

30-015-41424

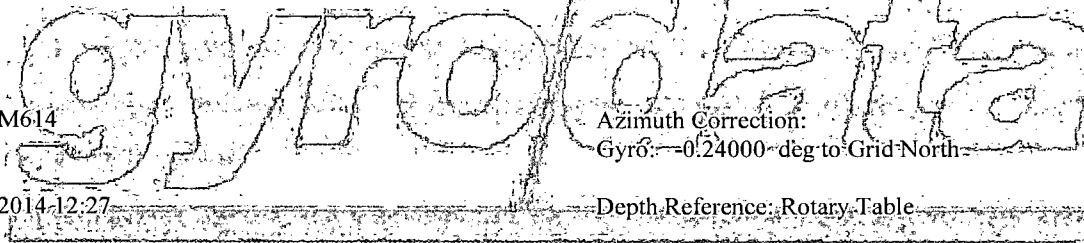
# A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

**BOPCO L.P**

Lease: JAMES RANCH Well: 135H, 4 1/2" DRILLPIPE  
Location: INDEPENDENCE DRILLING RIG 202, EDDY COUNTY, NEW MEXICO



Job Number: MD0614GDM614

Run Date: 14 Jun 2014

Report Generated: 19 Jun 2014 12:27

Surveyor: Marlin Willeford

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Well Plan/Plot

Survey Latitude: 32.380619 deg. N Longitude: 103.881219 deg. W

Azimuth Correction:

Gyro: -0.24000 deg to Grid North

Depth Reference: Rotary Table

Air Gap (RKB to Ground / RKB to MSL): 26.00

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

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| MEASURED<br>DEPTH<br>feet  | INCL<br>deg. | AZIMUTH<br>deg. | 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 |
|--|--------------|-----------------|--|---------------------------|---------------------------------------|-----------------------------------|
| 0.00   | 0.00         | 0.00            | 0.00                                   | 0.00                      | 0.0 0.0                               | 0.00 N 0.00 E                     |
| 0 - 5733FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4 1/2" DRILLPIPE                                 |              |                 |  |                           |                                       |                                   |
| ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO INDEPENDENCE DRILLING RIG #202 R.K.B. HEIGHT OF 26 FT. |              |                 |  |                           |                                       |                                   |
| 100.00   | 0.89         | 151.45          | 0.89                                   | 100.00                    | 0.8 151.4                             | 0.68 S 0.37 E                     |
| 200.00   | 0.91         | 153.08          | 0.03                                   | 199.98                    | 2.3 152.0                             | 2.07 S 1.10 E                     |
| 300.00   | 0.90         | 153.11          | 0.00                                   | 299.97                    | 3.9 152.4                             | 3.47 S 1.81 E                     |
| 400.00   | 0.56         | 195.21          | 0.62                                   | 399.96                    | 5.1 156.3                             | 4.65 S 2.04 E                     |
| 500.00   | 0.47         | 163.27          | 0.30                                   | 499.96                    | 5.9 159.8                             | 5.52 S 2.03 E                     |
| 600.00   | 0.32         | 176.44          | 0.18                                   | 599.96                    | 6.6 160.7                             | 6.19 S 2.17 E                     |
| 700.00   | 0.33         | 141.05          | 0.20                                   | 699.96                    | 7.1 160.5                             | 6.70 S 2.37 E                     |
| 800.00   | 0.29         | 149.53          | 0.07                                   | 799.95                    | 7.6 159.4                             | 7.14 S 2.68 E                     |
| 900.00   | 0.12         | 155.20          | 0.16                                   | 899.95                    | 8.0 159.1                             | 7.46 S 2.85 E                     |
| 1000.00  | 0.18         | 136.59          | 0.07                                   | 999.95                    | 8.2 158.6                             | 7.67 S 3.00 E                     |
| 1100.00  | 0.33         | 160.69          | 0.19                                   | 1099.95                   | 8.7 158.3                             | 8.06 S 3.21 E                     |
| 1200.00  | 0.43         | 156.07          | 0.10                                   | 1199.95                   | 9.3 158.3                             | 8.68 S 3.46 E                     |
| 1300.00  | 0.07         | 220.24          | 0.41                                   | 1299.95                   | 9.7 158.5                             | 9.07 S 3.57 E                     |
| 1400.00  | 0.16         | 273.82          | 0.13                                   | 1399.95                   | 9.7 159.6                             | 9.11 S 3.39 E                     |
| 1500.00  | 0.08         | 344.61          | 0.15                                   | 1499.95                   | 9.6 160.3                             | 9.03 S 3.23 E                     |
| 1600.00  | 0.71         | 187.83          | 0.78                                   | 1599.95                   | 10.1 161.9                            | 9.58 S 3.13 E                     |
| 1700.00  | 2.92         | 174.34          | 2.24                                   | 1699.89                   | 13.1 165.5                            | 12.72 S 3.30 E                    |
| 1800.00  | 3.64         | 170.88          | 0.75                                   | 1799.73                   | 18.8 167.6                            | 18.40 S 4.05 E                    |
| 1900.00  | 3.86         | 173.79          | 0.29                                   | 1899.51                   | 25.4 168.8                            | 24.88 S 4.92 E                    |

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|------------------------|--------------|-----------------|-------------------------------------|------------------------|-----------------------|-----------------|--------------------------------|
| 2000.00                | 2.68         | 171.41          | 1.18                                | 1999.35                | 31.0                  | 169.6           | 30.53 S 5.63 E                 |
| 2100.00                | 2.38         | 169.50          | 0.32                                | 2099.25                | 35.5                  | 169.7           | 34.89 S 6.36 E                 |
| 2200.00                | 2.43         | 169.48          | 0.05                                | 2199.16                | 39.7                  | 169.7           | 39.01 S 7.12 E                 |
| 2300.00                | 2.19         | 175.10          | 0.32                                | 2299.08                | 43.7                  | 169.9           | 43.00 S 7.67 E                 |
| 2400.00                | 2.31         | 172.83          | 0.14                                | 2399.00                | 47.6                  | 170.2           | 46.90 S 8.09 E                 |
| 2500.00                | 2.68         | 168.19          | 0.43                                | 2498.91                | 51.9                  | 170.2           | 51.18 S 8.82 E                 |
| 2600.00                | 3.34         | 170.40          | 0.67                                | 2598.77                | 57.2                  | 170.2           | 56.35 S 9.78 E                 |
| 2700.00                | 3.72         | 171.82          | 0.38                                | 2698.58                | 63.3                  | 170.2           | 62.43 S 10.73 E                |
| 2800.00                | 4.26         | 171.03          | 0.55                                | 2798.34                | 70.3                  | 170.4           | 69.31 S 11.77 E                |
| 2895.40                | 2.87         | 171.54          | 1.46                                | 2893.55                | 76.2                  | 170.4           | 75.17 S 12.67 E                |
| 2990.00                | 2.59         | 169.39          | 0.32                                | 2988.04                | 80.7                  | 170.4           | 79.61 S 13.42 E                |
| 3084.60                | 2.98         | 167.42          | 0.42                                | 3082.53                | 85.3                  | 170.3           | 84.11 S 14.34 E                |
| 3179.20                | 3.96         | 166.16          | 1.04                                | 3176.96                | 91.0                  | 170.1           | 89.69 S 15.66 E                |
| 3273.80                | 4.03         | 165.39          | 0.09                                | 3271.33                | 97.6                  | 169.8           | 96.07 S 17.28 E                |
| 3368.40                | 2.07         | 181.45          | 2.24                                | 3365.79                | 102.6                 | 169.9           | 101.00 S 18.08 E               |
| 3463.00                | 1.80         | 189.37          | 0.40                                | 3460.34                | 105.7                 | 170.3           | 104.17 S 17.79 E               |
| 3557.60                | 3.17         | 178.28          | 1.53                                | 3554.85                | 109.7                 | 170.8           | 108.25 S 17.63 E               |
| 3652.20                | 3.57         | 181.34          | 0.46                                | 3649.28                | 115.2                 | 171.2           | 113.81 S 17.64 E               |
| 3746.80                | 3.59         | 176.21          | 0.34                                | 3743.70                | 121.0                 | 171.6           | 119.71 S 17.76 E               |
| 3841.40                | 3.52         | 175.39          | 0.09                                | 3838.12                | 126.9                 | 171.8           | 125.56 S 18.19 E               |
| 3936.00                | 3.49         | 173.80          | 0.11                                | 3932.54                | 132.7                 | 171.9           | 131.32 S 18.74 E               |

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|---------------------------|--------------|-----------------|--|---------------------------|---------------------------------------|-----------------------------------|
| 4030.60                   | 3.46         | 172.62          | 0.08                                   | 4026.96                   | 138.4 171.9                           | 137.01 S 19.42 E                  |
| 4125.20                   | 3.53         | 171.04          | 0.13                                   | 4121.39                   | 144.1 171.9                           | 142.72 S 20.24 E                  |
| 4219.80                   | 3.51         | 170.51          | 0.04                                   | 4215.81                   | 150.0 171.9                           | 148.45 S 21.17 E                  |
| 4314.40                   | 3.60         | 172.47          | 0.16                                   | 4310.23                   | 155.8 171.9                           | 154.26 S 22.03 E                  |
| 4409.00                   | 4.48         | 168.30          | 0.98                                   | 4404.59                   | 162.5 171.8                           | 160.82 S 23.17 E                  |
| 4503.60                   | 4.41         | 169.39          | 0.12                                   | 4498.91                   | 169.8 171.7                           | 168.01 S 24.59 E                  |
| 4598.20                   | 4.35         | 168.25          | 0.11                                   | 4593.23                   | 177.0 171.6                           | 175.10 S 25.99 E                  |
| 4692.80                   | 4.45         | 168.96          | 0.12                                   | 4687.55                   | 184.3 171.4                           | 182.21 S 27.42 E                  |
| 4787.40                   | 4.38         | 168.58          | 0.08                                   | 4781.87                   | 191.5 171.3                           | 189.36 S 28.84 E                  |
| 4882.00                   | 4.43         | 169:05          | 0:07                                   | 4876.19                   | 198.8 171.2                           | 196.48 S 30.25 E                  |
| 4976.60                   | 4.46         | 168:19          | 0:08                                   | 4970.51                   | 206.1 171.2                           | 203.67 S 31.70 E                  |
| 5071.20                   | 4.38         | 166.67          | 0.15                                   | 5064.83                   | 213.4 171.0                           | 210.79 S 33.28 E                  |
| 5165.80                   | 4.22         | 166.92          | 0.17                                   | 5159.16                   | 220.5 170.9                           | 217.69 S 34.91 E                  |
| 5260.40                   | 3.43         | 164.17          | 0.86                                   | 5253.55                   | 226.8 170.7                           | 223.80 S 36.46 E                  |
| 5355.00                   | 3.45         | 162.59          | 0.10                                   | 5347.98                   | 232.4 170.6                           | 229.24 S 38.09 E                  |
| 5449.60                   | 3.52         | 162.43          | 0.07                                   | 5442.40                   | 238.1 170.4                           | 234.73 S 39.82 E                  |
| 5544.20                   | 3.52         | 161.08          | 0.09                                   | 5536.83                   | 243.8 170.2                           | 240.24 S 41.63 E                  |
| 5638.80                   | 3.48         | 160.43          | 0.06                                   | 5631.25                   | 249.5 170.0                           | 245.70 S 43.54 E                  |
| 5733.40                   | 3.49         | 160.69          | 0.02                                   | 5725.67                   | 255.2 169.7                           | 251.12 S 45.45 E                  |

Final Station Closure: Distance: 255.20 ft Az: 169.74 deg.