

# DIG Drilling System

## Well Planning Report

|                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Company:</b> MACK ENERGY COMPANY<br><b>Field:</b> EDDY COUNTY, NEW MEXICO<br><b>Site:</b> BRIGHAM "H" WELL NO. 3<br><b>Well:</b> Q9043D-CN<br><b>Wellpath:</b> PLN-00 | <b>Date:</b> 06/28/1999 <b>Time:</b> 15:53:51 <b>Page:</b> 1<br><b>Co-ordinate(NE) Reference:</b> Site: BRIGHAM "H" WELL NO. 3, Grid North<br><b>Vertical (TVD) Reference:</b> SITE 0.0 above Mean Sea Level<br><b>Section (VS) Reference:</b> Well (0.0E,0.0N,146.8Azi)<br><b>Survey Calculation Method:</b> Minimum Curvature |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Field:** EDDY COUNTY, NEW MEXICO

|                                                                             |                                                                                      |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Map System:</b><br><b>Ellipsoid:</b><br><b>Sys Datum:</b> Mean Sea Level | <b>Map Zone:</b><br><b>North Reference:</b> Grid<br><b>Geomagnetic Model:</b> IGRF90 |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------|

**Site:** BRIGHAM "H" WELL NO. 3

|                                      |                  |    |                                       |     |
|--------------------------------------|------------------|----|---------------------------------------|-----|
| <b>Site Position:</b>                | <b>Northing:</b> | ft | <b>Latitude:</b>                      |     |
| <b>From:</b> Local Only              | <b>Easting:</b>  | ft | <b>Longitude:</b>                     |     |
| <b>Position Uncertainty:</b> 0.00 ft |                  |    | <b>Magnetic Declination:</b> 0.00 deg |     |
| <b>Water Depth:</b> 0.00 ft          |                  |    | <b>Grid Convergence:</b>              | deg |

**Well:** Q9043D-CN

|                                      |                  |    |                   |  |
|--------------------------------------|------------------|----|-------------------|--|
| <b>Well Position:</b> +N/-S 0.00 ft  | <b>Northing:</b> | ft | <b>Latitude:</b>  |  |
| <b>From Slot:</b> +E/-W 0.00 ft      | <b>Easting:</b>  | ft | <b>Longitude:</b> |  |
| <b>Position Uncertainty:</b> 0.00 ft |                  |    |                   |  |

### Plan Section Information

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | TFO<br>deg | Target |
|----------|-------------|-------------|-----------|-------------|-------------|------------------|--------------------|-------------------|------------|--------|
| 0.00     | 0.00        | 146.77      | 0.00      | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |        |
| 1500.00  | 0.00        | 146.77      | 1500.00   | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |        |
| 2013.62  | 7.70        | 146.77      | 2012.07   | -28.84      | 18.90       | 1.50             | 1.50               | 0.00              | 0.00       |        |
| 4342.57  | 7.70        | 146.77      | 4320.00   | -290.00     | 190.00      | 0.00             | 0.00               | 0.00              | 0.00       | TGT    |
| 4995.89  | 3.72        | 43.67       | 4971.11   | -311.36     | 228.71      | 1.42             | -0.61              | -15.78            | -156.94    |        |
| 5024.84  | 3.72        | 43.67       | 5000.00   | -310.00     | 230.00      | 0.00             | 0.00               | 0.00              | 0.00       | PBHL   |

### 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                    |
|----------|-------------|-------------|-----------|-----------|-----------|----------|------------------|--------------------|-------------------|---------------------------------|
| 1500.00  | 0.00        | 146.77      | 1500.00   | 0.00      | 0.00      | 0.00     | 0.00             | 0.00               | 0.00              | KOP, BLD 1.5"/100' MD/TVD<br>SL |
| 1500.10  | 0.00        | 146.77      | 1500.10   | 0.00      | 0.00      | 0.00     | 0.00             | 0.00               | 0.00              |                                 |
| 1600.00  | 1.50        | 146.77      | 1599.99   | -1.09     | 0.72      | 1.31     | 1.50             | 1.50               | 0.00              |                                 |
| 1700.00  | 3.00        | 146.77      | 1699.91   | -4.38     | 2.87      | 5.23     | 1.50             | 1.50               | 0.00              |                                 |
| 1800.00  | 4.50        | 146.77      | 1799.69   | -9.85     | 6.45      | 11.77    | 1.50             | 1.50               | 0.00              |                                 |
| 1900.00  | 6.00        | 146.77      | 1899.27   | -17.50    | 11.47     | 20.92    | 1.50             | 1.50               | 0.00              | EOB/SOH MD:2014' TVD:2012       |
| 2000.00  | 7.50        | 146.77      | 1998.57   | -27.33    | 17.91     | 32.68    | 1.50             | 1.50               | 0.00              |                                 |
| 2013.62  | 7.70        | 146.77      | 2012.07   | -28.84    | 18.90     | 34.48    | 1.50             | 1.50               | 0.00              |                                 |
| 2100.00  | 7.70        | 146.77      | 2097.67   | -38.53    | 25.24     | 46.06    | 0.00             | 0.00               | 0.00              |                                 |
| 2200.00  | 7.70        | 146.77      | 2196.77   | -49.74    | 32.59     | 59.47    | 0.00             | 0.00               | 0.00              |                                 |
| 2300.00  | 7.70        | 146.77      | 2295.87   | -60.95    | 39.94     | 72.87    | 0.00             | 0.00               | 0.00              |                                 |
| 2400.00  | 7.70        | 146.77      | 2394.97   | -72.17    | 47.28     | 86.28    | 0.00             | 0.00               | 0.00              |                                 |
| 2500.00  | 7.70        | 146.77      | 2494.06   | -83.38    | 54.63     | 99.68    | 0.00             | 0.00               | 0.00              |                                 |
| 2600.00  | 7.70        | 146.77      | 2593.16   | -94.60    | 61.98     | 113.09   | 0.00             | 0.00               | 0.00              |                                 |
| 2700.00  | 7.70        | 146.77      | 2692.26   | -105.81   | 69.32     | 126.50   | 0.00             | 0.00               | 0.00              |                                 |
| 2800.00  | 7.70        | 146.77      | 2791.36   | -117.02   | 76.67     | 139.90   | 0.00             | 0.00               | 0.00              |                                 |
| 2900.00  | 7.70        | 146.77      | 2890.45   | -128.24   | 84.02     | 153.31   | 0.00             | 0.00               | 0.00              |                                 |
| 3000.00  | 7.70        | 146.77      | 2989.55   | -139.45   | 91.36     | 166.71   | 0.00             | 0.00               | 0.00              |                                 |
| 3100.00  | 7.70        | 146.77      | 3088.65   | -150.66   | 98.71     | 180.12   | 0.00             | 0.00               | 0.00              |                                 |
| 3200.00  | 7.70        | 146.77      | 3187.74   | -161.88   | 106.06    | 193.53   | 0.00             | 0.00               | 0.00              |                                 |
| 3300.00  | 7.70        | 146.77      | 3286.84   | -173.09   | 113.40    | 206.93   | 0.00             | 0.00               | 0.00              |                                 |
| 3400.00  | 7.70        | 146.77      | 3385.94   | -184.30   | 120.75    | 220.34   | 0.00             | 0.00               | 0.00              |                                 |
| 3500.00  | 7.70        | 146.77      | 3485.04   | -195.52   | 128.10    | 233.74   | 0.00             | 0.00               | 0.00              |                                 |
| 3600.00  | 7.70        | 146.77      | 3584.13   | -206.73   | 135.44    | 247.15   | 0.00             | 0.00               | 0.00              |                                 |
| 3700.00  | 7.70        | 146.77      | 3683.23   | -217.94   | 142.79    | 260.56   | 0.00             | 0.00               | 0.00              |                                 |
| 3800.00  | 7.70        | 146.77      | 3782.33   | -229.16   | 150.14    | 273.96   | 0.00             | 0.00               | 0.00              |                                 |
| 3900.00  | 7.70        | 146.77      | 3881.43   | -240.37   | 157.49    | 287.37   | 0.00             | 0.00               | 0.00              |                                 |

**RECEIVED**

**JUN 30 '99**

**RSB**