

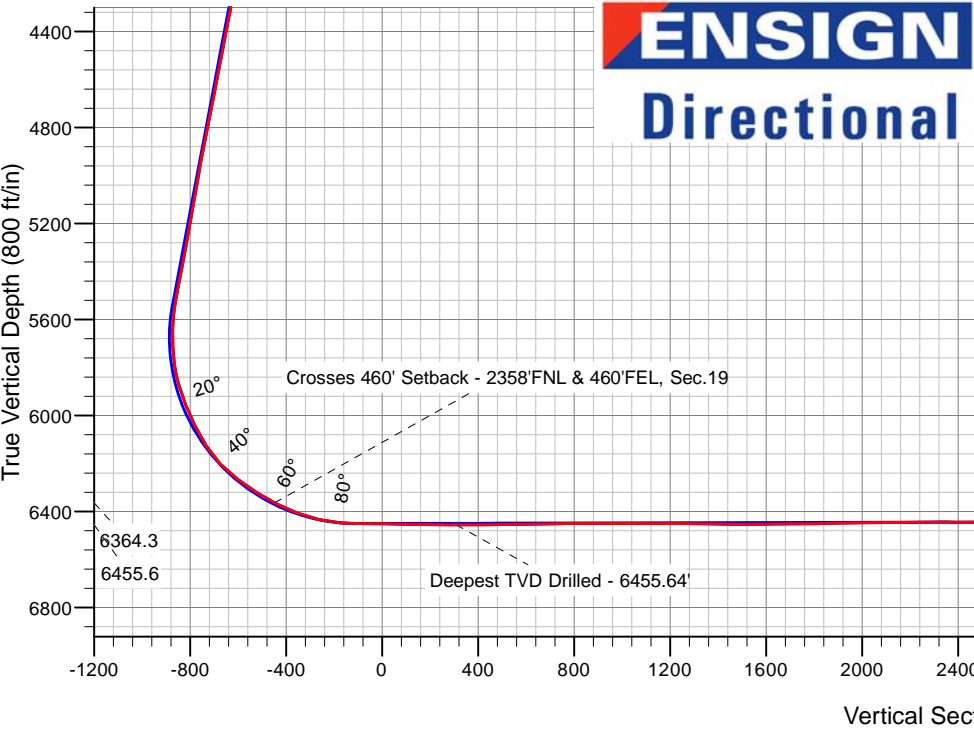
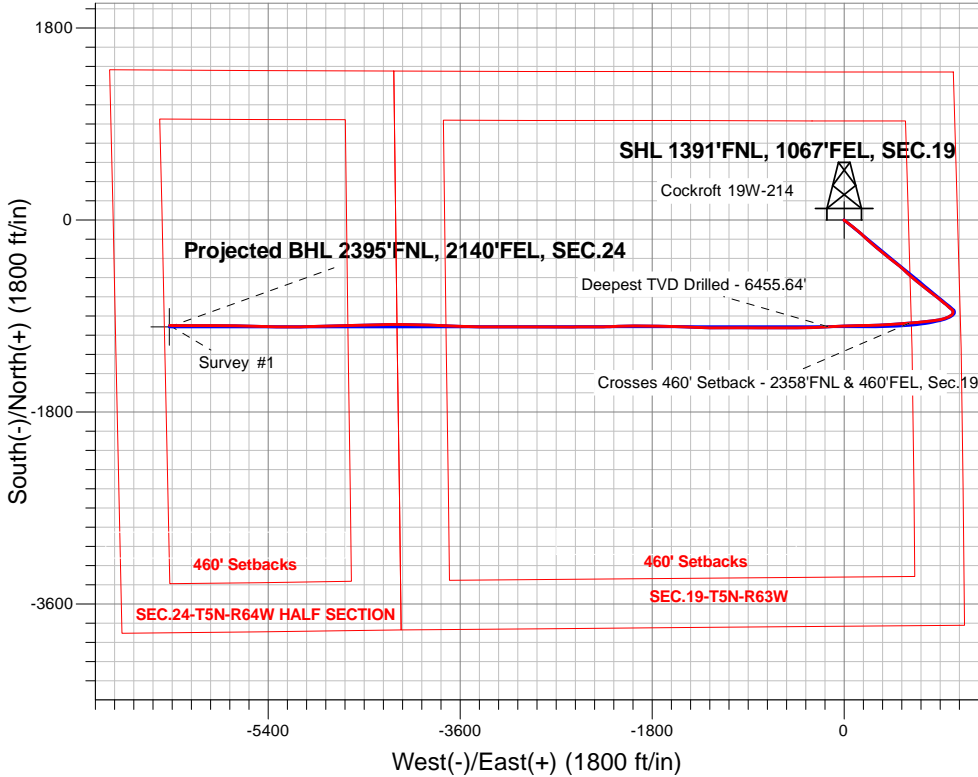
PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: Cockroft 19W-214

Surface Location: Cockroft 5N63W19C Pad Sec.19-T5N-R63W
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
Ground Elevation: 4554.0
+N/-S+E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1385890.15 3285845.42 40.388130 -104.473820
RKB - 13' WELL @ 4567.0ft (RKB - 13')

FINAL SURVEY

Projected Bottom Hole Location
13660'MD 6435'TVD 988'S & 6326'W of SHL
91.5 degree Incl @ 271.0 degree AZM



Cockroft 5N63W19C Pad Sec.19-T5N-R63W
Cockroft 19W-214
Wellbore #1
11:57, August 08 2016

ANNOTATIONS

| TVD | MD | Annotation |
|--------|--------|---|
| 6364.3 | 6710.0 | Crosses 460' Setback - 2358'FNL & 460'FEL, Sec.19 |
| 6455.6 | 7486.0 | Deepest TVD Drilled - 6455.64' |

LEGEND

- Cockroft 19W-214, Wellbore #1, Plan #2 (5-25-16)R V0
- Wellbore #1
- Survey #1

Projected BHL 2395'FNL, 2140'FEL, SEC.24



PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.19-T5N-R63W

Cockroft 5N63W19C Pad Sec.19-T5N-R63W

Cockroft 19W-214

Wellbore #1

Survey: Survey #1

Standard Survey Report

08 August, 2016

| | | | |
|------------------|---------------------------------------|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Cockroft 19W-214 |
| Project: | SEC.19-T5N-R63W | TVD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Site: | Cockroft 5N63W19C Pad Sec.19-T5N-R63W | MD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Well: | Cockroft 19W-214 | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | US_EDM |

| | | | |
|--------------------|--|----------------------|-----------------------------|
| Project | SEC.19-T5N-R63W, Weld County, Colorado | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | Using Well Reference Point |
| Map Zone: | Colorado Northern Zone | | Using geodetic scale factor |

| | | | | | |
|-----------------------|----------|---------------------------------------|-------------------|-------------------|-------------|
| Site | | Cockroft 5N63W19C Pad Sec.19-T5N-R63W | | | |
| Site Position: | | Northing: | 1,385,863.51 usft | Latitude: | 40.388060 |
| From: | Lat/Long | Easting: | 3,285,745.44 usft | Longitude: | -104.474180 |
| Position Uncertainty: | 0.0 ft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.66 ° |

| | | | | | | |
|----------------------|------------------|--------|---------------------|-------------------|---------------|-------------|
| Well | Cockroft 19W-214 | | | | | |
| Well Position | +N/-S | 0.0 ft | Northing: | 1,385,890.15 usft | Latitude: | 40.388130 |
| | +E/-W | 0.0 ft | Easting: | 3,285,845.42 usft | Longitude: | -104.473820 |
| Position Uncertainty | | 0.0 ft | Wellhead Elevation: | 0.0 ft | Ground Level: | 4,554.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 5/25/2016 | 8.04 | 66.91 | 52,636 |

| | | | | | |
|--------------------------|------------------------------|-------------------|-------------------|----------------------|--------|
| Design | Wellbore #1 | | | | |
| Audit Notes: | | | | | |
| Version: | 1.0 | Phase: | ACTUAL | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) | |
| | 0.0 | 0.0 | 0.0 | | 261.01 |

| | | | | | |
|-----------------------|----------------|--------------------------|------------------|--------------------|--|
| Survey Program | Date | 8/8/2016 | | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description | |
| 174.0 | 13,660.0 | Survey #1 (Wellbore #1) | MWD | MWD - Standard | |

| | | | | | | | | | | |
|----------------------------|------------------------|--------------------|----------------------------|-------------------|-------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|--|
| Survey | | | | | | | | | | |
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | |
| 174.0 | 0.50 | 252.00 | 174.0 | -0.2 | -0.7 | 0.7 | 0.29 | 0.29 | 0.00 | |
| 270.0 | 0.70 | 253.60 | 270.0 | -0.5 | -1.7 | 1.7 | 0.21 | 0.21 | 1.67 | |
| 366.0 | 0.80 | 255.00 | 366.0 | -0.9 | -2.9 | 3.0 | 0.11 | 0.10 | 1.46 | |
| 462.0 | 1.10 | 152.90 | 462.0 | -1.9 | -3.1 | 3.4 | 1.55 | 0.31 | -106.35 | |
| 558.0 | 2.60 | 125.80 | 557.9 | -4.0 | -0.9 | 1.5 | 1.77 | 1.56 | -28.23 | |
| 654.0 | 4.80 | 123.00 | 653.7 | -7.4 | 4.2 | -3.0 | 2.30 | 2.29 | -2.92 | |
| 750.0 | 6.50 | 122.80 | 749.2 | -12.5 | 12.1 | -10.0 | 1.77 | 1.77 | -0.21 | |
| 845.0 | 8.40 | 127.40 | 843.4 | -19.7 | 22.2 | -18.8 | 2.09 | 2.00 | 4.84 | |
| 941.0 | 9.70 | 128.80 | 938.2 | -29.0 | 34.0 | -29.1 | 1.37 | 1.35 | 1.46 | |

| | | | |
|------------------|---------------------------------------|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Cockroft 19W-214 |
| Project: | SEC.19-T5N-R63W | TVD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Site: | Cockroft 5N63W19C Pad Sec.19-T5N-R63W | MD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Well: | Cockroft 19W-214 | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | US_EDM |

| Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 1,037.0 | 10.90 | 124.20 | 1,032.7 | -39.2 | 47.9 | -41.1 | 1.51 | 1.25 | -4.79 |
| 1,132.0 | 11.80 | 127.20 | 1,125.8 | -50.1 | 63.0 | -54.4 | 1.13 | 0.95 | 3.16 |
| 1,228.0 | 13.40 | 130.40 | 1,219.5 | -63.2 | 79.3 | -68.5 | 1.82 | 1.67 | 3.33 |
| 1,324.0 | 14.60 | 131.60 | 1,312.7 | -78.5 | 96.8 | -83.4 | 1.29 | 1.25 | 1.25 |
| 1,415.0 | 14.90 | 128.80 | 1,400.7 | -93.4 | 114.5 | -98.5 | 0.85 | 0.33 | -3.08 |
| 1,511.0 | 13.10 | 126.00 | 1,493.8 | -107.6 | 132.9 | -114.5 | 2.00 | -1.88 | -2.92 |
| 1,607.0 | 14.80 | 131.40 | 1,587.0 | -122.1 | 151.0 | -130.0 | 2.23 | 1.77 | 5.63 |
| 1,703.0 | 15.80 | 135.80 | 1,679.6 | -139.5 | 169.3 | -145.4 | 1.60 | 1.04 | 4.58 |
| 1,799.0 | 17.20 | 133.20 | 1,771.6 | -158.6 | 188.7 | -161.6 | 1.65 | 1.46 | -2.71 |
| 1,894.0 | 17.10 | 132.10 | 1,862.4 | -177.6 | 209.3 | -179.0 | 0.36 | -0.11 | -1.16 |
| 1,990.0 | 16.30 | 131.60 | 1,954.4 | -196.0 | 229.9 | -196.4 | 0.85 | -0.83 | -0.52 |
| 2,118.0 | 16.40 | 131.10 | 2,077.2 | -219.8 | 256.9 | -219.4 | 0.13 | 0.08 | -0.39 |
| 2,214.0 | 15.90 | 130.20 | 2,169.4 | -237.2 | 277.2 | -236.7 | 0.58 | -0.52 | -0.94 |
| 2,309.0 | 15.30 | 129.90 | 2,260.9 | -253.7 | 296.7 | -253.4 | 0.64 | -0.63 | -0.32 |
| 2,405.0 | 16.80 | 131.10 | 2,353.2 | -270.9 | 316.9 | -270.7 | 1.60 | 1.56 | 1.25 |
| 2,501.0 | 15.70 | 130.00 | 2,445.3 | -288.4 | 337.3 | -288.1 | 1.19 | -1.15 | -1.15 |
| 2,597.0 | 15.60 | 128.80 | 2,537.8 | -304.8 | 357.3 | -305.3 | 0.35 | -0.10 | -1.25 |
| 2,693.0 | 16.40 | 129.30 | 2,630.0 | -321.5 | 377.9 | -323.0 | 0.85 | 0.83 | 0.52 |
| 2,789.0 | 16.40 | 128.80 | 2,722.1 | -338.6 | 398.9 | -341.1 | 0.15 | 0.00 | -0.52 |
| 2,885.0 | 16.30 | 128.10 | 2,814.3 | -355.4 | 420.1 | -359.4 | 0.23 | -0.10 | -0.73 |
| 2,980.0 | 15.60 | 128.60 | 2,905.6 | -371.6 | 440.6 | -377.1 | 0.75 | -0.74 | 0.53 |
| 3,076.0 | 14.80 | 126.50 | 2,998.2 | -386.9 | 460.5 | -394.4 | 1.01 | -0.83 | -2.19 |
| 3,172.0 | 15.50 | 129.50 | 3,090.9 | -402.4 | 480.3 | -411.5 | 1.09 | 0.73 | 3.13 |
| 3,268.0 | 14.40 | 128.50 | 3,183.6 | -418.0 | 499.5 | -428.0 | 1.18 | -1.15 | -1.04 |
| 3,364.0 | 13.60 | 127.00 | 3,276.8 | -432.2 | 517.8 | -443.9 | 0.91 | -0.83 | -1.56 |
| 3,460.0 | 14.60 | 131.80 | 3,369.9 | -447.0 | 535.9 | -459.4 | 1.60 | 1.04 | 5.00 |
| 3,555.0 | 16.00 | 134.10 | 3,461.5 | -464.1 | 554.2 | -474.9 | 1.61 | 1.47 | 2.42 |
| 3,651.0 | 16.00 | 133.50 | 3,553.8 | -482.4 | 573.3 | -490.9 | 0.17 | 0.00 | -0.63 |
| 3,747.0 | 15.70 | 132.70 | 3,646.2 | -500.4 | 592.5 | -507.0 | 0.39 | -0.31 | -0.83 |
| 3,843.0 | 15.40 | 131.10 | 3,738.7 | -517.5 | 611.6 | -523.2 | 0.55 | -0.31 | -1.67 |
| 3,939.0 | 16.70 | 129.20 | 3,830.9 | -534.6 | 631.9 | -540.6 | 1.46 | 1.35 | -1.98 |
| 4,034.0 | 16.10 | 130.60 | 3,922.0 | -551.8 | 652.5 | -558.2 | 0.76 | -0.63 | 1.47 |
| 4,130.0 | 15.40 | 130.20 | 4,014.4 | -568.7 | 672.3 | -575.2 | 0.74 | -0.73 | -0.42 |
| 4,226.0 | 16.00 | 128.30 | 4,106.9 | -585.2 | 692.4 | -592.5 | 0.82 | 0.63 | -1.98 |
| 4,322.0 | 15.50 | 127.40 | 4,199.3 | -601.2 | 713.0 | -610.3 | 0.58 | -0.52 | -0.94 |
| 4,418.0 | 16.50 | 127.70 | 4,291.5 | -617.3 | 734.0 | -628.5 | 1.05 | 1.04 | 0.31 |
| 4,514.0 | 16.00 | 129.00 | 4,383.7 | -633.9 | 755.1 | -646.7 | 0.64 | -0.52 | 1.35 |
| 4,610.0 | 15.40 | 128.30 | 4,476.1 | -650.2 | 775.3 | -664.2 | 0.66 | -0.63 | -0.73 |
| 4,706.0 | 16.30 | 129.30 | 4,568.5 | -666.6 | 795.8 | -681.8 | 0.98 | 0.94 | 1.04 |
| 4,802.0 | 15.50 | 129.00 | 4,660.8 | -683.2 | 816.2 | -699.4 | 0.84 | -0.83 | -0.31 |
| 4,898.0 | 16.20 | 124.60 | 4,753.1 | -698.9 | 837.2 | -717.7 | 1.45 | 0.73 | -4.58 |
| 4,994.0 | 15.70 | 126.00 | 4,845.5 | -714.1 | 858.7 | -736.5 | 0.66 | -0.52 | 1.46 |
| 5,089.0 | 14.90 | 130.00 | 4,937.1 | -729.5 | 878.5 | -753.6 | 1.39 | -0.84 | 4.21 |
| 5,185.0 | 15.20 | 129.20 | 5,029.8 | -745.4 | 897.7 | -770.1 | 0.38 | 0.31 | -0.83 |

| | | | |
|------------------|---------------------------------------|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Cockroft 19W-214 |
| Project: | SEC.19-T5N-R63W | TVD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Site: | Cockroft 5N63W19C Pad Sec.19-T5N-R63W | MD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Well: | Cockroft 19W-214 | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | US_EDM |

| Survey | | | | | | | | | |
|--|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 5,281.0 | 15.20 | 131.10 | 5,122.4 | -761.6 | 916.9 | -786.6 | 0.52 | 0.00 | 1.98 |
| 5,377.0 | 15.40 | 129.20 | 5,215.0 | -778.0 | 936.3 | -803.2 | 0.56 | 0.21 | -1.98 |
| 5,473.0 | 16.40 | 133.70 | 5,307.4 | -795.4 | 955.9 | -819.9 | 1.65 | 1.04 | 4.69 |
| 5,569.0 | 16.10 | 128.60 | 5,399.5 | -813.1 | 976.1 | -837.1 | 1.52 | -0.31 | -5.31 |
| 5,665.0 | 14.90 | 126.90 | 5,492.0 | -828.8 | 996.4 | -854.6 | 1.34 | -1.25 | -1.77 |
| 5,713.0 | 14.20 | 129.00 | 5,538.5 | -836.2 | 1,005.9 | -862.9 | 1.83 | -1.46 | 4.38 |
| 5,760.0 | 12.70 | 144.80 | 5,584.2 | -844.0 | 1,013.4 | -869.0 | 8.41 | -3.19 | 33.62 |
| 5,808.0 | 10.30 | 160.30 | 5,631.3 | -852.4 | 1,017.9 | -872.2 | 8.11 | -5.00 | 32.29 |
| 5,856.0 | 10.50 | 178.40 | 5,678.5 | -860.8 | 1,019.4 | -872.4 | 6.79 | 0.42 | 37.71 |
| 5,904.0 | 10.60 | 189.80 | 5,725.7 | -869.5 | 1,018.8 | -870.4 | 4.35 | 0.21 | 23.75 |
| 5,952.0 | 10.40 | 203.70 | 5,772.9 | -877.9 | 1,016.3 | -866.6 | 5.28 | -0.42 | 28.96 |
| 6,000.0 | 12.90 | 223.40 | 5,819.9 | -885.7 | 1,010.9 | -860.1 | 9.72 | 5.21 | 41.04 |
| 6,048.0 | 17.50 | 232.90 | 5,866.2 | -894.0 | 1,001.4 | -849.4 | 10.87 | 9.58 | 19.79 |
| 6,143.0 | 23.70 | 245.30 | 5,955.2 | -910.6 | 972.7 | -818.4 | 7.95 | 6.53 | 13.05 |
| 6,239.0 | 25.10 | 252.60 | 6,042.6 | -924.7 | 935.7 | -779.7 | 3.46 | 1.46 | 7.60 |
| 6,335.0 | 33.20 | 258.40 | 6,126.4 | -936.1 | 890.4 | -733.2 | 8.93 | 8.44 | 6.04 |
| 6,431.0 | 43.50 | 264.90 | 6,201.6 | -944.4 | 831.6 | -673.8 | 11.51 | 10.73 | 6.77 |
| 6,527.0 | 53.60 | 263.30 | 6,265.1 | -951.9 | 760.1 | -602.0 | 10.59 | 10.52 | -1.67 |
| 6,623.0 | 56.50 | 264.30 | 6,320.1 | -960.3 | 681.9 | -523.5 | 3.14 | 3.02 | 1.04 |
| 6,710.0 | 62.39 | 265.30 | 6,364.3 | -967.1 | 607.3 | -448.7 | 6.84 | 6.77 | 1.15 |
| Crosses 460' Setback - 2358'FNL & 460'FEL, Sec.19 | | | | | | | | | |
| 6,719.0 | 63.00 | 265.40 | 6,368.4 | -967.8 | 599.4 | -440.8 | 6.84 | 6.77 | 1.08 |
| 6,815.0 | 70.20 | 266.60 | 6,406.5 | -973.9 | 511.5 | -353.1 | 7.59 | 7.50 | 1.25 |
| 6,911.0 | 76.50 | 266.10 | 6,434.0 | -979.7 | 419.8 | -261.5 | 6.58 | 6.56 | -0.52 |
| 7,006.0 | 86.50 | 267.30 | 6,448.0 | -985.1 | 326.1 | -168.1 | 10.60 | 10.53 | 1.26 |
| 7,102.0 | 90.20 | 269.40 | 6,450.8 | -987.9 | 230.2 | -73.0 | 4.43 | 3.85 | 2.19 |
| 7,198.0 | 88.70 | 268.40 | 6,451.7 | -989.7 | 134.2 | 22.1 | 1.88 | -1.56 | -1.04 |
| 7,294.0 | 88.80 | 267.80 | 6,453.8 | -992.9 | 38.3 | 117.3 | 0.63 | 0.10 | -0.63 |
| 7,390.0 | 89.70 | 267.70 | 6,455.1 | -996.7 | -57.6 | 212.7 | 0.94 | 0.94 | -0.10 |
| 7,486.0 | 89.60 | 267.30 | 6,455.6 | -1,000.9 | -153.5 | 308.0 | 0.43 | -0.10 | -0.42 |
| Deepest TVD Drilled - 6455.64' | | | | | | | | | |
| 7,583.0 | 90.60 | 266.80 | 6,455.5 | -1,005.8 | -250.4 | 404.5 | 1.15 | 1.03 | -0.52 |
| 7,678.0 | 90.30 | 268.40 | 6,454.7 | -1,009.8 | -345.3 | 498.9 | 1.71 | -0.32 | 1.68 |
| 7,774.0 | 91.10 | 270.50 | 6,453.6 | -1,010.7 | -441.3 | 593.8 | 2.34 | 0.83 | 2.19 |
| 7,870.0 | 91.50 | 269.40 | 6,451.4 | -1,010.8 | -537.2 | 688.6 | 1.22 | 0.42 | -1.15 |
| 7,966.0 | 90.00 | 270.30 | 6,450.1 | -1,011.1 | -633.2 | 783.5 | 1.82 | -1.56 | 0.94 |
| 8,062.0 | 90.20 | 269.80 | 6,450.0 | -1,011.0 | -729.2 | 878.3 | 0.56 | 0.21 | -0.52 |
| 8,157.0 | 89.80 | 270.80 | 6,450.0 | -1,010.5 | -824.2 | 972.0 | 1.13 | -0.42 | 1.05 |
| 8,253.0 | 90.00 | 270.00 | 6,450.1 | -1,009.8 | -920.2 | 1,066.7 | 0.86 | 0.21 | -0.83 |
| 8,349.0 | 89.90 | 268.90 | 6,450.2 | -1,010.8 | -1,016.2 | 1,161.7 | 1.15 | -0.10 | -1.15 |
| 8,445.0 | 90.00 | 270.10 | 6,450.3 | -1,011.6 | -1,112.2 | 1,256.6 | 1.25 | 0.10 | 1.25 |
| 8,540.0 | 88.80 | 270.80 | 6,451.3 | -1,010.8 | -1,207.2 | 1,350.3 | 1.46 | -1.26 | 0.74 |
| 8,636.0 | 89.00 | 272.20 | 6,453.1 | -1,008.3 | -1,303.2 | 1,444.7 | 1.47 | 0.21 | 1.46 |

| | | | |
|------------------|---------------------------------------|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Cockroft 19W-214 |
| Project: | SEC.19-T5N-R63W | TVD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Site: | Cockroft 5N63W19C Pad Sec.19-T5N-R63W | MD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Well: | Cockroft 19W-214 | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | US_EDM |

| Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 8,732.0 | 90.40 | 271.90 | 6,453.6 | -1,004.9 | -1,399.1 | 1,538.9 | 1.49 | 1.46 | -0.31 |
| 8,827.0 | 90.70 | 272.20 | 6,452.7 | -1,001.5 | -1,494.0 | 1,632.2 | 0.45 | 0.32 | 0.32 |
| 8,923.0 | 90.40 | 271.50 | 6,451.8 | -998.4 | -1,590.0 | 1,726.5 | 0.79 | -0.31 | -0.73 |
| 9,018.0 | 90.90 | 271.00 | 6,450.7 | -996.3 | -1,684.9 | 1,819.9 | 0.74 | 0.53 | -0.53 |
| 9,114.0 | 91.50 | 270.80 | 6,448.7 | -994.8 | -1,780.9 | 1,914.5 | 0.66 | 0.63 | -0.21 |
| 9,210.0 | 90.60 | 270.50 | 6,446.9 | -993.7 | -1,876.9 | 2,009.1 | 0.99 | -0.94 | -0.31 |
| 9,306.0 | 90.60 | 269.60 | 6,445.9 | -993.6 | -1,972.9 | 2,103.9 | 0.94 | 0.00 | -0.94 |
| 9,402.0 | 90.30 | 268.40 | 6,445.2 | -995.3 | -2,068.9 | 2,199.0 | 1.29 | -0.31 | -1.25 |
| 9,498.0 | 90.50 | 267.70 | 6,444.5 | -998.6 | -2,164.8 | 2,294.3 | 0.76 | 0.21 | -0.73 |
| 9,593.0 | 89.00 | 269.30 | 6,444.9 | -1,001.1 | -2,259.8 | 2,388.4 | 2.31 | -1.58 | 1.68 |
| 9,689.0 | 90.30 | 270.10 | 6,445.5 | -1,001.6 | -2,355.7 | 2,483.3 | 1.59 | 1.35 | 0.83 |
| 9,785.0 | 90.60 | 270.00 | 6,444.8 | -1,001.5 | -2,451.7 | 2,578.1 | 0.33 | 0.31 | -0.10 |
| 9,880.0 | 90.30 | 268.40 | 6,444.0 | -1,002.8 | -2,546.7 | 2,672.2 | 1.71 | -0.32 | -1.68 |
| 9,976.0 | 91.10 | 270.80 | 6,442.8 | -1,003.5 | -2,642.7 | 2,767.1 | 2.64 | 0.83 | 2.50 |
| 10,072.0 | 91.20 | 270.00 | 6,440.9 | -1,002.8 | -2,738.7 | 2,861.8 | 0.84 | 0.10 | -0.83 |
| 10,167.0 | 90.40 | 271.00 | 6,439.6 | -1,002.0 | -2,833.7 | 2,955.5 | 1.35 | -0.84 | 1.05 |
| 10,263.0 | 90.30 | 270.10 | 6,439.0 | -1,001.1 | -2,929.7 | 3,050.1 | 0.94 | -0.10 | -0.94 |
| 10,359.0 | 90.20 | 269.80 | 6,438.6 | -1,001.2 | -3,025.7 | 3,145.0 | 0.33 | -0.10 | -0.31 |
| 10,455.0 | 90.20 | 268.90 | 6,438.3 | -1,002.2 | -3,121.7 | 3,239.9 | 0.94 | 0.00 | -0.94 |
| 10,551.0 | 89.90 | 270.50 | 6,438.2 | -1,002.7 | -3,217.7 | 3,334.8 | 1.70 | -0.31 | 1.67 |
| 10,647.0 | 90.50 | 270.10 | 6,437.8 | -1,002.2 | -3,313.7 | 3,429.6 | 0.75 | 0.63 | -0.42 |
| 10,743.0 | 90.70 | 271.20 | 6,436.8 | -1,001.2 | -3,409.6 | 3,524.2 | 1.16 | 0.21 | 1.15 |
| 10,839.0 | 90.00 | 271.70 | 6,436.2 | -998.7 | -3,505.6 | 3,618.6 | 0.90 | -0.73 | 0.52 |
| 10,935.0 | 90.60 | 271.20 | 6,435.7 | -996.3 | -3,601.6 | 3,713.0 | 0.81 | 0.63 | -0.52 |
| 11,030.0 | 90.00 | 272.20 | 6,435.2 | -993.5 | -3,696.5 | 3,806.4 | 1.23 | -0.63 | 1.05 |
| 11,126.0 | 89.00 | 272.40 | 6,436.1 | -989.6 | -3,792.4 | 3,900.5 | 1.06 | -1.04 | 0.21 |
| 11,222.0 | 89.90 | 272.10 | 6,437.0 | -985.9 | -3,888.4 | 3,994.7 | 0.99 | 0.94 | -0.31 |
| 11,318.0 | 90.90 | 272.10 | 6,436.3 | -982.3 | -3,984.3 | 4,088.9 | 1.04 | 1.04 | 0.00 |
| 11,414.0 | 90.60 | 271.40 | 6,435.1 | -979.4 | -4,080.2 | 4,183.2 | 0.79 | -0.31 | -0.73 |
| 11,509.0 | 89.90 | 270.30 | 6,434.7 | -978.0 | -4,175.2 | 4,276.8 | 1.37 | -0.74 | -1.16 |
| 11,602.0 | 89.70 | 268.40 | 6,435.0 | -979.1 | -4,268.2 | 4,368.8 | 2.05 | -0.22 | -2.04 |
| 11,698.0 | 90.60 | 268.40 | 6,434.7 | -981.7 | -4,364.2 | 4,464.0 | 0.94 | 0.94 | 0.00 |
| 11,794.0 | 89.10 | 268.50 | 6,435.0 | -984.3 | -4,460.1 | 4,559.2 | 1.57 | -1.56 | 0.10 |
| 11,889.0 | 89.90 | 268.70 | 6,435.8 | -986.7 | -4,555.1 | 4,653.3 | 0.87 | 0.84 | 0.21 |
| 11,985.0 | 90.70 | 268.40 | 6,435.3 | -989.1 | -4,651.1 | 4,748.5 | 0.89 | 0.83 | -0.31 |
| 12,081.0 | 89.00 | 268.90 | 6,435.6 | -991.3 | -4,747.0 | 4,843.6 | 1.85 | -1.77 | 0.52 |
| 12,177.0 | 89.30 | 268.40 | 6,437.0 | -993.6 | -4,843.0 | 4,938.8 | 0.61 | 0.31 | -0.52 |
| 12,273.0 | 90.00 | 268.20 | 6,437.6 | -996.5 | -4,939.0 | 5,034.0 | 0.76 | 0.73 | -0.21 |
| 12,369.0 | 90.70 | 268.00 | 6,437.0 | -999.6 | -5,034.9 | 5,129.3 | 0.76 | 0.73 | -0.21 |
| 12,464.0 | 89.70 | 270.10 | 6,436.7 | -1,001.2 | -5,129.9 | 5,223.3 | 2.45 | -1.05 | 2.21 |
| 12,560.0 | 90.20 | 270.10 | 6,436.7 | -1,001.0 | -5,225.9 | 5,318.1 | 0.52 | 0.52 | 0.00 |
| 12,656.0 | 88.80 | 270.70 | 6,437.6 | -1,000.4 | -5,321.9 | 5,412.8 | 1.59 | -1.46 | 0.63 |
| 12,753.0 | 89.70 | 271.00 | 6,438.8 | -998.9 | -5,418.9 | 5,508.4 | 0.98 | 0.93 | 0.31 |
| 12,848.0 | 90.10 | 271.50 | 6,439.0 | -996.9 | -5,513.8 | 5,601.9 | 0.67 | 0.42 | 0.53 |

| | | | |
|------------------|---------------------------------------|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Cockroft 19W-214 |
| Project: | SEC.19-T5N-R63W | TVD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Site: | Cockroft 5N63W19C Pad Sec.19-T5N-R63W | MD Reference: | WELL @ 4567.0ft (RKB - 13') |
| Well: | Cockroft 19W-214 | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | US_EDM |

| Survey | | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 12,944.0 | 91.20 | 271.70 | 6,437.9 | -994.2 | -5,609.8 | 5,696.2 | 1.16 | 1.15 | 0.21 | |
| 13,040.0 | 90.10 | 271.40 | 6,436.8 | -991.6 | -5,705.7 | 5,790.6 | 1.19 | -1.15 | -0.31 | |
| 13,136.0 | 90.30 | 270.70 | 6,436.5 | -989.8 | -5,801.7 | 5,885.1 | 0.76 | 0.21 | -0.73 | |
| 13,232.0 | 89.40 | 270.30 | 6,436.7 | -989.0 | -5,897.7 | 5,979.8 | 1.03 | -0.94 | -0.42 | |
| 13,328.0 | 89.10 | 269.60 | 6,438.0 | -989.1 | -5,993.7 | 6,074.6 | 0.79 | -0.31 | -0.73 | |
| 13,424.0 | 90.00 | 269.80 | 6,438.8 | -989.6 | -6,089.7 | 6,169.5 | 0.96 | 0.94 | 0.21 | |
| 13,520.0 | 90.90 | 270.10 | 6,438.0 | -989.7 | -6,185.7 | 6,264.4 | 0.99 | 0.94 | 0.31 | |
| 13,605.0 | 91.50 | 271.00 | 6,436.2 | -988.8 | -6,270.7 | 6,348.2 | 1.27 | 0.71 | 1.06 | |
| 13,660.0 | 91.50 | 271.00 | 6,434.8 | -987.9 | -6,325.7 | 6,402.3 | 0.00 | 0.00 | 0.00 | |

| Design Targets | | | | | | | | | | |
|---|---------------|--------------|----------|------------|------------|-----------------|----------------|-----------|-------------|--|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude | |
| - hit/miss target | | | | | | | | | | |
| - Shape | | | | | | | | | | |
| SHL 1391'FNL, 1067'FE | 0.00 | 0.00 | 1.0 | 0.0 | 0.0 | 1,385,890.17 | 3,285,845.42 | 40.388130 | -104.473820 | |
| - survey hits target center | | | | | | | | | | |
| - Point | | | | | | | | | | |
| BHL 2408'FNL, 2141'FE | 0.00 | 0.00 | 6,435.0 | -1,001.0 | -6,326.6 | 1,384,816.02 | 3,279,531.10 | 40.385380 | -104.496530 | |
| - survey misses target center by 13.2ft at 13660.0ft MD (6434.8 TVD, -987.9 N, -6325.7 E) | | | | | | | | | | |
| - Point | | | | | | | | | | |

| Survey Annotations | | | | | |
|---------------------|---------------------|-------------------|------------|---|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | | |
| | | +N/-S (ft) | +E/-W (ft) | Comment | |
| 6,710.0 | 6,364.3 | -967.1 | 607.3 | Crosses 460' Setback - 2358'FNL & 460'FEL, Sec.19 | |
| 7,486.0 | 6,455.6 | -1,000.9 | -153.5 | Deepest TVD Drilled - 6455.64' | |

| | | |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|