

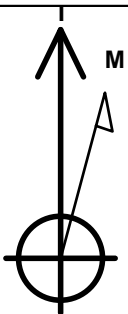
# PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Paul 27X-414**

Surface Location: Paul 5N67W27D Pad Sec.27-T5N-R67W  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4927.0  
 +N/-S+E/-W Northing Easting Longitude Slot  
 0.0 0.0 1377023.663174498.70 40.366640 -104.873760  
 RKB - 23' WELL @ 4950.0ft (RKB - 23')

## DESIGN TARGET DETAILS

| Name                    | TVD    | +N/-S | +E/-W   | Shape |
|-------------------------|--------|-------|---------|-------|
| SHL 1171'FSL & 1109'FEL | 1.0    | 0.0   | 0.0     | Point |
| BHL 1625'FSL & 75'FWL   | 7107.0 | 448.4 | -3940.2 | Point |
| LP - 1619'FSL & 829'FEL | 7189.5 | 448.4 | 280.1   | Point |



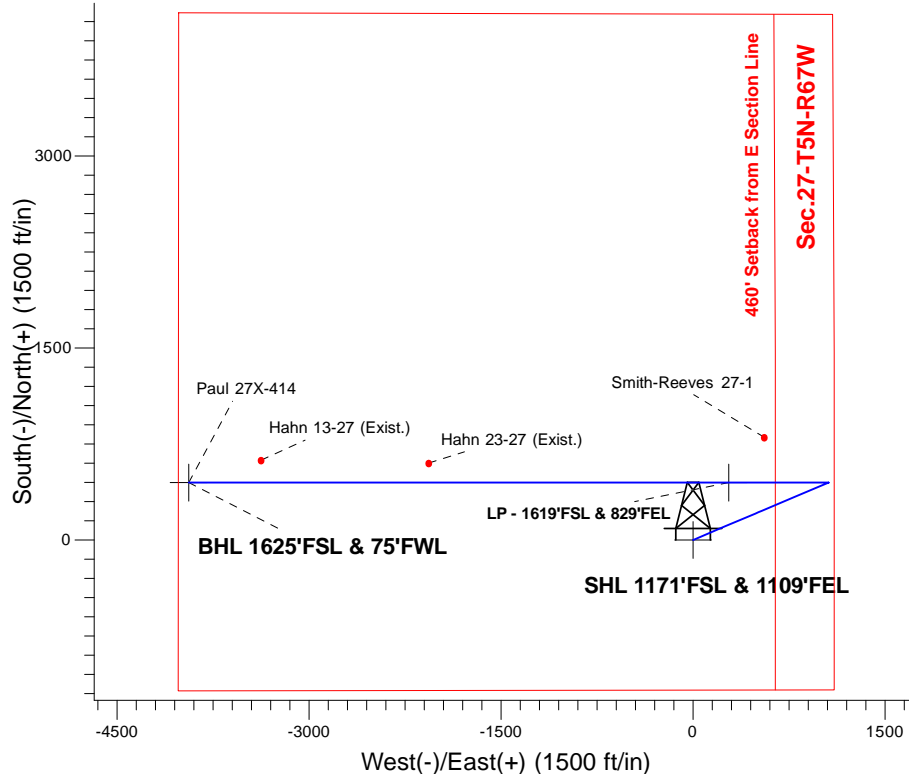
Azimuths to True North  
 Magnetic North: 8.25°

Magnetic Field  
 Strength: 52581.4nT  
 Dip Angle: 66.83°  
 Date: 5/24/2016  
 Model: IGRF2010

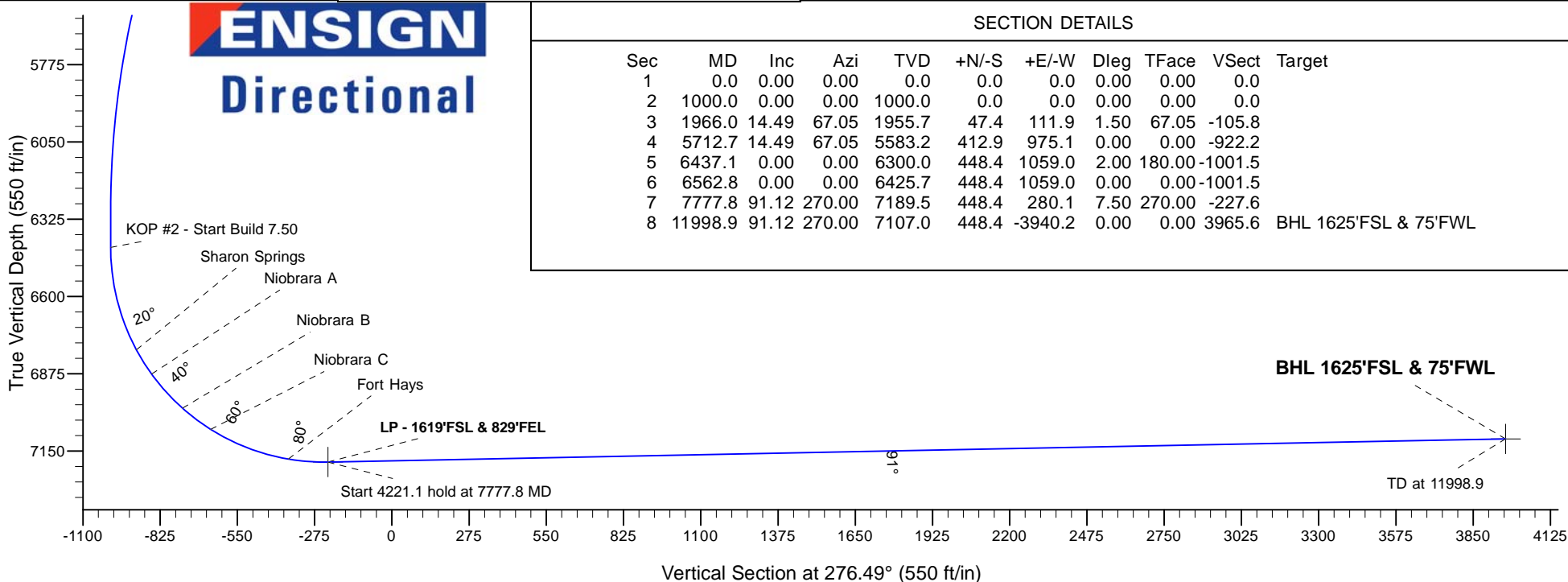
Paul 5N67W27D Pad Sec.27-T5N-R67W  
 Paul 27X-414  
 Plan #1 (5-24-16)  
 10:51, May 26 2016

## ANNOTATIONS

| TVD    | MD      | Annotation                     |
|--------|---------|--------------------------------|
| 1000.0 | 1000.0  | KOP - Start Build 1.50         |
| 5583.2 | 5712.7  | Start Drop -2.00               |
| 6425.7 | 6562.8  | KOP #2 - Start Build 7.50      |
| 7189.5 | 7777.8  | Start 4221.1 hold at 7777.8 MD |
| 7107.0 | 11998.9 | TD at 11998.9                  |



## ENSIGN Directional



## SECTION DETAILS

| Sec | MD      | Inc   | Azi    | TVD    | +N/-S | +E/-W   | Dleg | TFace  | Vsect   | Target                |
|-----|---------|-------|--------|--------|-------|---------|------|--------|---------|-----------------------|
| 1   | 0.0     | 0.00  | 0.00   | 0.0    | 0.0   | 0.0     | 0.00 | 0.00   | 0.0     |                       |
| 2   | 1000.0  | 0.00  | 0.00   | 1000.0 | 0.0   | 0.0     | 0.00 | 0.00   | 0.0     |                       |
| 3   | 1966.0  | 14.49 | 67.05  | 1955.7 | 47.4  | 111.9   | 1.50 | 67.05  | -105.8  |                       |
| 4   | 5712.7  | 14.49 | 67.05  | 5583.2 | 412.9 | 975.1   | 0.00 | 0.00   | -922.2  |                       |
| 5   | 6437.1  | 0.00  | 0.00   | 6300.0 | 448.4 | 1059.0  | 2.00 | 180.00 | -1001.5 |                       |
| 6   | 6562.8  | 0.00  | 0.00   | 6425.7 | 448.4 | 1059.0  | 0.00 | 0.00   | -1001.5 |                       |
| 7   | 7777.8  | 91.12 | 270.00 | 7189.5 | 448.4 | 280.1   | 7.50 | 270.00 | -227.6  |                       |
| 8   | 11998.9 | 91.12 | 270.00 | 7107.0 | 448.4 | -3940.2 | 0.00 | 0.00   | 3965.6  | BHL 1625'FSL & 75'FWL |



# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.27-T5N-R67W**

**Paul 5N67W27D Pad Sec.27-T5N-R67W**

**Paul 27X-414**

**Wellbore #1**

**Plan #1 (5-24-16)**

## **Anticollision Report**

**26 May, 2016**



|                           |                                     |                                     |                             |
|---------------------------|-------------------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>           | PETROLEUM DEVELOPMENT CORP DJ Basin | <b>Local Co-ordinate Reference:</b> | Well Paul 27X-414           |
| <b>Project:</b>           | SEC.27-T5N-R67W                     | <b>TVD Reference:</b>               | WELL @ 4950.0ft (RKB - 23') |
| <b>Reference Site:</b>    | Paul 5N67W27D Pad Sec.27-T5N-R67W   | <b>MD Reference:</b>                | WELL @ 4950.0ft (RKB - 23') |
| <b>Site Error:</b>        | 0.0 ft                              | <b>North Reference:</b>             | True                        |
| <b>Reference Well:</b>    | Paul 27X-414                        | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Well Error:</b>        | 0.0 ft                              | <b>Output errors are at</b>         | 2.45 sigma                  |
| <b>Reference Wellbore</b> | Wellbore #1                         | <b>Database:</b>                    | US_EDM                      |
| <b>Reference Design:</b>  | Plan #1 (5-24-16)                   | <b>Offset TVD Reference:</b>        | Offset Datum                |

|                                     |   |                       |                     |
|-------------------------------------|---|-----------------------|---------------------|
| <b>Reference</b>                    | Plan #1 (5-24-16)   |                       |                     |
| <b>Filter type:</b>                 | NO GLOBAL FILTER: Using user defined selection & filtering criteria |                       |                     |
| <b>Interpolation Method:</b>        | MD Interval 100.0ft   | <b>Error Model:</b>   | ISCWSA              |
| <b>Depth Range:</b>                 | Unlimited   | <b>Scan Method:</b>   | Closest Approach 3D |
| <b>Results Limited by:</b>          | Maximum center-center distance of 1,000.0 ft                        | <b>Error Surface:</b> | Elliptical Conic    |
| <b>Warning Levels Evaluated at:</b> | 2.45 Sigma  | <b>Casing Method:</b> | Not applied         |

|                            |                       |                                 |                  |                    |
|----------------------------|-----------------------|---------------------------------|------------------|--------------------|
| <b>Survey Tool Program</b> | <b>Date</b> 5/26/2016 |                                 |                  |                    |
| <b>From (ft)</b>           | <b>To (ft)</b>        | <b>Survey (Wellbore)</b>        | <b>Tool Name</b> | <b>Description</b> |
| 0.0                        | 11,998.9              | Plan #1 (5-24-16) (Wellbore #1) | MWD              | MWD - Standard     |

| Summary   |                               |                            |                               |                                |                   |                     |
|---|-------------------------------|----------------------------|-------------------------------|--------------------------------|-------------------|---------------------|
| Site Name                                       | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning             |
| Offset Wells Sec.27-T5N-R67W                    |                               |                            |                               |                                |                   |                     |
| Hahn 13-27 (Exist.) - Wellbore #1 - Wellbore #1 | 11,433.1                      | 7,020.1                    | 174.8                         | -139.6                         | 0.556             | Level 1, CC, ES, SF |
| Hahn 23-27 (Exist.) - Wellbore #1 - Wellbore #1 | 10,123.2                      | 7,090.7                    | 152.8                         | -119.7                         | 0.561             | Level 1, CC, ES, SF |
| Smith-Reeves 27-1 - Wellbore #1 - Wellbore #1   | 7,495.1                       | 7,145.2                    | 353.1                         | 148.5                          | 1.726             | CC                  |
| Smith-Reeves 27-1 - Wellbore #1 - Wellbore #1   | 7,500.0                       | 7,146.9                    | 353.1                         | 148.5                          | 1.726             | ES, SF              |
| Paul 5N67W27D Pad Sec.27-T5N-R67W               |                               |                            |                               |                                |                   |                     |
| Paul 27W-204 - Wellbore #1 - Plan #1 (5-24-16)  | 428.8                         | 428.9                      | 59.5                          | 57.4                           | 28.491            | CC                  |
| Paul 27W-204 - Wellbore #1 - Plan #1 (5-24-16)  | 500.0                         | 499.9                      | 59.7                          | 57.2                           | 24.014            | ES                  |
| Paul 27W-204 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 11,970.5                   | 922.7                         | 601.3                          | 2.871             | SF                  |
| Paul 27W-334 - Wellbore #1 - Plan #1 (5-24-16)  | 665.7                         | 665.9                      | 45.7                          | 42.3                           | 13.491            | CC                  |
| Paul 27W-334 - Wellbore #1 - Plan #1 (5-24-16)  | 700.0                         | 700.1                      | 45.8                          | 42.2                           | 12.797            | ES                  |
| Paul 27W-334 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 12,012.3                   | 688.7                         | 366.3                          | 2.136             | SF                  |
| Paul 27W-434 - Wellbore #1 - Plan #1 (5-24-16)  | 844.6                         | 844.7                      | 30.0                          | 25.6                           | 6.876             | CC                  |
| Paul 27W-434 - Wellbore #1 - Plan #1 (5-24-16)  | 900.0                         | 900.0                      | 30.2                          | 25.6                           | 6.484             | ES                  |
| Paul 27W-434 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 12,055.8                   | 459.0                         | 136.5                          | 1.423             | Level 3, SF         |
| Paul 27X-214 - Wellbore #1 - Plan #1 (5-24-16)  | 1,042.8                       | 1,043.0                    | 13.6                          | 8.2                            | 2.500             | CC                  |
| Paul 27X-214 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 11,852.7                   | 247.3                         | -55.9                          | 0.816             | Level 1, ES, SF     |
| Paul 27X-234 - Wellbore #1 - Plan #1 (5-24-16)  | 766.3                         | 767.3                      | 44.3                          | 40.4                           | 11.223            | CC                  |
| Paul 27X-234 - Wellbore #1 - Plan #1 (5-24-16)  | 800.0                         | 801.0                      | 44.3                          | 40.2                           | 10.720            | ES                  |
| Paul 27X-234 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 11,786.2                   | 706.4                         | 391.2                          | 2.241             | SF                  |
| Paul 27X-304 - Wellbore #1 - Plan #1 (5-24-16)  | 1,234.9                       | 1,234.7                    | 11.1                          | 4.6                            | 1.708             | CC                  |
| Paul 27X-304 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 11,904.8                   | 230.0                         | -92.5                          | 0.713             | Level 1, ES, SF     |
| Paul 27X-404 - Wellbore #1 - Plan #1 (5-24-16)  | 594.2                         | 595.4                      | 29.1                          | 26.1                           | 9.900             | CC                  |
| Paul 27X-404 - Wellbore #1 - Plan #1 (5-24-16)  | 1,200.0                       | 1,201.1                    | 29.4                          | 23.3                           | 4.797             | ES                  |
| Paul 27X-404 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 11,992.6                   | 459.0                         | 135.0                          | 1.417             | Level 3, SF         |
| Paul 27X-434 - Wellbore #1 - Plan #1 (5-24-16)  | 366.3                         | 367.3                      | 59.9                          | 58.2                           | 34.346            | CC                  |
| Paul 27X-434 - Wellbore #1 - Plan #1 (5-24-16)  | 400.0                         | 401.0                      | 59.9                          | 58.0                           | 31.051            | ES                  |
| Paul 27X-434 - Wellbore #1 - Plan #1 (5-24-16)  | 11,998.9                      | 11,973.1                   | 922.7                         | 599.6                          | 2.856             | SF                  |
| Paul 27Y-314 - Wellbore #1 - Plan #1 (5-24-16)  | 166.3                         | 167.3                      | 73.2                          | 72.6                           | 113.842           | CC                  |
| Paul 27Y-314 - Wellbore #1 - Plan #1 (5-24-16)  | 200.0                         | 201.0                      | 73.2                          | 72.4                           | 88.402            | ES                  |
| Paul 27Y-314 - Wellbore #1 - Plan #1 (5-24-16)  | 4,900.0                       | 4,751.9                    | 998.1                         | 952.3                          | 21.790            | SF                  |