



## COG Operating, LLC

Lea County , NM

Doo Wop 28 State #4H

Doo Wop 28 State #4H

HOBBS OCD

Lateral #1

APR 30 2012

RECEIVED

Plan: Plan #1

## Standard Planning Report

17 April, 2012

SHL :: 660' FSL & 330' FWL

BHL :: 660' FSL & 330' FEL @ 9820' TVD



MAY 02 2012



Black Viper Energy  
Planning Report



|           |                           |                              |                                       |
|-----------|---------------------------|------------------------------|---------------------------------------|
| Database: | EDM 5000 1:Single User Db | Local Co-ordinate Reference: | Site Doo Wop 28 State #4H             |
| Company:  | COG Operating, LLC        | TVD Reference:               | WELL @ 3968 00ft (Original Well Elev) |
| Project:  | Lea County , NM           | MD Reference:                | WELL @ 3968 00ft (Original Well Elev) |
| Site:     | Doo Wop 28 State #4H      | North Reference:             | Grid                                  |
| Well:     | Doo Wop 28 State #4H      | Survey Calculation Method:   | Minimum Curvature                     |
| Wellbore: | Lateral #1                |                              |                                       |
| Design:   | Plan #1                   |                              |                                       |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project:    | Lea County ,NM                       |               |                |
| Map System: | US State Plane 1927 (Exact solution) | System Datum: | Mean Sea Level |
| Geo Datum:  | NAD 1927 (NADCON CONUS)              |               |                |
| Map Zone:   | New Mexico East 3001                 |               |                |

|                       |     |                      |               |            |                   |        |
|-----------------------|-----|----------------------|---------------|------------|-------------------|--------|
| Site                  |     | Doo Wop 28 State #4H |               |            |                   |        |
| Site Position:        |     | Northing:            | 786,184.20 ft | Latitude:  | 33° 9' 25 579 N   |        |
| From:                 | Map | Easting:             | 811,352 30 ft | Longitude: | 103° 18' 57 593 W |        |
| Position Uncertainty: |     | 0 00 ft              | Slot Radius:  | 13 200 in  | Grid Convergence: | 0 56 ° |

|                      |                      |         |                     |               |               |                   |
|----------------------|----------------------|---------|---------------------|---------------|---------------|-------------------|
| Well:                | Doo Wop 28 State #4H |         |                     |               |               |                   |
| Well Position        | +N/-S                | 0 00 ft | Northing:           | 786,184 20 ft | Latitude:     | 33° 9' 25 579 N   |
|                      | +E/-W                | 0 00 ft | Easting:            | 811,352 30 ft | Longitude:    | 103° 18' 57 593 W |
| Position Uncertainty |                      | 0 00 ft | Wellhead Elevation: |               | Ground Level: | 3,968 00 ft       |

|           |            |             |                    |                  |                        |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore  | Lateral #1 |             |                    |                  |                        |
| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | IGRF2010   | 4/17/2012   | 7 43               | 61 07            | 49,117                 |

|                   |                  |         |               |           |
|-------------------|------------------|---------|---------------|-----------|
| Design            |                  | Plan #1 |               |           |
| Audit Notes:      |                  |         |               |           |
| Version:          | Phase:           | PLAN    | Tie On Depth: | 9,292 57  |
| Vertical Section: | Depth From (TVD) | +N/-S   | +E/-W         | Direction |
|                   | (ft)             | (ft)    | (ft)          | (°)       |
|                   | 0 00             | 0 00    | 0 00          | 89 43     |

| Plan Sections          |                    |                |                        |               |               |                          |                         |                        |            |                |
|------------------------|--------------------|----------------|------------------------|---------------|---------------|--------------------------|-------------------------|------------------------|------------|----------------|
| Measured Depth<br>(ft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Dogleg Rate<br>(°/100ft) | Build Rate<br>(°/100ft) | Turn Rate<br>(°/100ft) | TFO<br>(°) | Target         |
| 9,292.57               | 0.00               | 0.00           | 9,292.57               | 0.00          | 0.00          | 0.00                     | 0.00                    | 0.00                   | 0.00       |                |
| 10,036.81              | 89.31              | 89.43          | 9,770.00               | 4.72          | 471.69        | 12.00                    | 12.00                   | 0.00                   | 89.43      |                |
| 14,184.34              | 89.31              | 89.43          | 9,820.00               | 46.20         | 4,618.70      | 0.00                     | 0.00                    | 0.00                   | 0.00       | PBHL #1 [DW4H] |



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|           |                           |                              |                                       |
|-----------|---------------------------|------------------------------|---------------------------------------|
| Database: | EDM:5000-1.Single User Db | Local Co-ordinate Reference: | Site Doo Wop 28 State #4H             |
| Company:  | COG Operating, LLC        | TVD Reference:               | WELL @ 3968 00ft (Original Well Elev) |
| Project:  | Lea County, NM            | MD Reference:                | WELL @ 3968 00ft (Original Well Elev) |
| Site:     | Doo Wop 28 State #4H      | North Reference:             | Grd                                   |
| Well:     | Doo Wop 28 State #4H      | Survey Calculation Method:   | Minimum Curvature                     |
| Wellbore: | Lateral #1                |                              |                                       |
| Design:   | Plan #1                   |                              |                                       |

| Planned Survey                                                 |                    |                |                           |               |               |                             |                             |                            |                           |  |
|----------------------------------------------------------------|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|-----------------------------|----------------------------|---------------------------|--|
| Measured<br>Depth<br>(ft)                                      | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Vertical<br>Section<br>(ft) | Dogleg<br>Rate<br>(°/100ft) | Build<br>Rate<br>(°/100ft) | Turn<br>Rate<br>(°/100ft) |  |
| 9,292.57                                                       | 0.00               | 0.00           | 9,292.57                  | 0.00          | 0.00          | 0.00                        | 0.00                        | 0.00                       | 0.00                      |  |
| KOP Build 12.00°/100' :: TFO 89.43°                            |                    |                |                           |               |               |                             |                             |                            |                           |  |
| 9,300.00                                                       | 0.89               | 89.43          | 9,300.00                  | 0.00          | 0.06          | 0.06                        | 12.00                       | 12.00                      | 0.00                      |  |
| 9,330.00                                                       | 4.49               | 89.43          | 9,329.96                  | 0.01          | 1.47          | 1.47                        | 12.00                       | 12.00                      | 0.00                      |  |
| 9,360.00                                                       | 8.09               | 89.43          | 9,359.78                  | 0.05          | 4.75          | 4.75                        | 12.00                       | 12.00                      | 0.00                      |  |
| 9,390.00                                                       | 11.69              | 89.43          | 9,389.33                  | 0.10          | 9.91          | 9.91                        | 12.00                       | 12.00                      | 0.00                      |  |
| 9,420.00                                                       | 15.29              | 89.43          | 9,418.49                  | 0.17          | 16.90         | 16.90                       | 12.00                       | 12.00                      | 0.00                      |  |
| 9,450.00                                                       | 18.89              | 89.43          | 9,447.16                  | 0.26          | 25.72         | 25.72                       | 12.00                       | 12.00                      | 0.00                      |  |
| 9,480.00                                                       | 22.49              | 89.43          | 9,475.22                  | 0.36          | 36.32         | 36.32                       | 12.00                       | 12.00                      | 0.00                      |  |
| 9,510.00                                                       | 26.09              | 89.43          | 9,502.56                  | 0.49          | 48.66         | 48.66                       | 12.00                       | 12.00                      | 0.00                      |  |
| 9,540.00                                                       | 29.69              | 89.43          | 9,529.07                  | 0.63          | 62.69         | 62.69                       | 12.00                       | 12.00                      | 0.00                      |  |
| 9,570.00                                                       | 33.29              | 89.43          | 9,554.65                  | 0.78          | 78.35         | 78.36                       | 12.00                       | 12.00                      | 0.00                      |  |
| 9,600.00                                                       | 36.89              | 89.43          | 9,579.19                  | 0.96          | 95.60         | 95.60                       | 12.00                       | 12.00                      | 0.00                      |  |
| 9,630.00                                                       | 40.49              | 89.43          | 9,602.61                  | 1.14          | 114.35        | 114.35                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,660.00                                                       | 44.09              | 89.43          | 9,624.79                  | 1.35          | 134.53        | 134.54                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,690.00                                                       | 47.69              | 89.43          | 9,645.67                  | 1.56          | 156.07        | 156.07                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,720.00                                                       | 51.29              | 89.43          | 9,665.15                  | 1.79          | 178.87        | 178.88                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,750.00                                                       | 54.89              | 89.43          | 9,683.17                  | 2.03          | 202.85        | 202.86                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,780.00                                                       | 58.49              | 89.43          | 9,699.64                  | 2.28          | 227.92        | 227.93                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,810.00                                                       | 62.09              | 89.43          | 9,714.50                  | 2.54          | 253.97        | 253.98                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,840.00                                                       | 65.69              | 89.43          | 9,727.70                  | 2.81          | 280.90        | 280.92                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,870.00                                                       | 69.29              | 89.43          | 9,739.19                  | 3.09          | 308.61        | 308.63                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,900.00                                                       | 72.89              | 89.43          | 9,748.91                  | 3.37          | 336.99        | 337.00                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,930.00                                                       | 76.49              | 89.43          | 9,756.83                  | 3.66          | 365.92        | 365.93                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,960.00                                                       | 80.09              | 89.43          | 9,762.91                  | 3.95          | 395.29        | 395.31                      | 12.00                       | 12.00                      | 0.00                      |  |
| 9,990.00                                                       | 83.69              | 89.43          | 9,767.14                  | 4.25          | 424.98        | 425.00                      | 12.00                       | 12.00                      | 0.00                      |  |
| 10,020.00                                                      | 87.29              | 89.43          | 9,769.50                  | 4.55          | 454.88        | 454.90                      | 12.00                       | 12.00                      | 0.00                      |  |
| 10,036.81                                                      | 89.31              | 89.43          | 9,770.00                  | 4.72          | 471.69        | 471.71                      | 12.00                       | 12.00                      | 0.00                      |  |
| 786188.92 N :: 811823.98 E - EOC Hold 89.31° INC :: 89.43° AZI |                    |                |                           |               |               |                             |                             |                            |                           |  |
| 10,050.00                                                      | 89.31              | 89.43          | 9,770.16                  | 4.85          | 484.87        | 484.89                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,080.00                                                      | 89.31              | 89.43          | 9,770.52                  | 5.15          | 514.87        | 514.89                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,110.00                                                      | 89.31              | 89.43          | 9,770.88                  | 5.45          | 544.86        | 544.89                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,140.00                                                      | 89.31              | 89.43          | 9,771.24                  | 5.75          | 574.86        | 574.89                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,170.00                                                      | 89.31              | 89.43          | 9,771.61                  | 6.05          | 604.86        | 604.89                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,200.00                                                      | 89.31              | 89.43          | 9,771.97                  | 6.35          | 634.85        | 634.88                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,230.00                                                      | 89.31              | 89.43          | 9,772.33                  | 6.65          | 664.85        | 664.88                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,260.00                                                      | 89.31              | 89.43          | 9,772.69                  | 6.95          | 694.84        | 694.88                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,290.00                                                      | 89.31              | 89.43          | 9,773.05                  | 7.25          | 724.84        | 724.88                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,320.00                                                      | 89.31              | 89.43          | 9,773.41                  | 7.55          | 754.84        | 754.87                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,350.00                                                      | 89.31              | 89.43          | 9,773.78                  | 7.85          | 784.83        | 784.87                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,380.00                                                      | 89.31              | 89.43          | 9,774.14                  | 8.15          | 814.83        | 814.87                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,410.00                                                      | 89.31              | 89.43          | 9,774.50                  | 8.45          | 844.83        | 844.87                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,440.00                                                      | 89.31              | 89.43          | 9,774.86                  | 8.75          | 874.82        | 874.87                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,470.00                                                      | 89.31              | 89.43          | 9,775.22                  | 9.05          | 904.82        | 904.86                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,500.00                                                      | 89.31              | 89.43          | 9,775.58                  | 9.35          | 934.81        | 934.86                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,530.00                                                      | 89.31              | 89.43          | 9,775.95                  | 9.65          | 964.81        | 964.86                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,560.00                                                      | 89.31              | 89.43          | 9,776.31                  | 9.95          | 994.81        | 994.86                      | 0.00                        | 0.00                       | 0.00                      |  |
| 10,590.00                                                      | 89.31              | 89.43          | 9,776.67                  | 10.25         | 1,024.80      | 1,024.85                    | 0.00                        | 0.00                       | 0.00                      |  |
| 10,620.00                                                      | 89.31              | 89.43          | 9,777.03                  | 10.55         | 1,054.80      | 1,054.85                    | 0.00                        | 0.00                       | 0.00                      |  |
| 10,650.00                                                      | 89.31              | 89.43          | 9,777.39                  | 10.85         | 1,084.80      | 1,084.85                    | 0.00                        | 0.00                       | 0.00                      |  |
| 10,680.00                                                      | 89.31              | 89.43          | 9,777.75                  | 11.15         | 1,114.79      | 1,114.85                    | 0.00                        | 0.00                       | 0.00                      |  |
| 10,710.00                                                      | 89.31              | 89.43          | 9,778.12                  | 11.45         | 1,144.79      | 1,144.85                    | 0.00                        | 0.00                       | 0.00                      |  |
| 10,740.00                                                      | 89.31              | 89.43          | 9,778.48                  | 11.75         | 1,174.79      | 1,174.84                    | 0.00                        | 0.00                       | 0.00                      |  |
| 10,770.00                                                      | 89.31              | 89.43          | 9,778.84                  | 12.05         | 1,204.78      | 1,204.84                    | 0.00                        | 0.00                       | 0.00                      |  |



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|           |                           |                              |                                       |
|-----------|---------------------------|------------------------------|---------------------------------------|
| Database: | EDM 5000 1-Single User Db | Local Co-ordinate Reference: | Site Doo Wop 28 State #4H             |
| Company:  | COG Operating, LLC        | TVD Reference:               | WELL @ 3968 00ft (Original Well Elev) |
| Project:  | Lea County, NM            | MD Reference:                | WELL @ 3968 00ft (Original Well Elev) |
| Site:     | Doo Wop 28 State #4H      | North Reference:             | Grid                                  |
| Well:     | Doo Wop 28 State #4H      | Survey Calculation Method:   | Minimum Curvature                     |
| Wellbore: | Lateral #1                |                              |                                       |
| Design:   | Plan #1                   |                              |                                       |

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 10,800 00           | 89 31           | 89 43       | 9,779 20            | 12 35      | 1,234 78   | 1,234 84              | 0 00                  | 0 00                 | 0 00                |
| 10,830 00           | 89 31           | 89 43       | 9,779 56            | 12 65      | 1,264 77   | 1,264 84              | 0 00                  | 0 00                 | 0 00                |
| 10,860 00           | 89 31           | 89 43       | 9,779 92            | 12 95      | 1,294 77   | 1,294 84              | 0 00                  | 0 00                 | 0 00                |
| 10,890 00           | 89 31           | 89 43       | 9,780 29            | 13 25      | 1,324 77   | 1,324 83              | 0 00                  | 0 00                 | 0 00                |
| 10,920 00           | 89 31           | 89 43       | 9,780 65            | 13 55      | 1,354 76   | 1,354 83              | 0 00                  | 0 00                 | 0 00                |
| 10,950 00           | 89 31           | 89 43       | 9,781 01            | 13 85      | 1,384 76   | 1,384 83              | 0 00                  | 0 00                 | 0 00                |
| 10,980 00           | 89 31           | 89 43       | 9,781 37            | 14 15      | 1,414 76   | 1,414 83              | 0 00                  | 0 00                 | 0 00                |
| 11,010 00           | 89 31           | 89 43       | 9,781 73            | 14 45      | 1,444 75   | 1,444 82              | 0 00                  | 0 00                 | 0 00                |
| 11,040 00           | 89 31           | 89 43       | 9,782 09            | 14 75      | 1,474 75   | 1,474 82              | 0 00                  | 0 00                 | 0 00                |
| 11,070 00           | 89 31           | 89 43       | 9,782 46            | 15 05      | 1,504 74   | 1,504 82              | 0 00                  | 0 00                 | 0 00                |
| 11,100 00           | 89 31           | 89 43       | 9,782 82            | 15 35      | 1,534 74   | 1,534 82              | 0 00                  | 0 00                 | 0 00                |
| 11,130 00           | 89 31           | 89 43       | 9,783 18            | 15 65      | 1,564 74   | 1,564 82              | 0 00                  | 0 00                 | 0 00                |
| 11,160 00           | 89 31           | 89 43       | 9,783 54            | 15 95      | 1,594 73   | 1,594 81              | 0 00                  | 0 00                 | 0 00                |
| 11,190 00           | 89 31           | 89 43       | 9,783 90            | 16 25      | 1,624 73   | 1,624 81              | 0 00                  | 0 00                 | 0 00                |
| 11,220 00           | 89 31           | 89 43       | 9,784 26            | 16 55      | 1,654 73   | 1,654 81              | 0 00                  | 0 00                 | 0 00                |
| 11,250 00           | 89 31           | 89 43       | 9,784 63            | 16 85      | 1,684 72   | 1,684 81              | 0 00                  | 0 00                 | 0 00                |
| 11,280 00           | 89 31           | 89 43       | 9,784 99            | 17 15      | 1,714 72   | 1,714 80              | 0 00                  | 0 00                 | 0 00                |
| 11,310 00           | 89 31           | 89 43       | 9,785 35            | 17 45      | 1,744 72   | 1,744 80              | 0 00                  | 0 00                 | 0 00                |
| 11,340 00           | 89 31           | 89 43       | 9,785 71            | 17 75      | 1,774 71   | 1,774 80              | 0 00                  | 0 00                 | 0 00                |
| 11,370 00           | 89 31           | 89 43       | 9,786 07            | 18 05      | 1,804 71   | 1,804 80              | 0 00                  | 0 00                 | 0 00                |
| 11,400 00           | 89 31           | 89 43       | 9,786 43            | 18 35      | 1,834 70   | 1,834 80              | 0 00                  | 0 00                 | 0 00                |
| 11,430 00           | 89 31           | 89 43       | 9,786 80            | 18 65      | 1,864 70   | 1,864 79              | 0 00                  | 0 00                 | 0 00                |
| 11,460 00           | 89 31           | 89 43       | 9,787 16            | 18 95      | 1,894 70   | 1,894 79              | 0 00                  | 0 00                 | 0 00                |
| 11,490 00           | 89 31           | 89 43       | 9,787 52            | 19 25      | 1,924 69   | 1,924 79              | 0 00                  | 0 00                 | 0 00                |
| 11,520 00           | 89 31           | 89 43       | 9,787 88            | 19 55      | 1,954 69   | 1,954 79              | 0 00                  | 0 00                 | 0 00                |
| 11,550 00           | 89 31           | 89 43       | 9,788 24            | 19 85      | 1,984 69   | 1,984 79              | 0 00                  | 0 00                 | 0 00                |
| 11,580 00           | 89 31           | 89 43       | 9,788 60            | 20 15      | 2,014 68   | 2,014 78              | 0 00                  | 0 00                 | 0 00                |
| 11,610 00           | 89 31           | 89 43       | 9,788 97            | 20 45      | 2,044 68   | 2,044 78              | 0 00                  | 0 00                 | 0 00                |
| 11,640 00           | 89 31           | 89 43       | 9,789 33            | 20 75      | 2,074 67   | 2,074 78              | 0 00                  | 0 00                 | 0 00                |
| 11,670 00           | 89 31           | 89 43       | 9,789 69            | 21 05      | 2,104 67   | 2,104 78              | 0 00                  | 0 00                 | 0 00                |
| 11,700 00           | 89 31           | 89 43       | 9,790 05            | 21 35      | 2,134 67   | 2,134 77              | 0 00                  | 0 00                 | 0 00                |
| 11,730 00           | 89 31           | 89 43       | 9,790 41            | 21 65      | 2,164 66   | 2,164 77              | 0 00                  | 0 00                 | 0 00                |
| 11,760 00           | 89 31           | 89 43       | 9,790 77            | 21 95      | 2,194 66   | 2,194 77              | 0 00                  | 0 00                 | 0 00                |
| 11,790 00           | 89 31           | 89 43       | 9,791 14            | 22 25      | 2,224 66   | 2,224 77              | 0 00                  | 0 00                 | 0 00                |
| 11,820 00           | 89 31           | 89 43       | 9,791 50            | 22 55      | 2,254 65   | 2,254 77              | 0 00                  | 0 00                 | 0 00                |
| 11,850 00           | 89 31           | 89 43       | 9,791 86            | 22 85      | 2,284 65   | 2,284 76              | 0 00                  | 0 00                 | 0 00                |
| 11,880 00           | 89 31           | 89 43       | 9,792 22            | 23 15      | 2,314 65   | 2,314 76              | 0 00                  | 0 00                 | 0 00                |
| 11,910 00           | 89 31           | 89 43       | 9,792 58            | 23 45      | 2,344 64   | 2,344 76              | 0 00                  | 0 00                 | 0 00                |
| 11,940 00           | 89 31           | 89 43       | 9,792 94            | 23 75      | 2,374 64   | 2,374 76              | 0 00                  | 0 00                 | 0 00                |
| 11,970 00           | 89 31           | 89 43       | 9,793 31            | 24 05      | 2,404 63   | 2,404 75              | 0 00                  | 0 00                 | 0 00                |
| 12,000 00           | 89 31           | 89 43       | 9,793 67            | 24 35      | 2,434 63   | 2,434 75              | 0 00                  | 0 00                 | 0 00                |
| 12,030 00           | 89 31           | 89 43       | 9,794 03            | 24 65      | 2,464 63   | 2,464 75              | 0 00                  | 0 00                 | 0 00                |
| 12,060 00           | 89 31           | 89 43       | 9,794 39            | 24 95      | 2,494 62   | 2,494 75              | 0 00                  | 0 00                 | 0 00                |
| 12,090 00           | 89 31           | 89 43       | 9,794 75            | 25 25      | 2,524 62   | 2,524 75              | 0 00                  | 0 00                 | 0 00                |
| 12,120 00           | 89 31           | 89 43       | 9,795 11            | 25 55      | 2,554 62   | 2,554 74              | 0 00                  | 0 00                 | 0 00                |
| 12,150 00           | 89 31           | 89 43       | 9,795 48            | 25 85      | 2,584 61   | 2,584 74              | 0 00                  | 0 00                 | 0 00                |
| 12,180 00           | 89 31           | 89 43       | 9,795 84            | 26 15      | 2,614 61   | 2,614 74              | 0 00                  | 0 00                 | 0 00                |
| 12,210 00           | 89 31           | 89 43       | 9,796 20            | 26 45      | 2,644 60   | 2,644 74              | 0 00                  | 0 00                 | 0 00                |
| 12,240 00           | 89 31           | 89 43       | 9,796 56            | 26 75      | 2,674 60   | 2,674 73              | 0 00                  | 0 00                 | 0 00                |
| 12,270 00           | 89 31           | 89 43       | 9,796 92            | 27 05      | 2,704 60   | 2,704 73              | 0 00                  | 0 00                 | 0 00                |
| 12,300 00           | 89 31           | 89 43       | 9,797 28            | 27 35      | 2,734 59   | 2,734 73              | 0 00                  | 0 00                 | 0 00                |
| 12,330 00           | 89 31           | 89 43       | 9,797 65            | 27 65      | 2,764 59   | 2,764 73              | 0 00                  | 0 00                 | 0 00                |
| 12,360 00           | 89 31           | 89 43       | 9,798 01            | 27 95      | 2,794 59   | 2,794 73              | 0 00                  | 0 00                 | 0 00                |
| 12,390 00           | 89 31           | 89 43       | 9,798 37            | 28 25      | 2,824 58   | 2,824 72              | 0 00                  | 0 00                 | 0 00                |



# Black Viper Energy Planning Report



|           |                            |                              |                                        |
|-----------|----------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000 1- Single User Db | Local Co-ordinate Reference: | Site Doo Wop 28 State #4H              |
| Company:  | COG Operating, LLC         | TVD Reference:               | WELL @ 3968' 00ft (Original Well Elev) |
| Project:  | Lea County - NM            | MD Reference:                | WELL @ 3968' 00ft (Original Well Elev) |
| Site:     | Doo Wop 28 State #4H       | North Reference:             | Grid                                   |
| Well:     | Doo Wop 28 State #4H       | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | Lateral #1                 |                              |                                        |
| Design:   | Plan #1                    |                              |                                        |

| Planned Survey      |                 |             |                     |            |            |                       |                       |                      |                     |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 12,420.00           | 89.31           | 89.43       | 9,798.73            | 28.55      | 2,854.58   | 2,854.72              | 0.00                  | 0.00                 | 0.00                |
| 12,450.00           | 89.31           | 89.43       | 9,799.09            | 28.85      | 2,884.58   | 2,884.72              | 0.00                  | 0.00                 | 0.00                |
| 12,480.00           | 89.31           | 89.43       | 9,799.45            | 29.15      | 2,914.57   | 2,914.72              | 0.00                  | 0.00                 | 0.00                |
| 12,510.00           | 89.31           | 89.43       | 9,799.82            | 29.45      | 2,944.57   | 2,944.72              | 0.00                  | 0.00                 | 0.00                |
| 12,540.00           | 89.31           | 89.43       | 9,800.18            | 29.75      | 2,974.56   | 2,974.71              | 0.00                  | 0.00                 | 0.00                |
| 12,570.00           | 89.31           | 89.43       | 9,800.54            | 30.05      | 3,004.56   | 3,004.71              | 0.00                  | 0.00                 | 0.00                |
| 12,600.00           | 89.31           | 89.43       | 9,800.90            | 30.35      | 3,034.56   | 3,034.71              | 0.00                  | 0.00                 | 0.00                |
| 12,630.00           | 89.31           | 89.43       | 9,801.26            | 30.65      | 3,064.55   | 3,064.71              | 0.00                  | 0.00                 | 0.00                |
| 12,660.00           | 89.31           | 89.43       | 9,801.62            | 30.95      | 3,094.55   | 3,094.70              | 0.00                  | 0.00                 | 0.00                |
| 12,690.00           | 89.31           | 89.43       | 9,801.99            | 31.25      | 3,124.55   | 3,124.70              | 0.00                  | 0.00                 | 0.00                |
| 12,720.00           | 89.31           | 89.43       | 9,802.35            | 31.55      | 3,154.54   | 3,154.70              | 0.00                  | 0.00                 | 0.00                |
| 12,750.00           | 89.31           | 89.43       | 9,802.71            | 31.85      | 3,184.54   | 3,184.70              | 0.00                  | 0.00                 | 0.00                |
| 12,780.00           | 89.31           | 89.43       | 9,803.07            | 32.15      | 3,214.53   | 3,214.70              | 0.00                  | 0.00                 | 0.00                |
| 12,810.00           | 89.31           | 89.43       | 9,803.43            | 32.45      | 3,244.53   | 3,244.69              | 0.00                  | 0.00                 | 0.00                |
| 12,840.00           | 89.31           | 89.43       | 9,803.79            | 32.75      | 3,274.53   | 3,274.69              | 0.00                  | 0.00                 | 0.00                |
| 12,870.00           | 89.31           | 89.43       | 9,804.16            | 33.05      | 3,304.52   | 3,304.69              | 0.00                  | 0.00                 | 0.00                |
| 12,900.00           | 89.31           | 89.43       | 9,804.52            | 33.35      | 3,334.52   | 3,334.69              | 0.00                  | 0.00                 | 0.00                |
| 12,930.00           | 89.31           | 89.43       | 9,804.88            | 33.65      | 3,364.52   | 3,364.68              | 0.00                  | 0.00                 | 0.00                |
| 12,960.00           | 89.31           | 89.43       | 9,805.24            | 33.95      | 3,394.51   | 3,394.68              | 0.00                  | 0.00                 | 0.00                |
| 12,990.00           | 89.31           | 89.43       | 9,805.60            | 34.25      | 3,424.51   | 3,424.68              | 0.00                  | 0.00                 | 0.00                |
| 13,020.00           | 89.31           | 89.43       | 9,805.96            | 34.55      | 3,454.51   | 3,454.68              | 0.00                  | 0.00                 | 0.00                |
| 13,050.00           | 89.31           | 89.43       | 9,806.33            | 34.85      | 3,484.50   | 3,484.68              | 0.00                  | 0.00                 | 0.00                |
| 13,080.00           | 89.31           | 89.43       | 9,806.69            | 35.15      | 3,514.50   | 3,514.67              | 0.00                  | 0.00                 | 0.00                |
| 13,110.00           | 89.31           | 89.43       | 9,807.05            | 35.45      | 3,544.49   | 3,544.67              | 0.00                  | 0.00                 | 0.00                |
| 13,140.00           | 89.31           | 89.43       | 9,807.41            | 35.75      | 3,574.49   | 3,574.67              | 0.00                  | 0.00                 | 0.00                |
| 13,170.00           | 89.31           | 89.43       | 9,807.77            | 36.06      | 3,604.49   | 3,604.67              | 0.00                  | 0.00                 | 0.00                |
| 13,200.00           | 89.31           | 89.43       | 9,808.13            | 36.36      | 3,634.48   | 3,634.67              | 0.00                  | 0.00                 | 0.00                |
| 13,230.00           | 89.31           | 89.43       | 9,808.50            | 36.66      | 3,664.48   | 3,664.66              | 0.00                  | 0.00                 | 0.00                |
| 13,260.00           | 89.31           | 89.43       | 9,808.86            | 36.96      | 3,694.48   | 3,694.66              | 0.00                  | 0.00                 | 0.00                |
| 13,290.00           | 89.31           | 89.43       | 9,809.22            | 37.26      | 3,724.47   | 3,724.66              | 0.00                  | 0.00                 | 0.00                |
| 13,320.00           | 89.31           | 89.43       | 9,809.58            | 37.56      | 3,754.47   | 3,754.66              | 0.00                  | 0.00                 | 0.00                |
| 13,350.00           | 89.31           | 89.43       | 9,809.94            | 37.86      | 3,784.46   | 3,784.65              | 0.00                  | 0.00                 | 0.00                |
| 13,380.00           | 89.31           | 89.43       | 9,810.30            | 38.16      | 3,814.46   | 3,814.65              | 0.00                  | 0.00                 | 0.00                |
| 13,410.00           | 89.31           | 89.43       | 9,810.67            | 38.46      | 3,844.46   | 3,844.65              | 0.00                  | 0.00                 | 0.00                |
| 13,440.00           | 89.31           | 89.43       | 9,811.03            | 38.76      | 3,874.45   | 3,874.65              | 0.00                  | 0.00                 | 0.00                |
| 13,470.00           | 89.31           | 89.43       | 9,811.39            | 39.06      | 3,904.45   | 3,904.65              | 0.00                  | 0.00                 | 0.00                |
| 13,500.00           | 89.31           | 89.43       | 9,811.75            | 39.36      | 3,934.45   | 3,934.64              | 0.00                  | 0.00                 | 0.00                |
| 13,530.00           | 89.31           | 89.43       | 9,812.11            | 39.66      | 3,964.44   | 3,964.64              | 0.00                  | 0.00                 | 0.00                |
| 13,560.00           | 89.31           | 89.43       | 9,812.47            | 39.96      | 3,994.44   | 3,994.64              | 0.00                  | 0.00                 | 0.00                |
| 13,590.00           | 89.31           | 89.43       | 9,812.84            | 40.26      | 4,024.44   | 4,024.64              | 0.00                  | 0.00                 | 0.00                |
| 13,620.00           | 89.31           | 89.43       | 9,813.20            | 40.56      | 4,054.43   | 4,054.63              | 0.00                  | 0.00                 | 0.00                |
| 13,650.00           | 89.31           | 89.43       | 9,813.56            | 40.86      | 4,084.43   | 4,084.63              | 0.00                  | 0.00                 | 0.00                |
| 13,680.00           | 89.31           | 89.43       | 9,813.92            | 41.16      | 4,114.42   | 4,114.63              | 0.00                  | 0.00                 | 0.00                |
| 13,710.00           | 89.31           | 89.43       | 9,814.28            | 41.46      | 4,144.42   | 4,144.63              | 0.00                  | 0.00                 | 0.00                |
| 13,740.00           | 89.31           | 89.43       | 9,814.64            | 41.76      | 4,174.42   | 4,174.63              | 0.00                  | 0.00                 | 0.00                |
| 13,770.00           | 89.31           | 89.43       | 9,815.01            | 42.06      | 4,204.41   | 4,204.62              | 0.00                  | 0.00                 | 0.00                |
| 13,800.00           | 89.31           | 89.43       | 9,815.37            | 42.36      | 4,234.41   | 4,234.62              | 0.00                  | 0.00                 | 0.00                |
| 13,830.00           | 89.31           | 89.43       | 9,815.73            | 42.66      | 4,264.41   | 4,264.62              | 0.00                  | 0.00                 | 0.00                |
| 13,860.00           | 89.31           | 89.43       | 9,816.09            | 42.96      | 4,294.40   | 4,294.62              | 0.00                  | 0.00                 | 0.00                |
| 13,890.00           | 89.31           | 89.43       | 9,816.45            | 43.26      | 4,324.40   | 4,324.62              | 0.00                  | 0.00                 | 0.00                |
| 13,920.00           | 89.31           | 89.43       | 9,816.81            | 43.56      | 4,354.40   | 4,354.61              | 0.00                  | 0.00                 | 0.00                |
| 13,950.00           | 89.31           | 89.43       | 9,817.18            | 43.86      | 4,384.39   | 4,384.61              | 0.00                  | 0.00                 | 0.00                |
| 13,980.00           | 89.31           | 89.43       | 9,817.54            | 44.16      | 4,414.39   | 4,414.61              | 0.00                  | 0.00                 | 0.00                |
| 14,010.00           | 89.31           | 89.43       | 9,817.90            | 44.46      | 4,444.38   | 4,444.61              | 0.00                  | 0.00                 | 0.00                |



Black Viper Energy  
Planning Report



|           |                           |                              |                                       |
|-----------|---------------------------|------------------------------|---------------------------------------|
| Database: | EDM.5000 1 Single User Db | Local Co-ordinate Reference: | Site Doo Wop 28 State #4H             |
| Company:  | COG Operating, LLC        | TVD Reference:               | WELL @ 3968 00ft (Original Well Elev) |
| Project:  | Lea County, NM            | MD Reference:                | WELL @ 3968 00ft (Original Well Elev) |
| Site:     | Doo Wop 28 State #4H      | North Reference:             | Grid                                  |
| Well:     | Doo Wop 28 State #4H      | Survey Calculation Method:   | Minimum Curvature                     |
| Wellbore: | Lateral #1                |                              |                                       |
| Design:   | Plan #1                   |                              |                                       |

Planned Survey

| Measured Depth (ft)                         | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---------------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 14,040 00                                   | 89 31           | 89 43       | 9,818 26            | 44 76      | 4,474 38   | 4,474 60              | 0 00                  | 0 00                 | 0 00                |
| 14,070 00                                   | 89 31           | 89 43       | 9,818 62            | 45 06      | 4,504 38   | 4,504 60              | 0 00                  | 0 00                 | 0 00                |
| 14,100 00                                   | 89 31           | 89 43       | 9,818 98            | 45 36      | 4,534 37   | 4,534 60              | 0 00                  | 0 00                 | 0 00                |
| 14,130 00                                   | 89 31           | 89 43       | 9,819 35            | 45 66      | 4,564 37   | 4,564 60              | 0 00                  | 0 00                 | 0 00                |
| 14,160 00                                   | 89 31           | 89 43       | 9,819 71            | 45 96      | 4,594 37   | 4,594 60              | 0 00                  | 0 00                 | 0 00                |
| 14,184 34                                   | 89 31           | 89 43       | 9,820 00            | 46 20      | 4,618 70   | 4,618 93              | 0 00                  | 0 00                 | 0 00                |
| 786230.40 N :: 815971.00 E - PBHL #1 [DW4H] |                 |             |                     |            |            |                       |                       |                      |                     |

Design Targets

| Target Name    | hit/miss target           | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude        | Longitude        |
|----------------|---------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------------|------------------|
| PBHL #1 [DW4H] | - plan hits target center | 0 00          | 0 00         | 9,820 00 | 46 20      | 4,618 70   | 786,230 40    | 815,971 00   | 33° 9' 25.589 N | 103° 18' 3 266 W |
|                | - Point                   |               |              |          |            |            |               |              |                 |                  |

Plan Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment                          |
|---------------------|---------------------|-------------------|------------|----------------------------------|
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                                  |
| 9,292 57            | 9,292 57            | 0 00              | 0 00       | KOP Build 12 00°/100' TFO 89 43° |
| 10,036 81           | 9,770 00            | 4 72              | 471 68     | 786188 92 N 811823 98 E          |
| 10,036 81           | 9,770 00            | 4 72              | 471 69     | EOC Hold 89 31° INC 89.43° AZI   |
| 14,184 34           | 9,820 00            | 46 20             | 4,618 70   | 786230 40 N 815971 00 E          |



Doo Wop 28 State #4H  
Lea County, NM  
Lateral #1  
660.00 FSL  
330.00 FWL

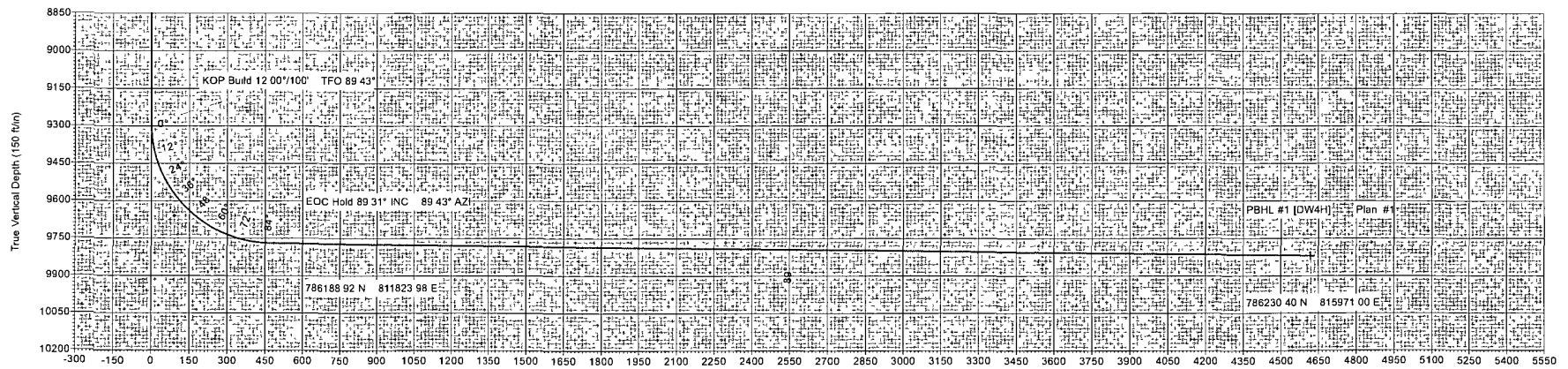
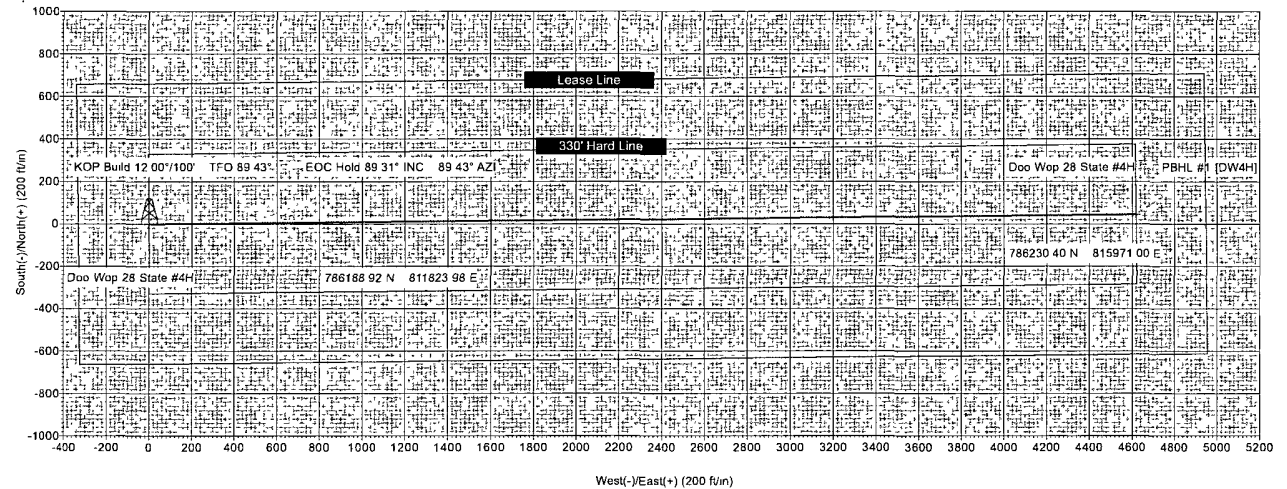
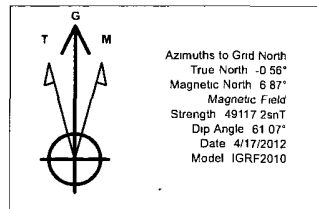


Well Name Doo Wop 28 State #4H  
System US State Plane 1927 (Exact solution)  
Zone New Mexico East 3001  
System Datum Mean Sea Level  
Northing 786184 20  
Easting 811352 30  
Ground Level 3968 00  
Depth Reference WELL @ 3968 00ft (Original Well Elev)

| SECTION DETAILS |       |       |         |       |         |       |         |                |
|-----------------|-------|-------|---------|-------|---------|-------|---------|----------------|
| MD              | Inc   | Azi   | TVD     | +N/-S | +E/-W   | Dleg  | VSect   | Target         |
| 9292 57         | 0 00  | 0 00  | 9292 57 | 0 00  | 0 00    | 0 00  | 0 00    |                |
| 10036 81        | 89 31 | 89 43 | 9770 00 | 4 72  | 471 69  | 12 00 | 471 71  |                |
| 14184 34        | 89 31 | 89 43 | 9820 00 | 46 20 | 4618 70 | 0 00  | 4618 93 | PBHL #1 [DW4H] |

ANNOTATIONS

| TVD     | MD       | Annotation                       |
|---------|----------|----------------------------------|
| 9292 57 | 9292 57  | KOP Build 12 00'/100' TFO 89 43° |
| 9770 00 | 10036 81 | 786188 92 N 811823 98 E          |
| 9770 00 | 10036 81 | EOC Hold 89 31° INC 89 43° AZI   |
| 9820 00 | 14184 34 | 786230 40 N 815971 00 E          |



Vertical Section at 89 43° (150 ft/in)