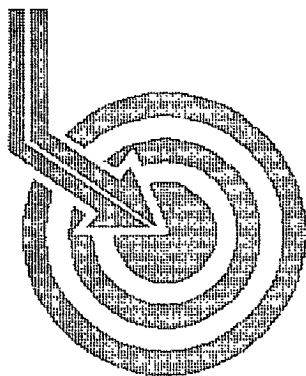




# Scientific Drilling

## MARBOB ENERGY

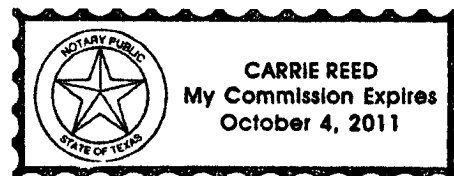
Field: WC Williams Sink (Bone Spring)  
Site: Eddy County, NM  
Well: Wildcap State Com #5  
Wellpath: VH - Job #32K1009422  
Survey: 10/14/09

This survey is correct to the best of my knowledge  
and is supported by actual field data.

.....Richard.....Company Representative

Notorized this date 3rd of November, 2009.

Carrie Reed  
Notary Signature  
County of Midland  
State of Texas





Scientific  
Drilling

# Scientific Drilling International Survey Report

|                                              |                                                                     |                       |                |
|----------------------------------------------|---------------------------------------------------------------------|-----------------------|----------------|
| <b>Company:</b> MARBOB ENERGY                | <b>Date:</b> 10/15/2009                                             | <b>Time:</b> 11:09:02 | <b>Page:</b> 1 |
| <b>Field:</b> WC Williams Sink (Bone Spring) | <b>Co-ordinate(NE) Reference:</b> Site: Eddy County, NM, Grid North |                       |                |
| <b>Site:</b> Eddy County, NM                 | <b>Vertical (TVD) Reference:</b> SITE 0.0                           |                       |                |
| <b>Well:</b> Wildcap State Com #5            | <b>Section (VS) Reference:</b> Well (0.00N,0.00E,41.30Azi)          |                       |                |
| <b>Wellpath:</b> VH - Job #32K1009422        | <b>Survey Calculation Method:</b> Minimum Curvature                 | <b>Db:</b> Sybase     |                |

|                                                |                                       |
|------------------------------------------------|---------------------------------------|
| <b>Survey:</b> 10/14/09                        | <b>Start Date:</b> 10/14/2009         |
| <b>Company:</b> Scientific Drilling Internatio | <b>Engineer:</b> Madrid/Garza/Paredes |
| <b>Tool:</b> Keeper, Keeper Gyro               | <b>Tied-to:</b> From Surface          |

## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | VS<br>ft | N/S<br>ft | E/W<br>ft | DLS<br>deg/100ft | ClsD<br>ft | ClsA<br>deg |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|------------|-------------|
| 0.00     | 0.00        | 0.00        | 0.00      | 0.00     | 0.00      | 0.00      | 0.00             | 0.00       | 0.00        |
| 100.00   | 0.11        | 324.35      | 100.00    | 0.02     | 0.08      | -0.06     | 0.11             | 0.10       | 324.35      |
| 200.00   | 0.23        | 183.27      | 200.00    | -0.11    | -0.04     | -0.12     | 0.32             | 0.13       | 250.21      |
| 300.00   | 0.73        | 194.66      | 300.00    | -0.84    | -0.86     | -0.30     | 0.51             | 0.91       | 198.97      |
| 400.00   | 1.00        | 186.52      | 399.98    | -2.13    | -2.34     | -0.56     | 0.30             | 2.41       | 193.35      |
| 500.00   | 1.02        | 183.23      | 499.97    | -3.55    | -4.10     | -0.71     | 0.06             | 4.16       | 189.76      |
| 600.00   | 1.16        | 168.95      | 599.95    | -4.86    | -5.98     | -0.56     | 0.30             | 6.01       | 185.36      |
| 700.00   | 1.20        | 172.88      | 699.93    | -6.18    | -8.01     | -0.24     | 0.09             | 8.02       | 181.70      |
| 800.00   | 1.44        | 177.13      | 799.90    | -7.77    | -10.31    | -0.05     | 0.26             | 10.31      | 180.25      |
| 900.00   | 1.50        | 171.70      | 899.87    | -9.52    | -12.86    | 0.21      | 0.15             | 12.86      | 179.08      |
| 1000.00  | 1.32        | 179.68      | 999.84    | -11.23   | -15.31    | 0.40      | 0.27             | 15.31      | 178.50      |
| 1100.00  | 1.01        | 230.75      | 1099.82   | -12.96   | -17.02    | -0.27     | 1.04             | 17.02      | 180.92      |
| 1200.00  | 0.97        | 235.48      | 1199.81   | -14.65   | -18.05    | -1.65     | 0.09             | 18.13      | 185.23      |
| 1300.00  | 0.75        | 255.46      | 1299.80   | -16.02   | -18.70    | -2.98     | 0.37             | 18.93      | 189.07      |
| 1400.00  | 0.88        | 226.26      | 1399.79   | -17.32   | -19.39    | -4.17     | 0.43             | 19.84      | 192.15      |
| 1500.00  | 0.69        | 219.71      | 1499.78   | -18.69   | -20.39    | -5.11     | 0.21             | 21.02      | 194.08      |
| 1600.00  | 1.00        | 236.35      | 1599.77   | -20.13   | -21.33    | -6.22     | 0.39             | 22.22      | 196.26      |
| 1700.00  | 0.67        | 244.76      | 1699.76   | -21.51   | -22.07    | -7.48     | 0.35             | 23.30      | 198.72      |
| 1800.00  | 0.38        | 7.87        | 1799.75   | -21.77   | -21.99    | -7.96     | 0.93             | 23.38      | 199.91      |
| 1900.00  | 0.97        | 32.59       | 1899.75   | -20.66   | -20.94    | -7.46     | 0.64             | 22.23      | 199.61      |
| 2000.00  | 1.70        | 47.77       | 1999.72   | -18.35   | -19.23    | -5.91     | 0.80             | 20.12      | 197.07      |
| 2100.00  | 1.83        | 49.46       | 2099.67   | -15.29   | -17.20    | -3.60     | 0.14             | 17.57      | 191.81      |
| 2200.00  | 2.16        | 52.64       | 2199.61   | -11.87   | -15.02    | -0.88     | 0.35             | 15.04      | 183.37      |
| 2300.00  | 1.96        | 50.88       | 2299.55   | -8.33    | -12.80    | 1.94      | 0.21             | 12.94      | 171.38      |
| 2400.00  | 2.40        | 52.56       | 2399.47   | -4.59    | -10.44    | 4.93      | 0.44             | 11.55      | 154.73      |
| 2500.00  | 2.55        | 50.79       | 2499.38   | -0.34    | -7.76     | 8.32      | 0.17             | 11.38      | 133.04      |
| 2600.00  | 2.41        | 31.71       | 2599.29   | 3.92     | -4.57     | 11.14     | 0.83             | 12.05      | 112.29      |
| 2700.00  | 2.48        | 17.04       | 2699.20   | 7.97     | -0.71     | 12.88     | 0.63             | 12.90      | 93.16       |
| 2800.00  | 2.25        | 3.78        | 2799.11   | 11.50    | 3.31      | 13.65     | 0.59             | 14.04      | 76.35       |
| 2900.00  | 2.31        | 357.36      | 2899.03   | 14.51    | 7.29      | 13.68     | 0.26             | 15.50      | 61.96       |
| 3000.00  | 2.19        | 350.96      | 2998.96   | 17.18    | 11.19     | 13.29     | 0.28             | 17.37      | 49.91       |
| 3100.00  | 2.22        | 350.88      | 3098.88   | 19.63    | 14.99     | 12.68     | 0.03             | 19.63      | 40.24       |
| 3200.00  | 2.66        | 357.64      | 3198.79   | 22.54    | 19.22     | 12.28     | 0.53             | 22.81      | 32.58       |
| 3300.00  | 2.75        | 355.97      | 3298.68   | 25.91    | 23.93     | 12.02     | 0.12             | 26.78      | 26.67       |
| 3400.00  | 2.30        | 0.57        | 3398.58   | 29.11    | 28.33     | 11.87     | 0.49             | 30.71      | 22.73       |
| 3500.00  | 1.41        | 15.02       | 3498.53   | 31.74    | 31.52     | 12.21     | 1.00             | 33.80      | 21.17       |
| 3600.00  | 0.17        | 31.64       | 3598.52   | 32.99    | 32.84     | 12.60     | 1.25             | 35.17      | 21.00       |
| 3700.00  | 1.11        | 68.37       | 3698.51   | 34.00    | 33.32     | 13.58     | 0.98             | 35.98      | 22.18       |
| 3800.00  | 1.00        | 85.29       | 3798.50   | 35.49    | 33.75     | 15.35     | 0.33             | 37.08      | 24.46       |
| 3900.00  | 0.76        | 111.36      | 3898.48   | 36.34    | 33.58     | 16.84     | 0.46             | 37.57      | 26.63       |
| 4000.00  | 0.95        | 125.42      | 3998.47   | 36.65    | 32.86     | 18.13     | 0.28             | 37.53      | 28.89       |
| 4100.00  | 0.97        | 131.65      | 4098.46   | 36.73    | 31.81     | 19.44     | 0.11             | 37.28      | 31.43       |
| 4200.00  | 1.05        | 135.49      | 4198.44   | 36.66    | 30.60     | 20.72     | 0.10             | 36.95      | 34.10       |
| 4300.00  | 1.21        | 127.36      | 4298.42   | 36.67    | 29.30     | 22.20     | 0.23             | 36.76      | 37.14       |
| 4400.00  | 1.26        | 119.80      | 4398.40   | 36.96    | 28.12     | 23.99     | 0.17             | 36.96      | 40.47       |
| 4500.00  | 1.28        | 118.80      | 4498.38   | 37.42    | 27.03     | 25.92     | 0.03             | 37.45      | 43.80       |
| 4600.00  | 1.28        | 119.85      | 4598.35   | 37.88    | 25.94     | 27.87     | 0.02             | 38.07      | 47.06       |
| 4700.00  | 0.98        | 113.14      | 4698.33   | 38.37    | 25.05     | 29.63     | 0.33             | 38.79      | 49.79       |
| 4800.00  | 0.69        | 109.32      | 4798.32   | 38.86    | 24.51     | 30.98     | 0.30             | 39.50      | 51.65       |



# Scientific Drilling International Survey Report

|                                              |                                   |                                            |                |
|----------------------------------------------|-----------------------------------|--------------------------------------------|----------------|
| <b>Company:</b> MARBOB ENERGY                | <b>Date:</b> 10/15/2009           | <b>Time:</b> 11:09:02                      | <b>Page:</b> 2 |
| <b>Field:</b> WC Williams Sink (Bone Spring) | <b>Co-ordinate(NE) Reference:</b> | <b>Site:</b> Eddy County, NM, Grd North    |                |
| <b>Site:</b> Eddy County, NM                 | <b>Vertical (TVD) Reference:</b>  | <b>SITE:</b> 0.0                           |                |
| <b>Well:</b> Wildcap State Com #5            | <b>Section (VS) Reference:</b>    | <b>Well:</b> (0.00N,0.00E,41.30Azi)        |                |
| <b>Wellpath:</b> VH - Job #32K1009422        | <b>Survey Calculation Method:</b> | <b>Minimum Curvature</b> <b>Db:</b> Sybase |                |

## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | VS<br>ft | N/S<br>ft | E/W<br>ft | DLS<br>deg/100ft | ClsD<br>ft | ClsA<br>deg |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|------------|-------------|
| 4900.00  | 0.64        | 99.29       | 4898.31   | 39.38    | 24.22     | 32.10     | 0.13             | 40.21      | 52.96       |
| 5000.00  | 0.66        | 102.33      | 4998.31   | 39.96    | 24.01     | 33.21     | 0.04             | 40.98      | 54.14       |
| 5100.00  | 0.52        | 98.94       | 5098.30   | 40.48    | 23.82     | 34.22     | 0.14             | 41.70      | 55.17       |
| 5200.00  | 0.46        | 87.16       | 5198.30   | 41.00    | 23.77     | 35.07     | 0.12             | 42.37      | 55.88       |
| 5300.00  | 0.48        | 105.61      | 5298.30   | 41.46    | 23.67     | 35.88     | 0.15             | 42.98      | 56.58       |
| 5400.00  | 0.36        | 101.10      | 5398.29   | 41.80    | 23.50     | 36.59     | 0.12             | 43.49      | 57.29       |
| 5500.00  | 0.30        | 110.63      | 5498.29   | 42.05    | 23.35     | 37.14     | 0.08             | 43.87      | 57.85       |
| 5600.00  | 0.36        | 112.55      | 5598.29   | 42.25    | 23.13     | 37.68     | 0.06             | 44.21      | 58.45       |
| 5700.00  | 0.29        | 123.77      | 5698.29   | 42.38    | 22.87     | 38.18     | 0.09             | 44.51      | 59.07       |
| 5800.00  | 0.10        | 64.81       | 5798.29   | 42.50    | 22.77     | 38.47     | 0.25             | 44.70      | 59.38       |
| 5900.00  | 0.10        | 89.19       | 5898.29   | 42.63    | 22.81     | 38.63     | 0.04             | 44.86      | 59.45       |
| 6000.00  | 0.19        | 99.46       | 5998.29   | 42.78    | 22.78     | 38.89     | 0.09             | 45.07      | 59.64       |
| 6100.00  | 0.10        | 40.32       | 6098.29   | 42.95    | 22.82     | 39.11     | 0.16             | 45.28      | 59.73       |
| 6200.00  | 0.10        | 39.36       | 6198.29   | 43.13    | 22.95     | 39.22     | 0.00             | 45.44      | 59.66       |
| 6300.00  | 0.30        | 31.80       | 6298.29   | 43.47    | 23.24     | 39.41     | 0.20             | 45.75      | 59.47       |
| 6400.00  | 0.71        | 10.11       | 6398.28   | 44.26    | 24.08     | 39.66     | 0.45             | 46.39      | 58.74       |
| 6500.00  | 0.47        | 32.19       | 6498.28   | 45.20    | 25.03     | 39.98     | 0.33             | 47.17      | 57.95       |
| 6600.00  | 0.52        | 29.33       | 6598.27   | 46.05    | 25.78     | 40.43     | 0.06             | 47.94      | 57.48       |
| 6700.00  | 0.71        | 25.64       | 6698.27   | 47.09    | 26.73     | 40.92     | 0.19             | 48.87      | 56.84       |
| 6800.00  | 0.77        | 34.18       | 6798.26   | 48.35    | 27.85     | 41.56     | 0.13             | 50.03      | 56.18       |
| 6900.00  | 0.83        | 34.63       | 6898.25   | 49.74    | 29.00     | 42.35     | 0.06             | 51.33      | 55.60       |
| 7000.00  | 0.67        | 339.73      | 6998.24   | 50.73    | 30.14     | 42.56     | 0.71             | 52.15      | 54.69       |
| 7100.00  | 0.61        | 328.74      | 7098.24   | 51.17    | 31.15     | 42.08     | 0.14             | 52.35      | 53.49       |
| 7200.00  | 0.36        | 324.30      | 7198.23   | 51.40    | 31.86     | 41.62     | 0.25             | 52.41      | 52.57       |
| 7300.00  | 0.58        | 262.43      | 7298.23   | 51.09    | 32.04     | 40.94     | 0.52             | 51.99      | 51.95       |
| 7400.00  | 0.79        | 239.41      | 7398.22   | 50.06    | 31.63     | 39.84     | 0.34             | 50.87      | 51.56       |
| 7500.00  | 0.97        | 271.12      | 7498.21   | 48.85    | 31.29     | 38.40     | 0.51             | 49.54      | 50.82       |
| 7600.00  | 0.83        | 289.97      | 7598.20   | 48.04    | 31.56     | 36.87     | 0.33             | 48.53      | 49.44       |
| 7700.00  | 0.77        | 289.43      | 7698.19   | 47.53    | 32.03     | 35.56     | 0.06             | 47.86      | 47.99       |
| 7800.00  | 0.69        | 322.84      | 7798.18   | 47.40    | 32.73     | 34.56     | 0.43             | 47.60      | 46.56       |
| 7900.00  | 0.71        | 332.08      | 7898.17   | 47.74    | 33.76     | 33.91     | 0.11             | 47.85      | 45.13       |
| 8000.00  | 0.63        | 359.06      | 7998.17   | 48.37    | 34.85     | 33.61     | 0.32             | 48.42      | 43.96       |
| 8100.00  | 0.35        | 354.57      | 8098.16   | 48.98    | 35.71     | 33.57     | 0.28             | 49.01      | 43.23       |
| 8200.00  | 0.30        | 277.41      | 8198.16   | 49.05    | 36.05     | 33.28     | 0.41             | 49.06      | 42.72       |
| 8300.00  | 0.32        | 245.76      | 8298.16   | 48.65    | 35.97     | 32.77     | 0.17             | 48.65      | 42.34       |
| 8400.00  | 0.41        | 240.78      | 8398.16   | 48.06    | 35.68     | 32.20     | 0.10             | 48.06      | 42.07       |
| 8500.00  | 0.48        | 238.73      | 8498.16   | 47.32    | 35.28     | 31.53     | 0.07             | 47.32      | 41.79       |
| 8600.00  | 0.49        | 241.28      | 8598.15   | 46.52    | 34.86     | 30.80     | 0.02             | 46.52      | 41.46       |
| 8631.00  | 0.62        | 250.07      | 8629.15   | 46.25    | 34.74     | 30.52     | 0.50             | 46.25      | 41.30       |



Scientific  
Drilling

Field: WC Williams Sink (Bone Spring)

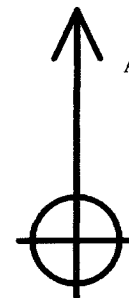
Site: Eddy County, NM

Well: Wildcap State Com #5

Wellpath: VH - Job #32K1009422

Survey: 10/14/09

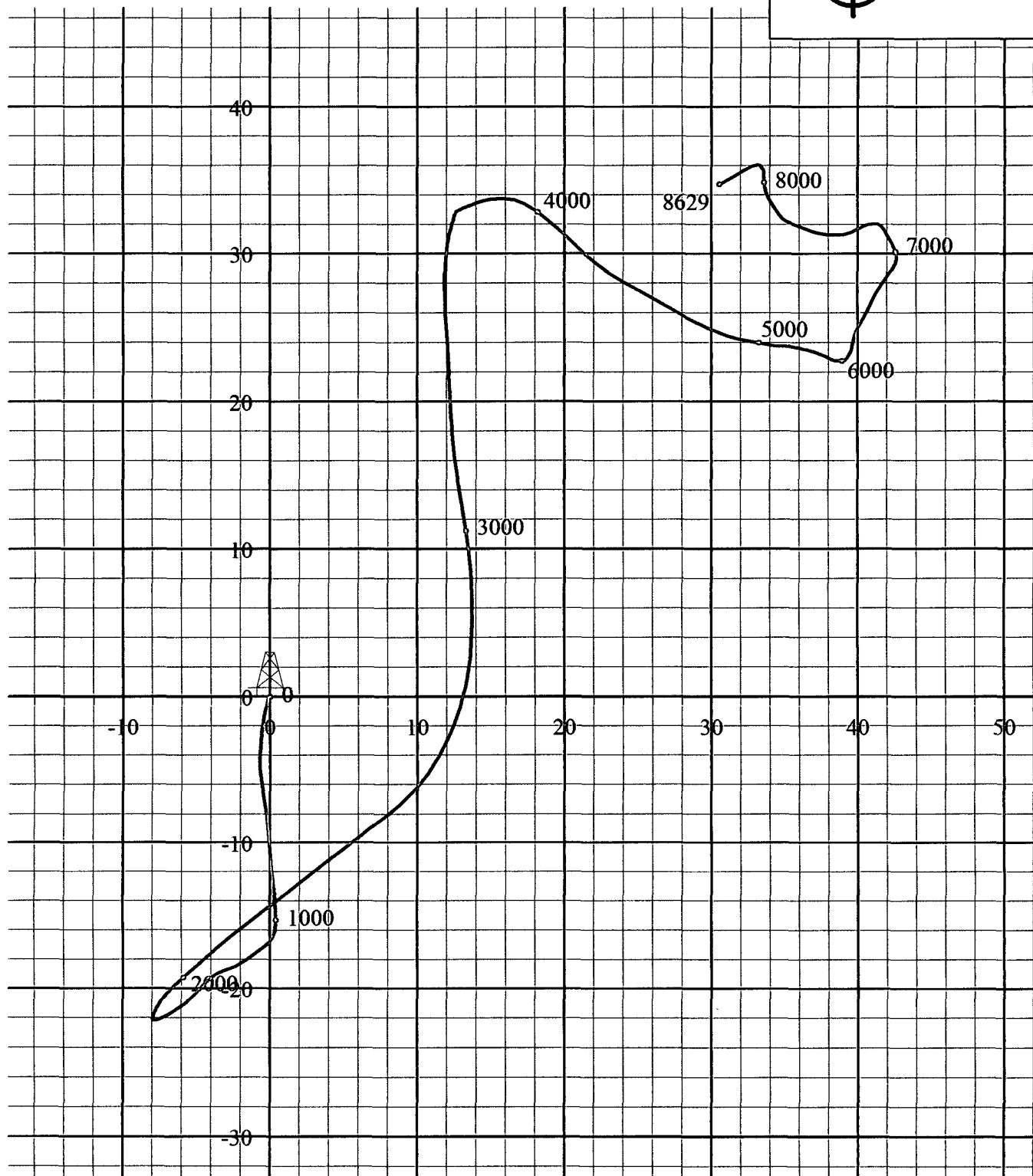
G/T/M



Azimuths to Grid North  
True North: 0.00°  
Magnetic North: 0.00°

Magnetic Field  
Strength: 0nT  
Dip Angle: 0.00°  
Date: 10/15/2009  
Model: igrf2000

South(-)/North(+) [10ft/in]



West(-)/East(+) [10ft/in]



Job Number: 101009046 WT-WT  
 Company: MARBOB ENERGY  
 Lease/Well: WILDCAP STATE COM #5H  
 Location: EDDY COUNTY  
 Rig Name: PATRIOT #6  
 RKB: 14'  
 G.L. or M.S.L.: ☐

State/Country: NEW MEXICO  
 Declination: ☐  
 Grid: 7.65  
 File name: C:\WINSERVE\1009046.SVY  
 Date/Time: 27-Oct-09 / 13:32  
 Curve Name: MWD Surveys

### MWD Surveys

WINSERVE SURVEY CALCULATIONS  
 Minimum Curvature Method  
 Vertical Section Plane 179.61  
 Vertical Section Referenced to Wellhead  
 Rectangular Coordinates Referenced to Wellhead

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | CLOSURE<br>Distance<br>FT | Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|---------------------------|------------------|-------------------------------|
| <b>Tie-In</b>           |                      |                           |                           |           |           |                           |                           |                  |                               |
| 8631.00                 | .62                  | 249.80                    | 8629.15                   | 34.88     | 30.36     | -34.67                    | 46.24                     | 41.04            | .00                           |
| 8666.00                 | .62                  | 242.54                    | 8664.15                   | 34.73     | 30.01     | -34.52                    | 45.90                     | 40.84            | .22                           |
| 8698.00                 | .79                  | 236.39                    | 8696.15                   | 34.53     | 29.68     | -34.32                    | 45.53                     | 40.68            | .58                           |
| 8730.00                 | 1.32                 | 211.87                    | 8728.14                   | 34.09     | 29.30     | -33.89                    | 44.95                     | 40.68            | 2.14                          |
| 8762.00                 | 4.22                 | 187.66                    | 8760.10                   | 32.61     | 28.95     | -32.41                    | 43.60                     | 41.59            | 9.58                          |
| 8793.00                 | 8.88                 | 182.61                    | 8790.89                   | 29.09     | 28.69     | -28.89                    | 40.85                     | 44.60            | 15.13                         |
| 8825.00                 | 12.31                | 180.38                    | 8822.34                   | 23.21     | 28.55     | -23.01                    | 36.79                     | 50.89            | 10.79                         |
| 8857.00                 | 14.95                | 179.43                    | 8853.44                   | 15.67     | 28.57     | -15.47                    | 32.58                     | 61.26            | 8.28                          |
| 8889.00                 | 18.73                | 180.08                    | 8884.06                   | 6.40      | 28.60     | -6.20                     | 29.31                     | 77.39            | 11.83                         |
| 8921.00                 | 22.77                | 183.15                    | 8913.98                   | -4.93     | 28.26     | 5.12                      | 28.68                     | 99.89            | 13.07                         |
| 8952.00                 | 25.94                | 184.86                    | 8942.21                   | -17.68    | 27.35     | 17.86                     | 32.57                     | 122.87           | 10.47                         |
| 8984.00                 | 29.37                | 186.90                    | 8970.56                   | -32.45    | 25.81     | 32.62                     | 41.46                     | 141.49           | 11.12                         |
| 9016.00                 | 32.62                | 187.37                    | 8997.98                   | -48.79    | 23.77     | 48.95                     | 54.27                     | 154.03           | 10.18                         |
| 9048.00                 | 35.00                | 187.22                    | 9024.57                   | -66.45    | 21.51     | 66.60                     | 69.85                     | 162.07           | 7.44                          |
| 9079.00                 | 38.43                | 186.99                    | 9049.42                   | -84.84    | 19.21     | 84.97                     | 86.99                     | 167.24           | 11.07                         |
| 9111.00                 | 42.82                | 187.01                    | 9073.70                   | -105.52   | 16.68     | 105.63                    | 106.83                    | 171.02           | 13.72                         |
| 9143.00                 | 45.81                | 186.03                    | 9096.59                   | -127.73   | 14.14     | 127.82                    | 128.51                    | 173.68           | 9.59                          |
| 9175.00                 | 48.10                | 185.89                    | 9118.43                   | -150.98   | 11.72     | 151.06                    | 151.44                    | 175.56           | 7.16                          |
| 9207.00                 | 51.35                | 185.25                    | 9139.12                   | -175.28   | 9.35      | 175.34                    | 175.53                    | 176.95           | 10.27                         |
| 9238.00                 | 54.43                | 184.41                    | 9157.82                   | -199.91   | 7.27      | 199.96                    | 200.04                    | 177.92           | 10.17                         |
| 9270.00                 | 56.72                | 183.32                    | 9175.91                   | -226.24   | 5.50      | 226.28                    | 226.31                    | 178.61           | 7.69                          |
| 9302.00                 | 60.50                | 182.68                    | 9192.57                   | -253.52   | 4.07      | 253.54                    | 253.55                    | 179.08           | 11.94                         |
| 9334.00                 | 64.72                | 181.74                    | 9207.29                   | -281.90   | 2.98      | 281.92                    | 281.92                    | 179.39           | 13.44                         |
| 9366.00                 | 67.01                | 181.81                    | 9220.37                   | -311.09   | 2.07      | 311.10                    | 311.10                    | 179.62           | 7.16                          |
| 9398.00                 | 70.43                | 181.54                    | 9231.99                   | -340.89   | 1.20      | 340.89                    | 340.89                    | 179.80           | 10.72                         |

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | C L O S U R E  |                  | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|----------------|------------------|-------------------------------|
|                         |                      |                           |                           |           |           |                           | Distance<br>FT | Direction<br>Deg |                               |
| 9430.00                 | 74.30                | 181.45                    | 9241.68                   | -371.37   | .41       | 371.37                    | 371.37         | 179.94           | 12.10                         |
| 9461.00                 | 77.73                | 181.15                    | 9249.17                   | -401.44   | -.27      | 401.43                    | 401.44         | 180.04           | 11.10                         |
| 9493.00                 | 81.34                | 179.80                    | 9254.98                   | -432.90   | -.53      | 432.89                    | 432.90         | 180.07           | 12.02                         |
| 9525.00                 | 84.86                | 179.62                    | 9258.82                   | -464.66   | -.37      | 464.65                    | 464.66         | 180.05           | 11.01                         |
| 9557.00                 | 88.20                | 179.31                    | 9260.76                   | -496.60   | -.07      | 496.59                    | 496.60         | 180.01           | 10.48                         |
| 9588.00                 | 91.01                | 179.67                    | 9260.97                   | -527.59   | .20       | 527.58                    | 527.59         | 179.98           | 9.14                          |
| 9617.00                 | 91.10                | 179.47                    | 9260.44                   | -556.59   | .42       | 556.58                    | 556.59         | 179.96           | .76                           |
| 9652.00                 | 91.28                | 179.82                    | 9259.71                   | -591.58   | .64       | 591.57                    | 591.58         | 179.94           | 1.12                          |
| 9684.00                 | 92.15                | 180.06                    | 9258.76                   | -623.56   | .67       | 623.56                    | 623.57         | 179.94           | 2.82                          |
| 9716.00                 | 92.07                | 180.30                    | 9257.58                   | -655.54   | .57       | 655.53                    | 655.54         | 179.95           | .79                           |
| 9747.00                 | 92.51                | 180.70                    | 9256.34                   | -686.52   | .30       | 686.50                    | 686.52         | 179.97           | 1.92                          |
| 9785.00                 | 92.15                | 180.97                    | 9254.79                   | -724.48   | -.25      | 724.46                    | 724.48         | 180.02           | 1.18                          |
| 9816.00                 | 92.15                | 181.15                    | 9253.63                   | -755.45   | -.83      | 755.43                    | 755.45         | 180.06           | .58                           |
| 9848.00                 | 90.66                | 180.71                    | 9252.85                   | -787.44   | -1.35     | 787.41                    | 787.44         | 180.10           | 4.85                          |
| 9881.00                 | 89.25                | 180.53                    | 9252.87                   | -820.44   | -1.70     | 820.41                    | 820.44         | 180.12           | 4.31                          |
| 9912.00                 | 89.08                | 180.53                    | 9253.32                   | -851.43   | -1.99     | 851.40                    | 851.43         | 180.13           | .55                           |
| 9944.00                 | 89.08                | 180.44                    | 9253.84                   | -883.43   | -2.26     | 883.39                    | 883.43         | 180.15           | .28                           |
| 9976.00                 | 89.43                | 180.27                    | 9254.25                   | -915.42   | -2.46     | 915.39                    | 915.43         | 180.15           | 1.22                          |
| 10007.00                | 90.31                | 180.00                    | 9254.32                   | -946.42   | -2.53     | 946.38                    | 946.43         | 180.15           | 2.97                          |
| 10103.00                | 90.13                | 179.39                    | 9253.96                   | -1042.42  | -2.02     | 1042.38                   | 1042.42        | 180.11           | .66                           |
| 10198.00                | 89.87                | 178.42                    | 9253.96                   | -1137.40  | -.20      | 1137.37                   | 1137.40        | 180.01           | 1.06                          |
| 10294.00                | 90.48                | 178.51                    | 9253.66                   | -1233.37  | 2.37      | 1233.35                   | 1233.37        | 179.89           | .64                           |
| 10389.00                | 90.40                | 178.42                    | 9252.93                   | -1328.33  | 4.91      | 1328.33                   | 1328.34        | 179.79           | .13                           |
| 10485.00                | 89.16                | 178.16                    | 9253.30                   | -1424.28  | 7.78      | 1424.30                   | 1424.31        | 179.69           | 1.32                          |
| 10580.00                | 87.49                | 178.33                    | 9256.08                   | -1519.20  | 10.68     | 1519.23                   | 1519.23        | 179.60           | 1.77                          |
| 10676.00                | 87.23                | 177.98                    | 9260.50                   | -1615.04  | 13.77     | 1615.10                   | 1615.10        | 179.51           | .45                           |
| 10771.00                | 87.93                | 177.54                    | 9264.51                   | -1709.89  | 17.48     | 1709.96                   | 1709.97        | 179.41           | .87                           |
| 10867.00                | 87.58                | 177.01                    | 9268.27                   | -1805.70  | 22.04     | 1805.81                   | 1805.84        | 179.30           | .66                           |
| 10962.00                | 87.23                | 177.54                    | 9272.57                   | -1900.50  | 26.55     | 1900.63                   | 1900.68        | 179.20           | .67                           |
| 11058.00                | 87.32                | 177.54                    | 9277.14                   | -1996.30  | 30.67     | 1996.46                   | 1996.54        | 179.12           | .09                           |
| 11153.00                | 88.55                | 177.19                    | 9280.56                   | -2091.14  | 35.03     | 2091.33                   | 2091.43        | 179.04           | 1.35                          |
| 11248.00                | 89.96                | 178.07                    | 9281.80                   | -2186.04  | 38.96     | 2186.26                   | 2186.39        | 178.98           | 1.75                          |
| 11338.00                | 90.92                | 180.45                    | 9281.10                   | -2276.03  | 40.12     | 2276.25                   | 2276.38        | 178.99           | 2.85                          |
| 11433.00                | 91.28                | 180.72                    | 9279.28                   | -2371.00  | 39.15     | 2371.22                   | 2371.33        | 179.05           | .47                           |
| 11529.00                | 91.45                | 180.38                    | 9276.99                   | -2466.97  | 38.23     | 2467.18                   | 2467.27        | 179.11           | .40                           |
| 11624.00                | 91.10                | 179.61                    | 9274.88                   | -2561.95  | 38.24     | 2562.15                   | 2562.23        | 179.14           | .89                           |
| 11719.00                | 90.84                | 180.22                    | 9273.27                   | -2656.93  | 38.38     | 2657.13                   | 2657.21        | 179.17           | .70                           |
| 11814.00                | 92.95                | 181.17                    | 9270.13                   | -2751.87  | 37.23     | 2752.06                   | 2752.12        | 179.22           | 2.44                          |
| 11909.00                | 93.03                | 180.80                    | 9265.18                   | -2846.72  | 35.60     | 2846.90                   | 2846.95        | 179.28           | .40                           |
| 12005.00                | 92.15                | 180.74                    | 9260.84                   | -2942.62  | 34.31     | 2942.78                   | 2942.82        | 179.33           | .92                           |
| 12100.00                | 91.80                | 180.16                    | 9257.56                   | -3037.56  | 33.57     | 3037.71                   | 3037.74        | 179.37           | .71                           |
| 12195.00                | 91.63                | 179.25                    | 9254.72                   | -3132.51  | 34.06     | 3132.67                   | 3132.70        | 179.38           | .97                           |
| 12290.00                | 91.28                | 179.41                    | 9252.31                   | -3227.47  | 35.17     | 3227.64                   | 3227.67        | 179.38           | .41                           |
| 12385.00                | 91.19                | 181.67                    | 9250.26                   | -3322.44  | 34.27     | 3322.60                   | 3322.62        | 179.41           | 2.38                          |
| 12481.00                | 91.45                | 181.81                    | 9248.05                   | -3418.37  | 31.36     | 3418.51                   | 3418.52        | 179.47           | .31                           |

| Measured<br>Depth<br>FT        | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | C L O S U R E  |                  | Dogleg<br>Severity<br>Deg/100 |
|--------------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|----------------|------------------|-------------------------------|
|                                |                      |                           |                           |           |           |                           | Distance<br>FT | Direction<br>Deg |                               |
| 12576.00                       | 91.71                | 180.81                    | 9245.43                   | -3513.31  | 29.19     | 3513.43                   | 3513.43        | 179.52           | 1.09                          |
| 12672.00                       | 92.24                | 180.80                    | 9242.12                   | -3609.24  | 27.84     | 3609.35                   | 3609.35        | 179.56           | .55                           |
| 12766.00                       | 91.45                | 181.49                    | 9239.09                   | -3703.17  | 25.96     | 3703.27                   | 3703.27        | 179.60           | 1.12                          |
| 12862.00                       | 91.63                | 180.88                    | 9236.51                   | -3799.12  | 23.98     | 3799.19                   | 3799.19        | 179.64           | .66                           |
| 12957.00                       | 91.10                | 181.05                    | 9234.25                   | -3894.08  | 22.38     | 3894.14                   | 3894.14        | 179.67           | .59                           |
|                                |                      |                           |                           |           |           |                           |                |                  |                               |
| 13052.00                       | 91.01                | 181.83                    | 9232.50                   | -3989.03  | 19.99     | 3989.07                   | 3989.08        | 179.71           | .83                           |
| 13148.00                       | 90.22                | 181.92                    | 9231.47                   | -4084.97  | 16.85     | 4084.99                   | 4085.01        | 179.76           | .83                           |
| 13243.00                       | 90.75                | 181.45                    | 9230.67                   | -4179.93  | 14.05     | 4179.93                   | 4179.95        | 179.81           | .75                           |
| 13338.00                       | 90.48                | 181.05                    | 9229.65                   | -4274.90  | 11.98     | 4274.88                   | 4274.92        | 179.84           | .51                           |
| 13434.00                       | 90.66                | 181.02                    | 9228.69                   | -4370.88  | 10.25     | 4370.85                   | 4370.89        | 179.87           | .19                           |
|                                |                      |                           |                           |           |           |                           |                |                  |                               |
| 13529.00                       | 92.33                | 181.10                    | 9226.21                   | -4465.83  | 8.49      | 4465.78                   | 4465.84        | 179.89           | 1.76                          |
| 13597.00                       | 91.36                | 180.90                    | 9224.02                   | -4533.78  | 7.31      | 4533.73                   | 4533.79        | 179.91           | 1.46                          |
| Straight Line Projection to TD |                      |                           |                           |           |           |                           |                |                  |                               |
| 13645.00                       | 91.36                | 180.90                    | 9222.89                   | -4581.76  | 6.55      | 4581.70                   | 4581.77        | 179.92           | .00                           |

Surf: 330' FNL, 2260' FWL  
EOL: 368' FSL, 2267' FWL