

# Pathfinder Energy

## Survey Report

|                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Company:</b> Marbob Energy<br><b>Field:</b> Western Hawk State<br><b>Site:</b> Western Hawk State #2<br><b>Well:</b> Western Hawk State #2<br><b>Wellpath:</b> Original Hole | <b>Date:</b> 7/3/2006<br><b>Co-ordinate(NE) Reference:</b> Well: Western Hawk State #2, True North<br><b>Vertical (TVD) Reference:</b> System: Mean Sea Level<br><b>Section (VS) Reference:</b> Well (0.00N,0.00E,182.26Azi)<br><b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                               |                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Field:</b> Western Hawk State<br>990' FWL 1350' FNL Sec. 3; T25S; R28E<br>Eddy County, New Mexico<br><b>Map System:</b> US State Plane Coordinate System 1927<br><b>Geo Datum:</b> NAD27 (Clarke 1866)<br><b>Sys Datum:</b> Mean Sea Level | <b>Map Zone:</b> New Mexico, Eastern Zone<br><b>Coordinate System:</b> Well Centre<br><b>Geomagnetic Model:</b> igrf2005 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                       |                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site:</b> Western Hawk State #2<br>Eddy County, New Mexico<br>990' FWL 1350' FNL Sec. 3; T25S; R28E<br><b>Site Position:</b><br><b>From:</b> Geographic<br><b>Position Uncertainty:</b> 0.00 ft<br><b>Ground Level:</b> 3650.00 ft | <b>Northing:</b> -2848697.65 ft<br><b>Easting:</b> 585072.59 ft<br><b>Latitude:</b> 23 9 45.620 N<br><b>Longitude:</b> 104 4 48.320 W<br><b>North Reference:</b> True<br><b>Grid Convergence:</b> 0.10 deg |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                  |                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Well:</b> Western Hawk State #2<br>Horizontal<br><b>Well Position:</b> +N/-S 0.00 ft<br>+E/-W 0.00 ft<br><b>Position Uncertainty:</b> 0.00 ft | <b>Slot Name:</b><br><b>Northing:</b> -2848697.65 ft<br><b>Easting:</b> 585072.59 ft<br><b>Latitude:</b> 23 9 45.620 N<br><b>Longitude:</b> 104 4 48.320 W |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                 |                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wellpath:</b> Original Hole<br><b>Current Datum:</b> Mean Sea Level<br><b>Magnetic Data:</b> 6/23/2006<br><b>Field Strength:</b> 43405 nT<br><b>Vertical Section:</b> Depth From (TVD)<br>ft | <b>Drilled From:</b> Surface<br><b>Tie-on Depth:</b> 0.00 ft<br><b>Above System Datum:</b> Mean Sea Level<br><b>Declination:</b> 7.74 deg<br><b>Mag Dip Angle:</b> 50.76 deg<br><b>+E/-W:</b> Direction<br>deg |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                           |                                                                                                       |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Survey:</b> Pathfinder MWD Survey<br><b>Company:</b> Pathfinder Energy<br><b>Tool:</b> | <b>Start Date:</b> 6/27/2006<br><b>Engineer:</b> Midwellplan<br><b>Tied-to:</b> From: Definitive Path |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|

**Survey:** Pathfinder MWD Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 4300.00  | 0.41        | 180.37      | 4298.32   | -56.60      | -13.16      | 57.07    | 0.00             | 0.00               | 0.00              |              |
| 4338.00  | 5.54        | 180.22      | 4336.25   | -58.57      | -13.16      | 59.04    | 13.50            | 13.50              | -0.39             |              |
| 4370.00  | 8.88        | 178.72      | 4368.00   | -62.58      | -13.12      | 63.05    | 10.45            | 10.44              | -4.69             |              |
| 4402.00  | 11.87       | 184.26      | 4399.47   | -68.34      | -13.30      | 68.81    | 9.84             | 9.34               | 17.31             |              |
| 4433.00  | 15.21       | 185.31      | 4429.60   | -75.57      | -13.92      | 76.06    | 10.80            | 10.77              | 3.39              |              |
| 4465.00  | 18.20       | 185.31      | 4460.25   | -84.72      | -14.77      | 85.24    | 9.34             | 9.34               | 0.00              |              |
| 4497.00  | 21.28       | 183.12      | 4490.37   | -95.50      | -15.55      | 96.04    | 9.90             | 9.62               | -6.84             |              |
| 4529.00  | 24.36       | 181.36      | 4519.86   | -107.90     | -16.02      | 108.45   | 9.86             | 9.62               | -5.50             |              |
| 4561.00  | 27.96       | 180.30      | 4548.58   | -122.00     | -16.22      | 122.55   | 11.34            | 11.25              | -3.31             |              |
| 4593.00  | 32.10       | 179.87      | 4576.27   | -138.01     | -16.24      | 138.55   | 12.95            | 12.94              | -1.34             |              |
| 4624.00  | 36.14       | 180.30      | 4601.93   | -155.40     | -16.27      | 155.92   | 13.06            | 13.03              | 1.39              |              |
| 4656.00  | 39.04       | 181.45      | 4627.29   | -174.91     | -16.57      | 175.43   | 9.32             | 9.06               | 3.59              |              |
| 4688.00  | 40.71       | 181.54      | 4651.85   | -195.42     | -17.11      | 195.94   | 5.22             | 5.22               | 0.28              |              |
| 4720.00  | 43.26       | 181.54      | 4675.63   | -216.82     | -17.68      | 217.35   | 7.97             | 7.97               | 0.00              |              |
| 4752.00  | 46.17       | 181.27      | 4698.37   | -239.32     | -18.23      | 239.86   | 9.11             | 9.09               | -0.84             |              |
| 4783.00  | 49.42       | 182.06      | 4719.19   | -262.27     | -18.90      | 262.82   | 10.65            | 10.48              | 2.55              |              |
| 4815.00  | 52.58       | 181.97      | 4739.33   | -287.12     | -19.78      | 287.68   | 9.88             | 9.87               | -0.28             |              |
| 4847.00  | 54.96       | 182.33      | 4758.24   | -312.92     | -20.75      | 313.49   | 7.49             | 7.44               | 1.12              |              |
| 4879.00  | 56.45       | 183.03      | 4776.27   | -339.32     | -21.98      | 339.93   | 4.99             | 4.66               | 2.19              |              |
| 4911.00  | 59.00       | 182.68      | 4793.35   | -366.34     | -23.33      | 366.98   | 8.02             | 7.97               | -1.09             |              |
| 4942.00  | 62.08       | 182.33      | 4808.60   | -393.31     | -24.51      | 393.97   | 9.98             | 9.94               | -1.13             |              |
| 4974.00  | 64.89       | 181.80      | 4822.88   | -421.92     | -25.54      | 422.60   | 8.91             | 8.78               | -1.66             |              |
| 5006.00  | 68.76       | 181.71      | 4835.47   | -451.32     | -26.44      | 452.01   | 12.10            | 12.09              | -0.28             |              |
| 5038.00  | 73.25       | 181.97      | 4845.89   | -481.55     | -27.41      | 482.26   | 14.05            | 14.03              | 0.81              |              |

# Pathfinder Energy Survey Report

**Company:** Marbob Energy  
**Field:** Western Hawk State  
**Site:** Western Hawk State #2  
**Well:** Western Hawk State #2  
**Wellpath:** Original Hole

**Date:** 7/3/2006 **Time:** 11:21:49 **Page:** 2  
**Co-ordinate(NE) Reference:** Well: Western Hawk State #2, True North  
**Vertical (TVD) Reference:** System: Mean Sea Level  
**Section (VS) Reference:** Well (0.00N,0.00E,182.26Azi)  
**Survey Calculation Method:** Minimum Curvature **Db:** Sybase

**Survey:** Pathfinder MWD Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 5069.00  | 77.29       | 182.15      | 4853.77   | -511.51     | -28.49      | 512.23   | 13.04            | 13.03              | 0.58              |              |
| 5101.00  | 81.78       | 182.59      | 4859.58   | -542.94     | -29.79      | 543.69   | 14.10            | 14.03              | 1.37              |              |
| 5132.00  | 85.91       | 182.41      | 4862.90   | -573.72     | -31.14      | 574.51   | 13.34            | 13.32              | -0.58             |              |
| 5171.00  | 89.91       | 182.24      | 4864.32   | -612.66     | -32.72      | 613.47   | 10.27            | 10.26              | -0.44             |              |
| 5197.00  | 93.39       | 182.76      | 4863.57   | -638.62     | -33.85      | 639.46   | 13.53            | 13.38              | 2.00              |              |
| 5229.00  | 94.09       | 183.12      | 4861.49   | -670.51     | -35.49      | 671.39   | 2.46             | 2.19               | 1.12              |              |
| 5261.00  | 94.35       | 182.94      | 4859.13   | -702.38     | -37.17      | 703.30   | 0.99             | 0.81               | -0.56             |              |
| 5293.00  | 93.65       | 183.20      | 4856.90   | -734.25     | -38.88      | 735.22   | 2.33             | -2.19              | 0.81              |              |
| 5324.00  | 93.47       | 183.03      | 4854.97   | -765.15     | -40.56      | 766.15   | 0.80             | -0.58              | -0.55             |              |
| 5356.00  | 91.80       | 182.94      | 4853.50   | -797.07     | -42.23      | 798.11   | 5.23             | -5.22              | -0.28             |              |
| 5452.00  | 87.14       | 182.15      | 4854.39   | -892.94     | -46.49      | 894.08   | 4.92             | -4.85              | -0.82             |              |
| 5547.00  | 92.15       | 184.52      | 4854.98   | -987.74     | -52.02      | 989.03   | 5.83             | 5.27               | 2.49              |              |
| 5578.00  | 90.75       | 184.35      | 4854.20   | -1018.64    | -54.41      | 1019.99  | 4.55             | -4.52              | -0.55             |              |
| 5610.00  | 90.13       | 183.91      | 4853.95   | -1050.56    | -56.72      | 1051.98  | 2.38             | -1.94              | -1.37             |              |
| 5642.00  | 89.34       | 183.73      | 4854.10   | -1082.48    | -58.85      | 1083.96  | 2.53             | -2.47              | -0.56             |              |
| 5706.00  | 90.92       | 183.99      | 4853.95   | -1146.34    | -63.16      | 1147.94  | 2.50             | 2.47               | 0.41              |              |
| 5770.00  | 90.04       | 183.82      | 4853.42   | -1210.19    | -67.52      | 1211.91  | 1.40             | -1.37              | -0.27             |              |
| 5833.00  | 88.55       | 183.55      | 4854.19   | -1273.05    | -71.56      | 1274.88  | 2.40             | -2.37              | -0.43             |              |
| 5897.00  | 90.31       | 183.82      | 4854.83   | -1336.91    | -75.68      | 1338.85  | 2.78             | 2.75               | 0.42              |              |
| 5961.00  | 87.67       | 182.41      | 4855.96   | -1400.80    | -79.15      | 1402.83  | 4.68             | -4.12              | -2.20             |              |
| 5993.00  | 87.23       | 182.41      | 4857.38   | -1432.74    | -80.50      | 1434.80  | 1.37             | -1.37              | 0.00              |              |
| 6088.00  | 90.40       | 181.89      | 4859.34   | -1527.64    | -84.06      | 1529.77  | 3.38             | 3.34               | -0.55             |              |
| 6120.00  | 90.57       | 182.33      | 4859.07   | -1559.62    | -85.24      | 1561.76  | 1.47             | 0.53               | 1.37              |              |
| 6215.00  | 91.80       | 181.01      | 4857.11   | -1654.55    | -88.01      | 1656.74  | 1.90             | 1.29               | -1.39             |              |
| 6279.00  | 89.25       | 180.04      | 4856.52   | -1718.54    | -88.59      | 1720.70  | 4.26             | -3.98              | -1.52             |              |
| 6342.00  | 90.22       | 179.34      | 4856.81   | -1781.54    | -88.25      | 1783.63  | 1.90             | 1.54               | -1.11             |              |
| 6405.00  | 92.07       | 179.34      | 4855.55   | -1844.52    | -87.53      | 1846.53  | 2.94             | 2.94               | 0.00              |              |
| 6437.00  | 92.15       | 179.25      | 4854.38   | -1876.49    | -87.13      | 1878.47  | 0.38             | 0.25               | -0.28             |              |
| 6469.00  | 92.24       | 179.25      | 4853.15   | -1908.47    | -86.71      | 1910.40  | 0.28             | 0.28               | 0.00              |              |
| 6501.00  | 92.07       | 179.16      | 4851.95   | -1940.44    | -86.27      | 1942.33  | 0.60             | -0.53              | -0.28             |              |
| 6533.00  | 91.98       | 178.63      | 4850.82   | -1972.42    | -85.65      | 1974.26  | 1.68             | -0.28              | -1.66             |              |
| 6596.00  | 90.84       | 179.60      | 4849.27   | -2035.39    | -84.68      | 2037.14  | 2.38             | -1.81              | 1.54              |              |
| 6660.00  | 89.78       | 179.95      | 4848.92   | -2099.39    | -84.43      | 2101.08  | 1.74             | -1.66              | 0.55              |              |
| 6692.00  | 89.52       | 179.87      | 4849.12   | -2131.38    | -84.38      | 2133.05  | 0.85             | -0.81              | -0.25             |              |
| 6724.00  | 89.60       | 179.60      | 4849.36   | -2163.38    | -84.23      | 2165.02  | 0.88             | 0.25               | -0.84             |              |
| 6787.00  | 89.08       | 180.13      | 4850.09   | -2226.38    | -84.08      | 2227.96  | 1.18             | -0.83              | 0.84              |              |
| 6851.00  | 88.72       | 180.04      | 4851.32   | -2290.37    | -84.18      | 2291.90  | 0.58             | -0.56              | -0.14             |              |
| 6899.00  | 88.72       | 180.04      | 4852.39   | -2338.35    | -84.21      | 2339.86  | 0.00             | 0.00               | 0.00              |              |

# Marbob Energy Corporation

Field: Western Hawk State

Site: Western Hawk State #2

Well: Western Hawk State #2

Wellpath: Original Hole

Survey: Pathfinder MWD Survey

# PATHFINDER

## ENERGY SERVICES

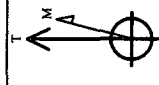
**FIELD DETAILS**  
 Western Hawk State  
 990 FWL 1350 FNL Sec. 3, T25S, R28E  
 Eddy County, New Mexico  
 Geologic System: US State Plane Coordinate System 1977  
 Ellipsoid: NAD27 (Clarke 1866)  
 Zone: New Mexico, Eastern Zone  
 Magnetic Model: IGR2005  
 System Datum: Mean Sea Level  
 Local North: True North

**ANNOTATIONS**

| No. | TVD     | MD     | Annotation                    |
|-----|---------|--------|-------------------------------|
| 1   | 4852.46 | 913.46 | KOP @ 4852.46 TVD / 913.46 MD |
| 2   | 4852.46 | 913.46 | EOC @ 5143 MD / 4866 TVD      |

**COMPANY DETAILS**  
 Marbob Energy  
 2208 W. Main St.  
 Alameda, New Mexico

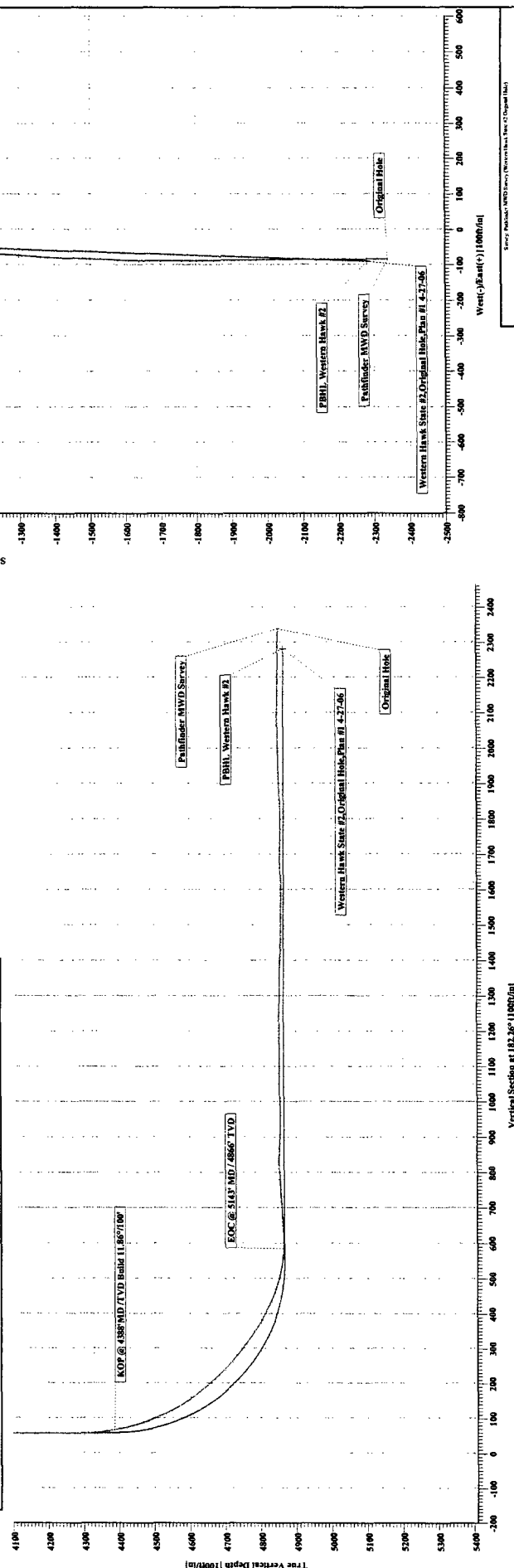
Calculation Method: Minimum Curvature  
 Error Method: Newton-Raphson  
 Error Surface: Ellipsoidal  
 Warning Method: Error Ratio



Azimuths to True North  
 Magnetic North: 7.74°  
 Magnetic Field  
 Strength: 434003G  
 Dip Angle: 50.76°  
 Date: 6/23/2006  
 Model: IGR2005

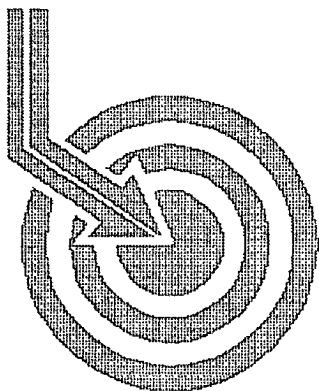
Survey: Pathfinder MWD Survey (Western Hawk State #2/Original Hole)

| No | MD      | Inc   | Az     | TVD     | +N/S     | +E/W   | DLeg | TFace   | VScc    |
|----|---------|-------|--------|---------|----------|--------|------|---------|---------|
| 36 | 5547.00 | 92.15 | 184.52 | 4854.98 | -987.74  | -52.02 | 5.83 | 25.33   | 989.03  |
| 37 | 5578.00 | 90.75 | 184.35 | 4854.20 | -1018.64 | -54.41 | 4.55 | -173.08 | 1019.99 |
| 38 | 5610.00 | 90.13 | 183.91 | 4853.95 | -1050.56 | -56.72 | 2.38 | -144.64 | 1081.96 |
| 39 | 5642.00 | 89.34 | 183.73 | 4854.10 | -1082.48 | -58.85 | 2.53 | -167.16 | 1083.96 |
| 40 | 5706.00 | 89.92 | 183.99 | 4853.95 | -1146.34 | -63.16 | 2.50 | 9.34    | 1147.94 |
| 41 | 5770.00 | 90.04 | 183.82 | 4853.45 | -1210.19 | -67.52 | 1.40 | -169.07 | 1211.91 |
| 42 | 5833.00 | 88.55 | 183.55 | 4854.19 | -1273.05 | -71.56 | 2.40 | -169.73 | 1274.88 |
| 43 | 5897.00 | 90.31 | 183.82 | 4854.83 | -1336.91 | -75.68 | 2.78 | 6.72    | 1338.85 |
| 44 | 5961.00 | 87.67 | 182.41 | 4855.96 | -1400.80 | -79.15 | 4.68 | -151.91 | 1402.83 |
| 45 | 5993.00 | 87.23 | 182.41 | 4857.38 | -1432.74 | -80.50 | 1.37 | 180.00  | 1434.80 |
| 46 | 6088.00 | 90.40 | 181.89 | 4859.34 | -1527.64 | -84.06 | 3.38 | 9.32    | 1529.77 |
| 47 | 6178.00 | 90.70 | 181.33 | 4859.07 | -1582.52 | -85.74 | 3.38 | 68.32   | 1582.76 |
| 48 | 6279.00 | 89.25 | 180.04 | 4856.52 | -1718.54 | -88.59 | 4.26 | -159.17 | 1720.70 |
| 49 | 6342.00 | 90.22 | 179.34 | 4856.81 | -1781.54 | -88.25 | 1.90 | -35.82  | 1783.63 |
| 50 | 6405.00 | 92.07 | 179.34 | 4855.55 | -1844.52 | -87.53 | 2.94 | 0.00    | 1846.53 |
| 51 | 6437.00 | 92.15 | 179.25 | 4854.38 | -1876.49 | -87.13 | 0.38 | -48.35  | 1878.47 |
| 52 | 6470.00 | 91.98 | 179.16 | 4853.12 | -1908.46 | -86.77 | 0.60 | -152.12 | 1910.40 |
| 53 | 6503.00 | 91.98 | 179.16 | 4851.95 | -1940.44 | -86.27 | 1.68 | -99.63  | 1942.33 |
| 54 | 6533.00 | 91.98 | 178.63 | 4850.82 | -1972.42 | -85.65 |      |         | 1974.26 |
| 55 | 6596.00 | 90.84 | 179.60 | 4849.27 | -2035.39 | -84.68 | 2.38 | 139.60  | 2037.14 |
| 56 | 6660.00 | 89.78 | 179.95 | 4848.92 | -2099.39 | -84.43 | 1.74 | 161.73  | 2101.08 |
| 57 | 6692.00 | 89.52 | 179.87 | 4849.12 | -2131.38 | -84.38 | 0.85 | -175.00 | 2133.02 |
| 58 | 6724.00 | 89.60 | 180.00 | 4849.12 | -2163.38 | -84.38 | 1.18 | 134.46  | 2165.02 |
| 59 | 6774.00 | 89.60 | 180.13 | 4850.09 | -2226.38 | -84.08 |      |         | 2227.96 |
| 60 | 6851.00 | 88.72 | 180.04 | 4851.32 | -2290.37 | -84.18 | 0.58 | -165.97 | 2291.90 |
| 61 | 6899.00 | 88.72 | 180.04 | 4852.39 | -2338.35 | -84.21 | 0.00 | 0.00    | 2339.86 |
| 62 | 6899.00 | 88.72 | 180.04 | 4852.39 | -2338.35 | -84.21 | 0.00 | 0.00    | 2339.86 |



Vertical Section at 182.26° / 1000' (in)

Survey: Pathfinder MWD Survey (Western Hawk State #2/Original Hole)  
 Control: 182.26°



# Scientific Drilling

## MARBOB ENERGY

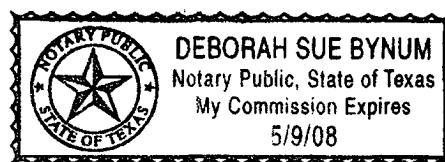
Field: Willow Lake  
Site: Eddy County, NM  
Well: Western Hawk State #2  
Wellpath: VH - Job #32K0606501  
Survey: 06/23/06

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

.....*Robert*.....Company Representative

Notorized this date 25<sup>th</sup> of July, 2006.

Deborah Sue Bynum  
Notary Signature  
County of Midland  
State of Texas





# Scientific Drilling International Survey Report

|                                       |                                                     |                                          |                |
|---------------------------------------|-----------------------------------------------------|------------------------------------------|----------------|
| <b>Company:</b> MARBOB ENERGY         | <b>Date:</b> 07/23/2006                             | <b>Time:</b> 22:43:00                    | <b>Page:</b> 1 |
| <b>Field:</b> Willow Lake             | <b>Co-ordinate(NE) Reference:</b>                   | <b>Site:</b> Eddy County, NM, Grid North |                |
| <b>Site:</b> Eddy County, NM          | <b>Vertical (TVD) Reference:</b>                    | <b>SITE:</b> 0.0                         |                |
| <b>Well:</b> Western Hawk State #2    | <b>Section (VS) Reference:</b>                      | <b>Well:</b> (0.00N,0.00E,182.26Azi)     |                |
| <b>Wellpath:</b> VH - Job #32K0606501 | <b>Survey Calculation Method:</b> Minimum Curvature | <b>Db:</b> Sybase                        |                |

|                                                |                                   |
|------------------------------------------------|-----------------------------------|
| <b>Survey:</b> 06/23/06<br>KSRG 0'-5280'       | <b>Start Date:</b> 06/23/2006     |
| <b>Company:</b> Scientific Drilling Internatio | <b>Engineer:</b> Gonzales/Rehders |
| <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   | 0.14        | 283.66      | 100.00    | -0.02    | 0.03      | -0.12     | 0.14             | 0.12       | 283.66      |
| 200.00   | 0.29        | 296.77      | 200.00    | -0.15    | 0.17      | -0.46     | 0.16             | 0.49       | 290.33      |
| 300.00   | 0.45        | 282.74      | 300.00    | -0.33    | 0.37      | -1.07     | 0.18             | 1.14       | 289.14      |
| 400.00   | 0.95        | 256.26      | 399.99    | -0.17    | 0.26      | -2.26     | 0.58             | 2.28       | 276.61      |
| 500.00   | 1.56        | 252.75      | 499.97    | 0.51     | -0.34     | -4.37     | 0.61             | 4.38       | 265.57      |
| 600.00   | 1.97        | 244.58      | 599.92    | 1.76     | -1.48     | -7.22     | 0.48             | 7.37       | 258.41      |
| 700.00   | 2.02        | 245.59      | 699.86    | 3.35     | -2.95     | -10.38    | 0.06             | 10.79      | 254.15      |
| 800.00   | 1.92        | 246.17      | 799.80    | 4.88     | -4.35     | -13.51    | 0.10             | 14.20      | 252.15      |
| 900.00   | 1.92        | 244.49      | 899.74    | 6.40     | -5.75     | -16.56    | 0.06             | 17.53      | 250.85      |
| 1000.00  | 2.01        | 245.36      | 999.68    | 7.97     | -7.20     | -19.66    | 0.09             | 20.94      | 249.88      |
| 1100.00  | 2.36        | 245.18      | 1099.61   | 9.70     | -8.80     | -23.13    | 0.35             | 24.74      | 249.17      |
| 1200.00  | 2.51        | 243.89      | 1199.52   | 11.68    | -10.63    | -26.96    | 0.16             | 28.98      | 248.49      |
| 1300.00  | 2.52        | 239.90      | 1299.42   | 13.90    | -12.69    | -30.83    | 0.18             | 33.34      | 247.62      |
| 1400.00  | 2.36        | 238.04      | 1399.33   | 16.23    | -14.88    | -34.48    | 0.18             | 37.55      | 246.65      |
| 1500.00  | 2.55        | 238.97      | 1499.24   | 18.61    | -17.12    | -38.13    | 0.19             | 41.80      | 245.82      |
| 1600.00  | 2.52        | 233.34      | 1599.14   | 21.21    | -19.58    | -41.80    | 0.25             | 46.16      | 244.90      |
| 1700.00  | 2.17        | 224.37      | 1699.06   | 24.00    | -22.25    | -44.89    | 0.51             | 50.10      | 243.64      |
| 1800.00  | 1.74        | 209.71      | 1799.00   | 26.75    | -24.92    | -46.96    | 0.66             | 53.17      | 242.05      |
| 1900.00  | 1.75        | 194.77      | 1898.96   | 29.59    | -27.71    | -48.11    | 0.45             | 55.52      | 240.05      |
| 2000.00  | 1.44        | 149.21      | 1998.92   | 32.13    | -30.27    | -47.85    | 1.27             | 56.62      | 237.68      |
| 2100.00  | 1.63        | 141.18      | 2098.89   | 34.26    | -32.46    | -46.32    | 0.29             | 56.56      | 234.98      |
| 2200.00  | 2.14        | 129.21      | 2198.83   | 36.45    | -34.75    | -43.98    | 0.64             | 56.05      | 231.69      |
| 2300.00  | 2.52        | 118.72      | 2298.75   | 38.55    | -36.98    | -40.60    | 0.57             | 54.92      | 227.67      |
| 2400.00  | 2.51        | 117.92      | 2398.65   | 40.48    | -39.06    | -36.74    | 0.04             | 53.63      | 223.25      |
| 2500.00  | 2.31        | 116.10      | 2498.56   | 42.24    | -40.98    | -33.00    | 0.21             | 52.61      | 218.84      |
| 2600.00  | 1.55        | 115.52      | 2598.51   | 43.59    | -42.44    | -29.97    | 0.76             | 51.96      | 215.22      |
| 2700.00  | 1.43        | 115.52      | 2698.47   | 44.62    | -43.56    | -27.62    | 0.12             | 51.58      | 212.37      |
| 2800.00  | 1.41        | 109.62      | 2798.44   | 45.48    | -44.52    | -25.34    | 0.15             | 51.22      | 209.65      |
| 2900.00  | 1.05        | 119.69      | 2898.42   | 46.27    | -45.38    | -23.38    | 0.42             | 51.05      | 207.26      |
| 3000.00  | 1.15        | 114.81      | 2998.40   | 47.08    | -46.26    | -21.67    | 0.14             | 51.08      | 205.11      |
| 3100.00  | 0.86        | 117.76      | 3098.38   | 47.78    | -47.03    | -20.10    | 0.29             | 51.14      | 203.14      |
| 3200.00  | 0.74        | 125.21      | 3198.38   | 48.46    | -47.75    | -18.91    | 0.16             | 51.36      | 201.60      |
| 3300.00  | 0.79        | 127.08      | 3298.37   | 49.20    | -48.54    | -17.83    | 0.06             | 51.71      | 200.17      |
| 3400.00  | 0.79        | 122.51      | 3398.36   | 49.94    | -49.32    | -16.70    | 0.06             | 52.07      | 198.70      |
| 3500.00  | 0.56        | 141.60      | 3498.35   | 50.66    | -50.08    | -15.81    | 0.32             | 52.51      | 197.52      |
| 3600.00  | 0.48        | 145.14      | 3598.35   | 51.37    | -50.80    | -15.27    | 0.09             | 53.05      | 196.73      |
| 3700.00  | 0.46        | 161.35      | 3698.34   | 52.08    | -51.53    | -14.90    | 0.13             | 53.64      | 196.13      |
| 3800.00  | 0.57        | 162.40      | 3798.34   | 52.92    | -52.38    | -14.62    | 0.11             | 54.39      | 195.60      |
| 3900.00  | 0.63        | 154.21      | 3898.33   | 53.87    | -53.35    | -14.23    | 0.10             | 55.22      | 194.94      |
| 4000.00  | 0.56        | 158.41      | 3998.33   | 54.80    | -54.30    | -13.81    | 0.08             | 56.03      | 194.27      |
| 4100.00  | 0.50        | 152.00      | 4098.32   | 55.63    | -55.14    | -13.43    | 0.08             | 56.75      | 193.69      |
| 4200.00  | 0.41        | 174.33      | 4198.32   | 56.36    | -55.88    | -13.19    | 0.20             | 57.42      | 193.28      |
| 4300.00  | 0.41        | 180.37      | 4298.32   | 57.07    | -56.60    | -13.16    | 0.04             | 58.11      | 193.09      |
| 4400.00  | 0.41        | 172.71      | 4398.32   | 57.78    | -57.31    | -13.11    | 0.05             | 58.79      | 192.89      |
| 4500.00  | 0.45        | 184.63      | 4498.31   | 58.53    | -58.06    | -13.10    | 0.10             | 59.51      | 192.72      |
| 4600.00  | 0.44        | 208.28      | 4598.31   | 59.26    | -58.78    | -13.31    | 0.18             | 60.27      | 192.76      |
| 4700.00  | 0.44        | 209.34      | 4698.31   | 59.95    | -59.46    | -13.68    | 0.01             | 61.01      | 192.96      |
| 4800.00  | 0.59        | 208.30      | 4798.30   | 60.76    | -60.25    | -14.12    | 0.15             | 61.88      | 193.19      |



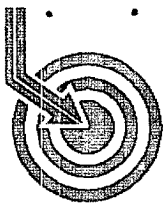
# Scientific Drilling International

## Survey Report

|           |                       |                            |                                   |       |          |       |        |
|-----------|-----------------------|----------------------------|-----------------------------------|-------|----------|-------|--------|
| Company:  | MARBOB ENERGY         | Date:                      | 07/23/2006                        | Time: | 22:43:00 | Page: | 2      |
| Field:    | Willow Lake           | Co-ordinate(NE) Reference: | Site: Eddy County, NM, Grid North |       |          |       |        |
| Site:     | Eddy County, NM       | Vertical (TVD) Reference:  | SITE 0.0                          |       |          |       |        |
| Well:     | Western Hawk State #2 | Section (VS) Reference:    | Well (0.00N,0.00E,182.26Azi)      |       |          |       |        |
| Wellpath: | VH - Job #32K0606501  | Survey Calculation Method: | Minimum Curvature                 |       |          | Db:   | Sybase |

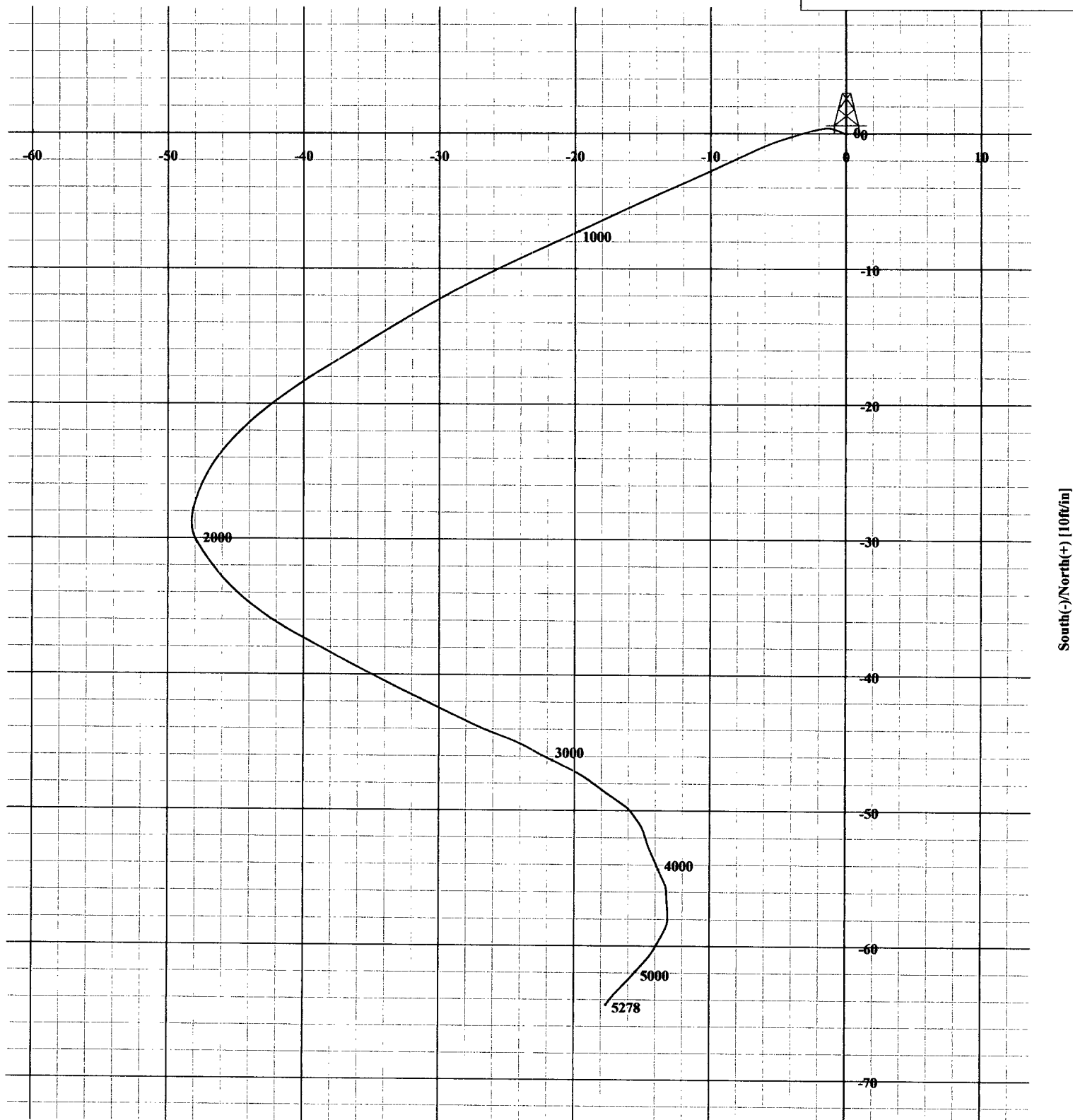
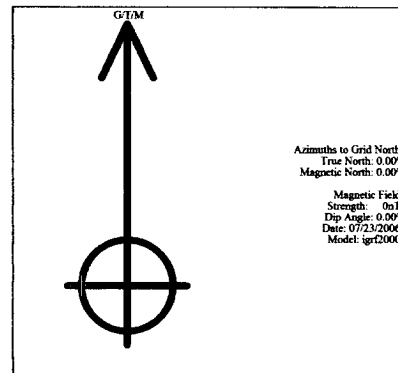
### Survey

| 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  | 0.63        | 223.25      | 4898.30   | 61.63    | -61.10    | -14.74    | 0.16             | 62.85      | 193.56      |
| 5000.00  | 0.61        | 220.77      | 4998.29   | 62.46    | -61.90    | -15.46    | 0.03             | 63.80      | 194.02      |
| 5100.00  | 0.70        | 224.96      | 5098.28   | 63.33    | -62.74    | -16.24    | 0.10             | 64.81      | 194.51      |
| 5200.00  | 0.67        | 221.72      | 5198.28   | 64.23    | -63.61    | -17.06    | 0.05             | 65.86      | 195.01      |
| 5280.00  | 0.69        | 212.33      | 5278.27   | 65.01    | -64.36    | -17.63    | 0.14             | 66.73      | 195.32      |



**Scientific  
Drilling**

**Field: Willow Lake**  
**Site: Eddy County, NM**  
**Well: Western Hawk State #2**  
**Wellpath: VH - Job #32K0606501**  
**Survey: 06/23/06**



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

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