 S 211.14 W                 |
| 16069.24                  | 6.73            | 320.22          | N 39 47 W                         | 1.09                                   | 16061.40                  | 252.5 239.5                           | 128.16 S 217.54 W                 |
| 16163.74                  | 5.56            | 313.92          | N 46 5 W                          | 1.43                                   | 16155.36                  | 254.8 241.7                           | 120.73 S 224.38 W                 |
| 16258.24                  | 5.09            | 313.37          | N 46 38 W                         | 0.50                                   | 16249.45                  | 257.7 243.6                           | 114.67 S 230.72 W                 |
| 16352.74                  | 4.56            | 311.55          | N 48 27 W                         | 0.58                                   | 16343.61                  | 260.6 245.2                           | 109.30 S 236.58 W                 |

Final Station Closure: Distance: 260.61 ft Az: 245.20 deg.

