



1724-B Townhurst Dr, Houston, Tx 77043  
(713) 827-8302  
www.nevisenergy.com

Job Number: 205-zzz  
Company: BHEP / Mallon Oil  
Lease/Well: Jicarilla 462-23 # 12  
Location: Rio Arriba County  
Rig Name: Patterson 744  
RKB: ☐  
G.L. or M.S.L.: API #30-039-29322

State/Country: New Mexico  
Declination: 10.27° East (Grid)  
Grid: ☐  
File name: N:\BLACKH~1\2005\5-297 J~1\4622312.SVY  
Date/Time: 22-Nov-05 / 16:44  
Curve Name: Final NMOCD Filing

Surface 605/N 1740/W  
BHL 931/N 700/E



WINSERVE SURVEY CALCULATIONS  
Minimum Curvature Method  
Vertical Section Plane 99.75  
Vertical Section Referenced to Wellhead  
Rectangular Coordinates Referenced to Wellhead

*Handwritten signature/initials*

| Measured<br>Depth<br>FT          | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | Vertical<br>Section<br>FT | N-S<br>FT | E-W<br>FT | CLOSURE<br>Distance<br>FT | Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|----------------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|------------------|-------------------------------|
| <b>Tie in to Gyrodata Survey</b> |                      |                           |                           |                           |           |           |                           |                  |                               |
| 3651.00                          | .17                  | 34.60                     | 3650.80                   | -9.03                     | 18.40     | -6.00     | 19.35                     | 341.94           | .00                           |
| <b>First Nevis MWD Survey</b>    |                      |                           |                           |                           |           |           |                           |                  |                               |
| 3700.00                          | 19.10                | 59.30                     | 3698.89                   | -2.84                     | 22.59     | 1.00      | 22.61                     | 2.53             | 38.66                         |
| 3715.00                          | 28.60                | 67.90                     | 3712.60                   | 2.09                      | 25.20     | 6.45      | 26.01                     | 14.35            | 67.29                         |
| 3731.00                          | 40.20                | 74.30                     | 3725.78                   | 10.03                     | 28.05     | 15.00     | 31.81                     | 28.14            | 75.85                         |
| 3746.00                          | 51.40                | 76.30                     | 3736.22                   | 19.81                     | 30.76     | 25.39     | 39.88                     | 39.54            | 75.27                         |
| 3763.00                          | 62.40                | 76.40                     | 3745.49                   | 32.86                     | 34.11     | 39.21     | 51.97                     | 48.98            | 64.71                         |
| 3778.00                          | 73.40                | 77.70                     | 3751.13                   | 45.67                     | 37.22     | 52.73     | 64.54                     | 54.79            | 73.77                         |
| 3794.00                          | 86.30                | 75.80                     | 3753.94                   | 60.13                     | 40.82     | 68.03     | 79.34                     | 59.03            | 81.46                         |
| 3825.00                          | 98.30                | 77.50                     | 3752.70                   | 88.57                     | 47.96     | 98.11     | 109.21                    | 63.95            | 39.09                         |
| 3857.00                          | 102.00               | 80.50                     | 3747.06                   | 118.01                    | 53.98     | 129.02    | 139.86                    | 67.30            | 14.79                         |
| 3889.00                          | 101.60               | 85.20                     | 3740.51                   | 147.98                    | 57.87     | 160.09    | 170.23                    | 70.12            | 14.43                         |
| 3927.00                          | 98.80                | 90.20                     | 3733.78                   | 184.54                    | 59.37     | 197.44    | 206.18                    | 73.27            | 14.90                         |
| 3958.00                          | 96.60                | 95.90                     | 3729.62                   | 215.03                    | 57.73     | 228.11    | 235.30                    | 75.80            | 19.55                         |
| 3990.00                          | 93.80                | 100.40                    | 3726.72                   | 246.88                    | 53.21     | 259.64    | 265.04                    | 78.42            | 16.51                         |
| 4021.00                          | 91.10                | 106.50                    | 3725.39                   | 277.77                    | 46.01     | 289.74    | 293.37                    | 80.98            | 21.50                         |
| 4046.00                          | 90.60                | 107.30                    | 3725.02                   | 302.57                    | 38.74     | 313.66    | 316.05                    | 82.96            | 3.77                          |
| 4076.00                          | 91.10                | 106.20                    | 3724.58                   | 332.34                    | 30.10     | 342.39    | 343.71                    | 84.98            | 4.03                          |
| 4108.00                          | 91.40                | 105.90                    | 3723.88                   | 364.14                    | 21.25     | 373.13    | 373.74                    | 86.74            | 1.33                          |
| 4139.00                          | 92.00                | 106.40                    | 3722.96                   | 394.94                    | 12.63     | 402.89    | 403.09                    | 88.20            | 2.52                          |
| 4170.00                          | 92.50                | 106.80                    | 3721.74                   | 425.69                    | 3.78      | 432.58    | 432.60                    | 89.50            | 2.06                          |

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | Vertical<br>Section<br>FT | N-S<br>FT | E-W<br>FT | C L O S U R E  |                  | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|----------------|------------------|-------------------------------|
|                         |                      |                           |                           |                           |           |           | Distance<br>FT | Direction<br>Deg |                               |
| 4202.00                 | 92.70                | 105.70                    | 3720.29                   | 457.45                    | -5.16     | 463.27    | 463.30         | 90.64            | 3.49                          |
| 4233.00                 | 91.00                | 104.50                    | 3719.29                   | 488.30                    | -13.23    | 493.18    | 493.36         | 91.54            | 6.71                          |
| 4296.00                 | 91.30                | 103.60                    | 3718.03                   | 551.11                    | -28.52    | 554.28    | 555.02         | 92.95            | 1.51                          |
| 4359.00                 | 92.50                | 103.50                    | 3715.94                   | 613.93                    | -43.28    | 615.49    | 617.01         | 94.02            | 1.91                          |
| 4422.00                 | 90.40                | 103.40                    | 3714.34                   | 676.78                    | -57.92    | 676.74    | 679.22         | 94.89            | 3.34                          |
|                         |                      |                           |                           |                           |           |           |                |                  |                               |
| 4485.00                 | 91.00                | 106.30                    | 3713.57                   | 739.52                    | -74.07    | 737.63    | 741.34         | 95.73            | 4.70                          |
| 4548.00                 | 91.10                | 106.30                    | 3712.42                   | 802.10                    | -91.75    | 798.09    | 803.34         | 96.56            | .16                           |
| 4610.00                 | 90.80                | 106.50                    | 3711.39                   | 863.67                    | -109.25   | 857.56    | 864.49         | 97.26            | .58                           |
| 4673.00                 | 90.20                | 108.00                    | 3710.84                   | 926.13                    | -127.93   | 917.72    | 926.59         | 97.94            | 2.56                          |
| 4736.00                 | 89.60                | 107.70                    | 3710.95                   | 988.50                    | -147.24   | 977.68    | 988.71         | 98.56            | 1.06                          |
|                         |                      |                           |                           |                           |           |           |                |                  |                               |
| 4798.00                 | 90.00                | 108.20                    | 3711.17                   | 1049.86                   | -166.35   | 1036.67   | 1049.93        | 99.12            | 1.03                          |
| 4860.00                 | 90.90                | 106.80                    | 3710.68                   | 1111.29                   | -184.99   | 1095.79   | 1111.30        | 99.58            | 2.68                          |
| 4933.00                 | 91.20                | 107.00                    | 3709.34                   | 1183.71                   | -206.21   | 1165.63   | 1183.73        | 100.03           | .49                           |
| 4996.00                 | 90.30                | 104.10                    | 3708.52                   | 1246.38                   | -223.09   | 1226.31   | 1246.44        | 100.31           | 4.82                          |
| 5027.00                 | 90.10                | 101.90                    | 3708.41                   | 1277.33                   | -230.07   | 1256.51   | 1277.40        | 100.38           | 7.13                          |
|                         |                      |                           |                           |                           |           |           |                |                  |                               |
| 5058.00                 | 90.80                | 101.00                    | 3708.17                   | 1308.31                   | -236.22   | 1286.89   | 1308.40        | 100.40           | 3.68                          |
| 5121.00                 | 91.50                | 101.50                    | 3706.90                   | 1371.28                   | -248.51   | 1348.67   | 1371.38        | 100.44           | 1.37                          |
| 5184.00                 | 91.80                | 97.60                     | 3705.09                   | 1434.24                   | -258.95   | 1410.76   | 1434.33        | 100.40           | 6.21                          |
| 5246.00                 | 92.90                | 97.80                     | 3702.55                   | 1496.14                   | -267.25   | 1472.15   | 1496.21        | 100.29           | 1.80                          |
| 5309.00                 | 91.20                | 97.20                     | 3700.29                   | 1559.05                   | -275.47   | 1534.57   | 1559.10        | 100.18           | 2.86                          |
|                         |                      |                           |                           |                           |           |           |                |                  |                               |
| 5370.00                 | 89.70                | 95.90                     | 3699.81                   | 1619.95                   | -282.43   | 1595.16   | 1619.97        | 100.04           | 3.25                          |
| 5433.00                 | 89.50                | 96.30                     | 3700.25                   | 1682.82                   | -289.12   | 1657.81   | 1682.83        | 99.89            | .71                           |
| 5496.00                 | 89.40                | 96.30                     | 3700.86                   | 1745.71                   | -296.04   | 1720.42   | 1745.71        | 99.76            | .16                           |
| 5560.00                 | 89.60                | 95.90                     | 3701.42                   | 1809.57                   | -302.84   | 1784.06   | 1809.58        | 99.63            | .70                           |
| 5623.00                 | 91.30                | 95.10                     | 3700.92                   | 1872.40                   | -308.88   | 1846.76   | 1872.41        | 99.49            | 2.98                          |
|                         |                      |                           |                           |                           |           |           |                |                  |                               |
| 5686.00                 | 91.60                | 99.30                     | 3699.33                   | 1935.30                   | -316.77   | 1909.23   | 1935.33        | 99.42            | 6.68                          |
| 5748.00                 | 92.30                | 99.00                     | 3697.22                   | 1997.26                   | -326.62   | 1970.41   | 1997.29        | 99.41            | 1.23                          |
| 5811.00                 | 88.50                | 98.70                     | 3696.78                   | 2060.24                   | -336.31   | 2032.64   | 2060.28        | 99.39            | 6.05                          |
| 5874.00                 | 89.40                | 98.50                     | 3697.93                   | 2123.21                   | -345.73   | 2094.92   | 2123.26        | 99.37            | 1.46                          |
| 5936.00                 | 91.10                | 96.20                     | 3697.66                   | 2185.15                   | -353.66   | 2156.41   | 2185.22        | 99.31            | 4.61                          |
|                         |                      |                           |                           |                           |           |           |                |                  |                               |
| 5999.00                 | 92.40                | 95.60                     | 3695.74                   | 2247.98                   | -360.13   | 2219.04   | 2248.08        | 99.22            | 2.27                          |
| 6061.00                 | 92.70                | 97.80                     | 3692.98                   | 2309.83                   | -367.36   | 2280.55   | 2309.95        | 99.15            | 3.58                          |
| 6124.00                 | 93.00                | 96.00                     | 3689.85                   | 2372.67                   | -374.92   | 2343.02   | 2372.83        | 99.09            | 2.89                          |
| 6187.00                 | 92.70                | 96.40                     | 3686.71                   | 2435.47                   | -381.71   | 2405.57   | 2435.67        | 99.02            | .79                           |
| 6250.00                 | 92.50                | 98.70                     | 3683.86                   | 2498.35                   | -389.98   | 2467.96   | 2498.58        | 98.98            | 3.66                          |
|                         |                      |                           |                           |                           |           |           |                |                  |                               |
| 6313.00                 | 93.30                | 95.80                     | 3680.67                   | 2561.21                   | -397.92   | 2530.37   | 2561.46        | 98.94            | 4.77                          |
| 6376.00                 | 94.30                | 96.60                     | 3676.49                   | 2623.95                   | -404.71   | 2592.86   | 2624.25        | 98.87            | 2.03                          |
| 6438.00                 | 95.50                | 95.50                     | 3671.20                   | 2685.59                   | -411.22   | 2654.29   | 2685.95        | 98.81            | 2.62                          |
| 6501.00                 | 97.50                | 94.90                     | 3664.06                   | 2747.98                   | -416.90   | 2716.62   | 2748.42        | 98.72            | 3.31                          |

**Last Nevis MWD Survey**

|         |        |       |         |         |         |         |         |       |      |
|---------|--------|-------|---------|---------|---------|---------|---------|-------|------|
| 6563.00 | 100.30 | 94.30 | 3654.47 | 2808.98 | -421.81 | 2777.67 | 2809.51 | 98.63 | 4.62 |
|---------|--------|-------|---------|---------|---------|---------|---------|-------|------|

**Survey Projected to TD**

|         |        |       |         |         |         |         |         |       |     |
|---------|--------|-------|---------|---------|---------|---------|---------|-------|-----|
| 6626.00 | 100.30 | 94.30 | 3643.21 | 2870.69 | -426.46 | 2839.48 | 2871.33 | 98.54 | .00 |
|---------|--------|-------|---------|---------|---------|---------|---------|-------|-----|