

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stonebraker 28V-414**

Surface Location: Stonebraker 28U-HZ Pad Sec.28-T2N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

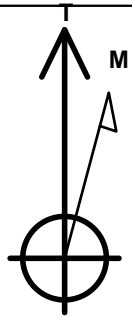
Ground Elevation: 4963.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1286547.27	3266306.02	40.116040	-104.547790	

RKB Ensign 32 - 15' WELL @ 4978.0ft (RKB Ensign 32 - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 720'FNL & 500'FWL	7131.0	-469.5	-4461.1	Point



Azimuths to True North
Magnetic North: 8.57°

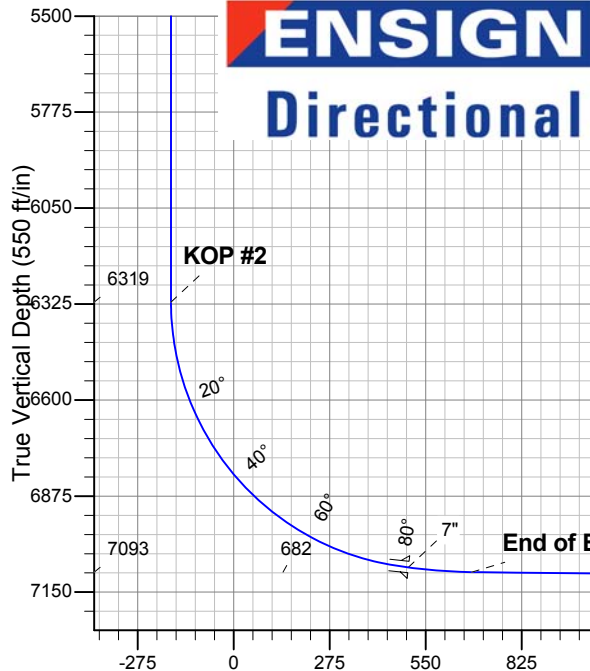
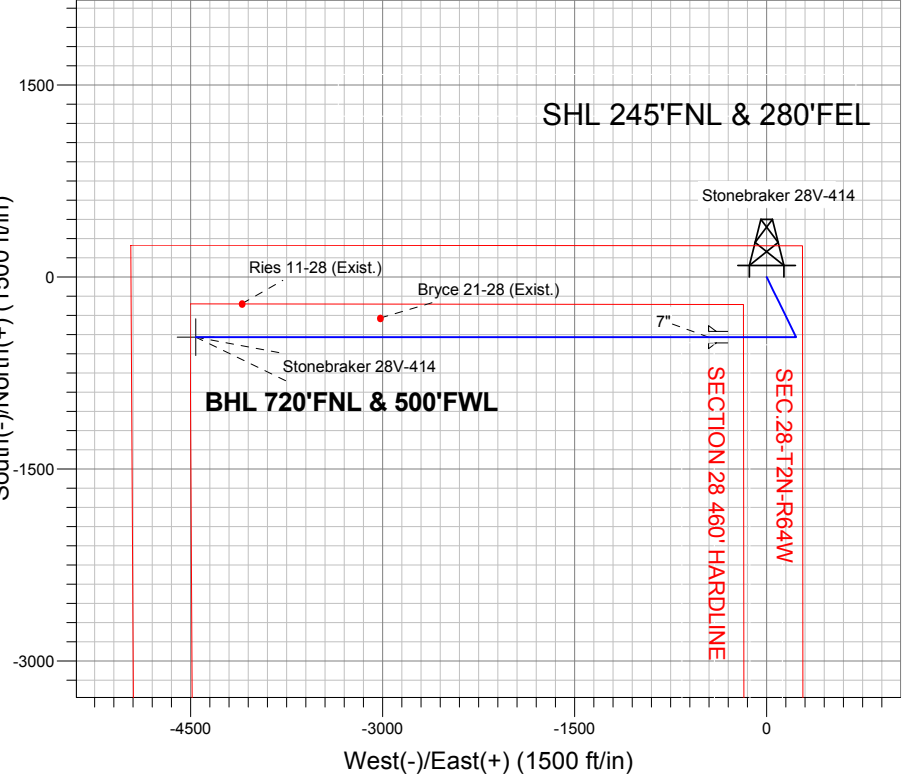
Magnetic Field
Strength: 52887.6nT
Dip Angle: 66.82°
Date: 7/23/2012
Model: IGRF2010

Stonebraker 28U-HZ Pad Sec.28-T2N-R64W
Stonebraker 28V-414
Plan #1 (7-23-12)
15:17, July 30 2012

ANNOTATIONS

TVD	MD	Annotation
2000.0	2000.0	KOP #1
6319.3	6369.0	KOP #2
7093.0	7671.6	End of Build

South(-)/North(+) (1500 ft/in)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2588.4	11.77	153.90	2584.3	-54.1	26.5	2.00	153.90	-20.7	
4	4561.3	11.77	153.90	4515.7	-415.4	203.5	0.00	0.00	-158.9	
5	5149.7	0.00	0.00	5100.0	-469.5	230.0	2.00	180.00	-179.6	
6	6369.0	0.00	0.00	6319.2	-469.5	230.0	0.00	0.00	-179.6	
7	7489.0	84.00	270.00	7079.0	-469.5	-454.1	7.50	270.00	500.7	
8	7563.0	84.00	270.00	7086.7	-469.5	-527.7	0.00	0.00	573.9	
9	7671.6	89.43	270.00	7093.0	-469.5	-636.1	5.00	0.00	681.7	
10	11496.8	89.43	270.00	7131.0	-469.5	-4461.1	0.00	0.00	4485.8	BHL 720'FNL & 500'FWL

BHL 720'FNL & 500'FWL

Vertical Section at 263.99° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T2N-R64W

Stonebraker 28U-HZ Pad Sec.28-T2N-R64W

Stonebraker 28V-414

Wellbore #1

Plan: Plan #1 (7-23-12)

Standard Planning Report

30 July, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

Project	SEC.28-T2N-R64W, 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						Stonebraker 28U-HZ Pad Sec.28-T2N-R64W											
Site Position:						Northing:			1,286,551.22 ft			Latitude:			40.116050		
From:			Lat/Long			Easting:			3,266,333.95 ft			Longitude:			-104.547690		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.62 °		

Well	Stonebraker 28V-414					
Well Position	+N/-S	-3.7 ft	Northing:	1,286,547.27 ft	Latitude:	40.116040
	+E/-W	-28.0 ft	Easting:	3,266,306.02 ft	Longitude:	-104.547790
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,963.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/23/2012	8.57	66.82	52,888

Design	Plan #1 (7-23-12)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	263.99

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,588.4	11.77	153.90	2,584.3	-54.1	26.5	2.00	2.00	0.00	153.90	
4,561.3	11.77	153.90	4,515.7	-415.4	203.5	0.00	0.00	0.00	0.00	
5,149.7	0.00	0.00	5,100.0	-469.5	230.0	2.00	-2.00	0.00	180.00	
6,369.0	0.00	0.00	6,319.2	-469.5	230.0	0.00	0.00	0.00	0.00	
7,489.0	84.00	270.00	7,079.0	-469.5	-454.1	7.50	7.50	0.00	270.00	
7,563.0	84.00	270.00	7,086.7	-469.5	-527.7	0.00	0.00	0.00	0.00	
7,671.6	89.43	270.00	7,093.0	-469.5	-636.1	5.00	5.00	0.00	0.00	
11,496.8	89.43	270.00	7,131.0	-469.5	-4,461.1	0.00	0.00	0.00	0.00	BHL 720'FNL & 500'

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Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
2,040.0	0.80	153.90	2,040.0	-0.3	0.1	-0.1	2.00	2.00	0.00

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Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

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)
2,080.0	1.60	153.90	2,080.0	-1.0	0.5	-0.4	2.00	2.00	0.00
2,120.0	2.40	153.90	2,120.0	-2.3	1.1	-0.9	2.00	2.00	0.00
2,160.0	3.20	153.90	2,159.9	-4.0	2.0	-1.5	2.00	2.00	0.00
2,200.0	4.00	153.90	2,199.8	-6.3	3.1	-2.4	2.00	2.00	0.00
2,240.0	4.80	153.90	2,239.7	-9.0	4.4	-3.5	2.00	2.00	0.00
2,280.0	5.60	153.90	2,279.6	-12.3	6.0	-4.7	2.00	2.00	0.00
2,320.0	6.40	153.90	2,319.3	-16.0	7.9	-6.1	2.00	2.00	0.00
2,360.0	7.20	153.90	2,359.1	-20.3	9.9	-7.8	2.00	2.00	0.00
2,400.0	8.00	153.90	2,398.7	-25.0	12.3	-9.6	2.00	2.00	0.00
2,440.0	8.80	153.90	2,438.3	-30.3	14.8	-11.6	2.00	2.00	0.00
2,480.0	9.60	153.90	2,477.8	-36.0	17.6	-13.8	2.00	2.00	0.00
2,520.0	10.40	153.90	2,517.1	-42.3	20.7	-16.2	2.00	2.00	0.00
2,560.0	11.20	153.90	2,556.4	-49.0	24.0	-18.7	2.00	2.00	0.00
2,588.4	11.77	153.90	2,584.3	-54.1	26.5	-20.7	2.00	2.00	0.00
2,600.0	11.77	153.90	2,595.6	-56.2	27.5	-21.5	0.00	0.00	0.00
2,640.0	11.77	153.90	2,634.8	-63.5	31.1	-24.3	0.00	0.00	0.00
2,680.0	11.77	153.90	2,673.9	-70.9	34.7	-27.1	0.00	0.00	0.00
2,720.0	11.77	153.90	2,713.1	-78.2	38.3	-29.9	0.00	0.00	0.00
2,760.0	11.77	153.90	2,752.3	-85.5	41.9	-32.7	0.00	0.00	0.00
2,800.0	11.77	153.90	2,791.4	-92.8	45.5	-35.5	0.00	0.00	0.00
2,840.0	11.77	153.90	2,830.6	-100.2	49.1	-38.3	0.00	0.00	0.00
2,880.0	11.77	153.90	2,869.7	-107.5	52.7	-41.1	0.00	0.00	0.00
2,920.0	11.77	153.90	2,908.9	-114.8	56.2	-43.9	0.00	0.00	0.00
2,960.0	11.77	153.90	2,948.1	-122.1	59.8	-46.7	0.00	0.00	0.00
3,000.0	11.77	153.90	2,987.2	-129.5	63.4	-49.5	0.00	0.00	0.00
3,040.0	11.77	153.90	3,026.4	-136.8	67.0	-52.3	0.00	0.00	0.00
3,080.0	11.77	153.90	3,065.5	-144.1	70.6	-55.1	0.00	0.00	0.00
3,120.0	11.77	153.90	3,104.7	-151.4	74.2	-57.9	0.00	0.00	0.00
3,160.0	11.77	153.90	3,143.9	-158.8	77.8	-60.7	0.00	0.00	0.00
3,200.0	11.77	153.90	3,183.0	-166.1	81.4	-63.5	0.00	0.00	0.00
3,240.0	11.77	153.90	3,222.2	-173.4	85.0	-66.3	0.00	0.00	0.00
3,280.0	11.77	153.90	3,261.3	-180.7	88.5	-69.1	0.00	0.00	0.00
3,320.0	11.77	153.90	3,300.5	-188.1	92.1	-71.9	0.00	0.00	0.00
3,360.0	11.77	153.90	3,339.7	-195.4	95.7	-74.7	0.00	0.00	0.00
3,400.0	11.77	153.90	3,378.8	-202.7	99.3	-77.5	0.00	0.00	0.00
3,440.0	11.77	153.90	3,418.0	-210.0	102.9	-80.3	0.00	0.00	0.00
3,480.0	11.77	153.90	3,457.1	-217.4	106.5	-83.2	0.00	0.00	0.00
3,520.0	11.77	153.90	3,496.3	-224.7	110.1	-86.0	0.00	0.00	0.00
3,560.0	11.77	153.90	3,535.4	-232.0	113.7	-88.8	0.00	0.00	0.00
3,600.0	11.77	153.90	3,574.6	-239.4	117.3	-91.6	0.00	0.00	0.00
3,640.0	11.77	153.90	3,613.8	-246.7	120.8	-94.4	0.00	0.00	0.00
3,680.0	11.77	153.90	3,652.9	-254.0	124.4	-97.2	0.00	0.00	0.00
3,720.0	11.77	153.90	3,692.1	-261.3	128.0	-100.0	0.00	0.00	0.00
3,760.0	11.77	153.90	3,731.2	-268.7	131.6	-102.8	0.00	0.00	0.00
3,800.0	11.77	153.90	3,770.4	-276.0	135.2	-105.6	0.00	0.00	0.00
3,840.0	11.77	153.90	3,809.6	-283.3	138.8	-108.4	0.00	0.00	0.00
3,880.0	11.77	153.90	3,848.7	-290.6	142.4	-111.2	0.00	0.00	0.00
3,920.0	11.77	153.90	3,887.9	-298.0	146.0	-114.0	0.00	0.00	0.00
3,960.0	11.77	153.90	3,927.0	-305.3	149.6	-116.8	0.00	0.00	0.00
4,000.0	11.77	153.90	3,966.2	-312.6	153.1	-119.6	0.00	0.00	0.00
4,040.0	11.77	153.90	4,005.4	-319.9	156.7	-122.4	0.00	0.00	0.00
4,080.0	11.77	153.90	4,044.5	-327.3	160.3	-125.2	0.00	0.00	0.00
4,120.0	11.77	153.90	4,083.7	-334.6	163.9	-128.0	0.00	0.00	0.00

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Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

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)
4,160.0	11.77	153.90	4,122.8	-341.9	167.5	-130.8	0.00	0.00	0.00
4,200.0	11.77	153.90	4,162.0	-349.2	171.1	-133.6	0.00	0.00	0.00
4,240.0	11.77	153.90	4,201.2	-356.6	174.7	-136.4	0.00	0.00	0.00
4,280.0	11.77	153.90	4,240.3	-363.9	178.3	-139.2	0.00	0.00	0.00
4,320.0	11.77	153.90	4,279.5	-371.2	181.9	-142.0	0.00	0.00	0.00
4,360.0	11.77	153.90	4,318.6	-378.6	185.4	-144.8	0.00	0.00	0.00
4,400.0	11.77	153.90	4,357.8	-385.9	189.0	-147.6	0.00	0.00	0.00
4,440.0	11.77	153.90	4,397.0	-393.2	192.6	-150.4	0.00	0.00	0.00
4,480.0	11.77	153.90	4,436.1	-400.5	196.2	-153.2	0.00	0.00	0.00
4,520.0	11.77	153.90	4,475.3	-407.9	199.8	-156.0	0.00	0.00	0.00
4,560.0	11.77	153.90	4,514.4	-415.2	203.4	-158.8	0.00	0.00	0.00
4,561.3	11.77	153.90	4,515.7	-415.4	203.5	-158.9	0.00	0.00	0.00
4,600.0	10.99	153.90	4,553.6	-422.3	206.9	-161.5	2.00	-2.00	0.00
4,640.0	10.19	153.90	4,593.0	-428.9	210.1	-164.1	2.00	-2.00	0.00
4,680.0	9.39	153.90	4,632.4	-435.0	213.1	-166.4	2.00	-2.00	0.00
4,720.0	8.59	153.90	4,671.9	-440.6	215.8	-168.5	2.00	-2.00	0.00
4,760.0	7.79	153.90	4,711.5	-445.7	218.4	-170.5	2.00	-2.00	0.00
4,800.0	6.99	153.90	4,751.1	-450.4	220.6	-172.3	2.00	-2.00	0.00
4,840.0	6.19	153.90	4,790.9	-454.5	222.6	-173.8	2.00	-2.00	0.00
4,880.0	5.39	153.90	4,830.7	-458.1	224.4	-175.2	2.00	-2.00	0.00
4,920.0	4.59	153.90	4,870.5	-461.2	226.0	-176.4	2.00	-2.00	0.00
4,960.0	3.79	153.90	4,910.4	-463.9	227.2	-177.4	2.00	-2.00	0.00
5,000.0	2.99	153.90	4,950.3	-466.0	228.3	-178.2	2.00	-2.00	0.00
5,040.0	2.19	153.90	4,990.3	-467.6	229.1	-178.9	2.00	-2.00	0.00
5,080.0	1.39	153.90	5,030.3	-468.7	229.6	-179.3	2.00	-2.00	0.00
5,120.0	0.59	153.90	5,070.3	-469.4	229.9	-179.5	2.00	-2.00	0.00
5,149.7	0.00	0.00	5,100.0	-469.5	230.0	-179.6	2.00	-2.00	0.00
5,160.0	0.00	0.00	5,110.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,200.0	0.00	0.00	5,150.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,240.0	0.00	0.00	5,190.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,280.0	0.00	0.00	5,230.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,320.0	0.00	0.00	5,270.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,360.0	0.00	0.00	5,310.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,400.0	0.00	0.00	5,350.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,440.0	0.00	0.00	5,390.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,480.0	0.00	0.00	5,430.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,520.0	0.00	0.00	5,470.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,560.0	0.00	0.00	5,510.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,600.0	0.00	0.00	5,550.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,640.0	0.00	0.00	5,590.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,680.0	0.00	0.00	5,630.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,720.0	0.00	0.00	5,670.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,760.0	0.00	0.00	5,710.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,750.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,840.0	0.00	0.00	5,790.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,880.0	0.00	0.00	5,830.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,920.0	0.00	0.00	5,870.3	-469.5	230.0	-179.6	0.00	0.00	0.00
5,960.0	0.00	0.00	5,910.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,950.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,040.0	0.00	0.00	5,990.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,080.0	0.00	0.00	6,030.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,120.0	0.00	0.00	6,070.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,160.0	0.00	0.00	6,110.3	-469.5	230.0	-179.6	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

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)
6,200.0	0.00	0.00	6,150.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,240.0	0.00	0.00	6,190.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,280.0	0.00	0.00	6,230.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,320.0	0.00	0.00	6,270.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,360.0	0.00	0.00	6,310.3	-469.5	230.0	-179.6	0.00	0.00	0.00
6,369.0	0.00	0.00	6,319.3	-469.5	230.0	-179.6	0.00	0.00	0.00
KOP #2									
6,400.0	2.33	270.00	6,350.3	-469.5	229.4	-179.0	7.51	7.51	0.00
6,440.0	5.33	270.00	6,390.2	-469.5	226.7	-176.3	7.50	7.50	0.00
6,480.0	8.33	270.00	6,429.9	-469.5	221.9	-171.6	7.50	7.50	0.00
6,520.0	11.33	270.00	6,469.3	-469.5	215.1	-164.8	7.50	7.50	0.00
6,560.0	14.33	270.00	6,508.3	-469.5	206.2	-156.0	7.50	7.50	0.00
6,600.0	17.33	270.00	6,546.8	-469.5	195.3	-145.1	7.50	7.50	0.00
6,640.0	20.33	270.00	6,584.6	-469.5	182.4	-132.3	7.50	7.50	0.00
6,680.0	23.33	270.00	6,621.8	-469.5	167.6	-117.5	7.50	7.50	0.00
6,720.0	26.33	270.00	6,658.1	-469.5	150.8	-100.8	7.50	7.50	0.00
6,760.0	29.33	270.00	6,693.4	-469.5	132.1	-82.2	7.50	7.50	0.00
6,800.0	32.33	270.00	6,727.8	-469.5	111.6	-61.8	7.50	7.50	0.00
6,840.0	35.33	270.00	6,761.0	-469.5	89.3	-39.7	7.50	7.50	0.00
6,880.0	38.33	270.00	6,793.0	-469.5	65.4	-15.9	7.50	7.50	0.00
6,920.0	41.33	270.00	6,823.7	-469.5	39.7	9.6	7.50	7.50	0.00
6,960.0	44.33	270.00	6,853.1	-469.5	12.6	36.7	7.50	7.50	0.00
7,000.0	47.33	270.00	6,880.9	-469.5	-16.1	65.2	7.50	7.50	0.00
7,040.0	50.33	270.00	6,907.3	-469.5	-46.2	95.1	7.50	7.50	0.00
7,080.0	53.33	270.00	6,932.0	-469.5	-77.7	126.4	7.50	7.50	0.00
7,120.0	56.33	270.00	6,955.0	-469.5	-110.4	158.9	7.50	7.50	0.00
7,160.0	59.33	270.00	6,976.3	-469.5	-144.2	192.6	7.50	7.50	0.00
7,200.0	62.33	270.00	6,995.8	-469.5	-179.2	227.3	7.50	7.50	0.00
7,240.0	65.33	270.00	7,013.4	-469.5	-215.0	263.0	7.50	7.50	0.00
7,280.0	68.33	270.00	7,029.2	-469.5	-251.8	299.6	7.50	7.50	0.00
7,320.0	71.33	270.00	7,043.0	-469.5	-289.4	336.9	7.50	7.50	0.00
7,360.0	74.33	270.00	7,054.8	-469.5	-327.6	374.9	7.50	7.50	0.00
7,400.0	77.33	270.00	7,064.6	-469.5	-366.3	413.5	7.50	7.50	0.00
7,440.0	80.33	270.00	7,072.3	-469.5	-405.6	452.5	7.50	7.50	0.00
7,480.0	83.33	270.00	7,078.0	-469.5	-445.2	491.9	7.50	7.50	0.00
7,489.0	84.00	270.00	7,079.0	-469.5	-454.1	500.8	7.47	7.47	0.00
7"									
7,520.0	84.00	270.00	7,082.2	-469.5	-485.0	531.4	0.00	0.00	0.00
7,560.0	84.00	270.00	7,086.4	-469.5	-524.7	571.0	0.00	0.00	0.00
7,563.0	84.00	270.00	7,086.7	-469.5	-527.7	573.9	0.00	0.00	0.00
7,600.0	85.85	270.00	7,090.0	-469.5	-564.6	610.6	5.00	5.00	0.00
7,640.0	87.85	270.00	7,092.2	-469.5	-604.5	650.3	5.00	5.00	0.00
7,671.6	89.43	270.00	7,093.0	-469.5	-636.1	681.7	5.00	5.00	0.00
End of Build									
7,680.0	89.43	270.00	7,093.0	-469.5	-644.5	690.1	0.00	0.00	0.00
7,720.0	89.43	270.00	7,093.4	-469.5	-684.5	729.9	0.00	0.00	0.00
7,760.0	89.43	270.00	7,093.8	-469.5	-724.5	769.7	0.00	0.00	0.00
7,800.0	89.43	270.00	7,094.2	-469.5	-764.5	809.4	0.00	0.00	0.00
7,840.0	89.43	270.00	7,094.6	-469.5	-804.5	849.2	0.00	0.00	0.00
7,880.0	89.43	270.00	7,095.0	-469.5	-844.5	889.0	0.00	0.00	0.00
7,920.0	89.43	270.00	7,095.4	-469.5	-884.5	928.8	0.00	0.00	0.00
7,960.0	89.43	270.00	7,095.8	-469.5	-924.5	968.5	0.00	0.00	0.00
8,000.0	89.43	270.00	7,096.2	-469.5	-964.5	1,008.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

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)
8,040.0	89.43	270.00	7,096.6	-469.5	-1,004.5	1,048.1	0.00	0.00	0.00
8,080.0	89.43	270.00	7,097.0	-469.5	-1,044.5	1,087.9	0.00	0.00	0.00
8,120.0	89.43	270.00	7,097.4	-469.5	-1,084.5	1,127.7	0.00	0.00	0.00
8,160.0	89.43	270.00	7,097.8	-469.5	-1,124.5	1,167.4	0.00	0.00	0.00
8,200.0	89.43	270.00	7,098.2	-469.5	-1,164.5	1,207.2	0.00	0.00	0.00
8,240.0	89.43	270.00	7,098.6	-469.5	-1,204.5	1,247.0	0.00	0.00	0.00
8,280.0	89.43	270.00	7,099.0	-469.5	-1,244.5	1,286.8	0.00	0.00	0.00
8,320.0	89.43	270.00	7,099.4	-469.5	-1,284.5	1,326.6	0.00	0.00	0.00
8,360.0	89.43	270.00	7,099.8	-469.5	-1,324.5	1,366.3	0.00	0.00	0.00
8,400.0	89.43	270.00	7,100.2	-469.5	-1,364.5	1,406.1	0.00	0.00	0.00
8,440.0	89.43	270.00	7,100.6	-469.5	-1,404.5	1,445.9	0.00	0.00	0.00
8,480.0	89.43	270.00	7,101.0	-469.5	-1,444.5	1,485.7	0.00	0.00	0.00
8,520.0	89.43	270.00	7,101.4	-469.5	-1,484.5	1,525.4	0.00	0.00	0.00
8,560.0	89.43	270.00	7,101.8	-469.5	-1,524.5	1,565.2	0.00	0.00	0.00
8,600.0	89.43	270.00	7,102.2	-469.5	-1,564.5	1,605.0	0.00	0.00	0.00
8,640.0	89.43	270.00	7,102.6	-469.5	-1,604.4	1,644.8	0.00	0.00	0.00
8,680.0	89.43	270.00	7,103.0	-469.5	-1,644.4	1,684.6	0.00	0.00	0.00
8,720.0	89.43	270.00	7,103.4	-469.5	-1,684.4	1,724.3	0.00	0.00	0.00
8,760.0	89.43	270.00	7,103.8	-469.5	-1,724.4	1,764.1	0.00	0.00	0.00
8,800.0	89.43	270.00	7,104.2	-469.5	-1,764.4	1,803.9	0.00	0.00	0.00
8,840.0	89.43	270.00	7,104.6	-469.5	-1,804.4	1,843.7	0.00	0.00	0.00
8,880.0	89.43	270.00	7,105.0	-469.5	-1,844.4	1,883.4	0.00	0.00	0.00
8,920.0	89.43	270.00	7,105.4	-469.5	-1,884.4	1,923.2	0.00	0.00	0.00
8,960.0	89.43	270.00	7,105.8	-469.5	-1,924.4	1,963.0	0.00	0.00	0.00
9,000.0	89.43	270.00	7,106.2	-469.5	-1,964.4	2,002.8	0.00	0.00	0.00
9,040.0	89.43	270.00	7,106.6	-469.5	-2,004.4	2,042.6	0.00	0.00	0.00
9,080.0	89.43	270.00	7,107.0	-469.5	-2,044.4	2,082.3	0.00	0.00	0.00
9,120.0	89.43	270.00	7,107.4	-469.5	-2,084.4	2,122.1	0.00	0.00	0.00
9,160.0	89.43	270.00	7,107.8	-469.5	-2,124.4	2,161.9	0.00	0.00	0.00
9,200.0	89.43	270.00	7,108.2	-469.5	-2,164.4	2,201.7	0.00	0.00	0.00
9,240.0	89.43	270.00	7,108.6	-469.5	-2,204.4	2,241.5	0.00	0.00	0.00
9,280.0	89.43	270.00	7,109.0	-469.5	-2,244.4	2,281.2	0.00	0.00	0.00
9,320.0	89.43	270.00	7,109.4	-469.5	-2,284.4	2,321.0	0.00	0.00	0.00
9,360.0	89.43	270.00	7,109.7	-469.5	-2,324.4	2,360.8	0.00	0.00	0.00
9,400.0	89.43	270.00	7,110.1	-469.5	-2,364.4	2,400.6	0.00	0.00	0.00
9,440.0	89.43	270.00	7,110.5	-469.5	-2,404.4	2,440.3	0.00	0.00	0.00
9,480.0	89.43	270.00	7,110.9	-469.5	-2,444.4	2,480.1	0.00	0.00	0.00
9,520.0	89.43	270.00	7,111.3	-469.5	-2,484.4	2,519.9	0.00	0.00	0.00
9,560.0	89.43	270.00	7,111.7	-469.5	-2,524.4	2,559.7	0.00	0.00	0.00
9,600.0	89.43	270.00	7,112.1	-469.5	-2,564.4	2,599.5	0.00	0.00	0.00
9,640.0	89.43	270.00	7,112.5	-469.5	-2,604.4	2,639.2	0.00	0.00	0.00
9,680.0	89.43	270.00	7,112.9	-469.5	-2,644.4	2,679.0	0.00	0.00	0.00
9,720.0	89.43	270.00	7,113.3	-469.5	-2,684.4	2,718.8	0.00	0.00	0.00
9,760.0	89.43	270.00	7,113.7	-469.5	-2,724.4	2,758.6	0.00	0.00	0.00
9,800.0	89.43	270.00	7,114.1	-469.5	-2,764.4	2,798.4	0.00	0.00	0.00
9,840.0	89.43	270.00	7,114.5	-469.5	-2,804.4	2,838.1	0.00	0.00	0.00
9,880.0	89.43	270.00	7,114.9	-469.5	-2,844.4	2,877.9	0.00	0.00	0.00
9,920.0	89.43	270.00	7,115.3	-469.5	-2,884.4	2,917.7	0.00	0.00	0.00
9,960.0	89.43	270.00	7,115.7	-469.5	-2,924.4	2,957.5	0.00	0.00	0.00
10,000.0	89.43	270.00	7,116.1	-469.5	-2,964.4	2,997.2	0.00	0.00	0.00
10,040.0	89.43	270.00	7,116.5	-469.5	-3,004.4	3,037.0	0.00	0.00	0.00
10,080.0	89.43	270.00	7,116.9	-469.5	-3,044.4	3,076.8	0.00	0.00	0.00
10,120.0	89.43	270.00	7,117.3	-469.5	-3,084.4	3,116.6	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

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)
10,160.0	89.43	270.00	7,117.7	-469.5	-3,124.4	3,156.4	0.00	0.00	0.00
10,200.0	89.43	270.00	7,118.1	-469.5	-3,164.4	3,196.1	0.00	0.00	0.00
10,240.0	89.43	270.00	7,118.5	-469.5	-3,204.4	3,235.9	0.00	0.00	0.00
10,280.0	89.43	270.00	7,118.9	-469.5	-3,244.4	3,275.7	0.00	0.00	0.00
10,320.0	89.43	270.00	7,119.3	-469.5	-3,284.4	3,315.5	0.00	0.00	0.00
10,360.0	89.43	270.00	7,119.7	-469.5	-3,324.4	3,355.2	0.00	0.00	0.00
10,400.0	89.43	270.00	7,120.1	-469.5	-3,364.4	3,395.0	0.00	0.00	0.00
10,440.0	89.43	270.00	7,120.5	-469.5	-3,404.4	3,434.8	0.00	0.00	0.00
10,480.0	89.43	270.00	7,120.9	-469.5	-3,444.4	3,474.6	0.00	0.00	0.00
10,520.0	89.43	270.00	7,121.3	-469.5	-3,484.4	3,514.4	0.00	0.00	0.00
10,560.0	89.43	270.00	7,121.7	-469.5	-3,524.4	3,554.1	0.00	0.00	0.00
10,600.0	89.43	270.00	7,122.1	-469.5	-3,564.4	3,593.9	0.00	0.00	0.00
10,640.0	89.43	270.00	7,122.5	-469.5	-3,604.4	3,633.7	0.00	0.00	0.00
10,680.0	89.43	270.00	7,122.9	-469.5	-3,644.3	3,673.5	0.00	0.00	0.00
10,720.0	89.43	270.00	7,123.3	-469.5	-3,684.3	3,713.3	0.00	0.00	0.00
10,760.0	89.43	270.00	7,123.7	-469.5	-3,724.3	3,753.0	0.00	0.00	0.00
10,800.0	89.43	270.00	7,124.1	-469.5	-3,764.3	3,792.8	0.00	0.00	0.00
10,840.0	89.43	270.00	7,124.5	-469.5	-3,804.3	3,832.6	0.00	0.00	0.00
10,880.0	89.43	270.00	7,124.9	-469.5	-3,844.3	3,872.4	0.00	0.00	0.00
10,920.0	89.43	270.00	7,125.3	-469.5	-3,884.3	3,912.1	0.00	0.00	0.00
10,960.0	89.43	270.00	7,125.7	-469.5	-3,924.3	3,951.9	0.00	0.00	0.00
11,000.0	89.43	270.00	7,126.1	-469.5	-3,964.3	3,991.7	0.00	0.00	0.00
11,040.0	89.43	270.00	7,126.5	-469.5	-4,004.3	4,031.5	0.00	0.00	0.00
11,080.0	89.43	270.00	7,126.9	-469.5	-4,044.3	4,071.3	0.00	0.00	0.00
11,120.0	89.43	270.00	7,127.3	-469.5	-4,084.3	4,111.0	0.00	0.00	0.00
11,160.0	89.43	270.00	7,127.7	-469.5	-4,124.3	4,150.8	0.00	0.00	0.00
11,200.0	89.43	270.00	7,128.0	-469.5	-4,164.3	4,190.6	0.00	0.00	0.00
11,240.0	89.43	270.00	7,128.4	-469.5	-4,204.3	4,230.4	0.00	0.00	0.00
11,280.0	89.43	270.00	7,128.8	-469.5	-4,244.3	4,270.2	0.00	0.00	0.00
11,320.0	89.43	270.00	7,129.2	-469.5	-4,284.3	4,309.9	0.00	0.00	0.00
11,360.0	89.43	270.00	7,129.6	-469.5	-4,324.3	4,349.7	0.00	0.00	0.00
11,400.0	89.43	270.00	7,130.0	-469.5	-4,364.3	4,389.5	0.00	0.00	0.00
11,440.0	89.43	270.00	7,130.4	-469.5	-4,404.3	4,429.3	0.00	0.00	0.00
11,480.0	89.43	270.00	7,130.8	-469.5	-4,444.3	4,469.0	0.00	0.00	0.00
11,496.8	89.43	270.00	7,131.0	-469.5	-4,461.1	4,485.8	0.00	0.00	0.00
BHL 720°FNL & 500°FWL									

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 720°FNL & 500°F - plan hits target center - Point	0.00	0.00	7,131.0	-469.5	-4,461.1	1,286,029.89	3,261,850.39	40.114750	-104.563740

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-23-12)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,489.0	7,079.0	7"	7	7-1/2	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,000.0	2,000.0	0.0	0.0	KOP #1	
6,369.0	6,319.3	-469.5	230.0	KOP #2	
7,671.6	7,093.0	-469.5	-636.1	End of Build	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T2N-R64W

Stonebraker 28U-HZ Pad Sec.28-T2N-R64W

Stonebraker 28V-414

Wellbore #1

Plan #1 (7-23-12)

Anticollision Report

30 July, 2012



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (7-23-12)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	7/30/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,496.8	Plan #1 (7-23-12) (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 Well - Wellbore - Design						
Stonebraker 28U-HZ Pad Sec.28-T2N-R64W						
Bryce 21-28 (Exist.) - Wellbore #1 - Design #1	10,051.7	6,900.0	235.0	165.5	3.381	CC, ES, SF
Ries 11-28 (Exist.) - Wellbore #1 - Design #1	11,131.2	6,900.0	330.0	222.0	3.056	CC, ES, SF
Stonebraker 28U-234 - Wellbore #1 - Plan #2 (7-23-12)	1,500.0	1,500.0	28.0	21.5	4.291	CC, ES
Stonebraker 28U-234 - Wellbore #1 - Plan #2 (7-23-12)	11,496.8	11,281.5	573.2	340.9	2.467	SF
Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W						
Stonebraker 28V-214 - Wellbore #1 - Plan #1 (7-24-12)	6,253.0	6,297.6	349.8	313.2	9.566	CC
Stonebraker 28V-214 - Wellbore #1 - Plan #1 (7-24-12)	11,496.8	11,389.4	420.2	204.9	1.951	ES, SF

Offset Design Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Bryce 21-28 (Exist.) - Wellbore #1 - Design #1												
Survey Program: 0-MWD												
Reference												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
9,100.0	7,107.2	6,900.0	6,900.0	61.6	15.4	39.39	-320.4	-3,017.9	980.3	928.1	52.17	18.792
9,200.0	7,108.2	6,900.0	6,900.0	64.3	15.4	39.39	-320.4	-3,017.9	883.5	829.6	53.97	16.371
9,300.0	7,109.2	6,900.0	6,900.0	67.1	15.4	39.39	-320.4	-3,017.9	787.6	731.8	55.78	14.120
9,400.0	7,110.1	6,900.0	6,900.0	69.8	15.4	39.39	-320.4	-3,017.9	692.8	635.2	57.59	12.029
9,500.0	7,111.1	6,900.0	6,900.0	72.5	15.4	39.39	-320.4	-3,017.9	599.7	540.3	59.41	10.094
9,600.0	7,112.1	6,900.0	6,900.0	75.2	15.4	39.39	-320.4	-3,017.9	509.2	447.9	61.23	8.315
9,700.0	7,113.1	6,900.0	6,900.0	78.0	15.4	39.39	-320.4	-3,017.9	423.0	359.9	63.06	6.708
9,800.0	7,114.1	6,900.0	6,900.0	80.7	15.4	39.39	-320.4	-3,017.9	344.4	279.5	64.89	5.307
9,900.0	7,115.1	6,900.0	6,900.0	83.5	15.4	39.39	-320.4	-3,017.9	279.7	213.0	66.72	4.192
10,000.0	7,116.1	6,900.0	6,900.0	86.2	15.4	39.39	-320.4	-3,017.9	240.6	172.1	68.55	3.510
10,051.7	7,116.6	6,900.0	6,900.0	87.6	15.4	39.39	-320.4	-3,017.9	235.0	165.5	69.50	3.381 CC, ES, SF
10,100.0	7,117.1	6,900.0	6,900.0	89.0	15.4	39.39	-320.4	-3,017.9	239.9	169.5	70.39	3.408
10,200.0	7,118.1	6,900.0	6,900.0	91.7	15.4	39.39	-320.4	-3,017.9	277.9	205.7	72.23	3.847
10,300.0	7,119.1	6,900.0	6,900.0	94.5	15.4	39.39	-320.4	-3,017.9	341.9	267.8	74.07	4.616
10,400.0	7,120.1	6,900.0	6,900.0	97.3	15.4	39.39	-320.4	-3,017.9	420.2	344.3	75.91	5.535
10,500.0	7,121.1	6,900.0	6,900.0	100.0	15.4	39.39	-320.4	-3,017.9	506.2	428.4	77.76	6.510
10,600.0	7,122.1	6,900.0	6,900.0	102.8	15.4	39.39	-320.4	-3,017.9	596.5	516.9	79.60	7.494
10,700.0	7,123.1	6,900.0	6,900.0	105.6	15.4	39.39	-320.4	-3,017.9	689.6	608.1	81.45	8.466
10,800.0	7,124.1	6,900.0	6,900.0	108.3	15.4	39.39	-320.4	-3,017.9	784.3	701.0	83.30	9.416

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Bryce 21-28 (Exist.) - Wellbore #1 - Design #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,900.0	7,125.1	6,900.0	6,900.0	111.1	15.4	39.39	-320.4	-3,017.9	880.3	795.1	85.15	10.338	
11,000.0	7,126.1	6,900.0	6,900.0	113.9	15.4	39.39	-320.4	-3,017.9	977.0	890.0	87.00	11.230	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Ries 11-28 (Exist.) - Wellbore #1 - Design #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Reference	Offset	Reference	Offset	(ft)	(ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,200.0	7,118.1	6,900.0	6,900.0	91.7	15.4	52.61	-207.3	-4,097.5	987.9	900.8	87.06	11.347	
10,300.0	7,119.1	6,900.0	6,900.0	94.5	15.4	52.61	-207.3	-4,097.5	894.3	805.0	89.30	10.014	
10,400.0	7,120.1	6,900.0	6,900.0	97.3	15.4	52.61	-207.3	-4,097.5	802.2	710.6	91.54	8.763	
10,500.0	7,121.1	6,900.0	6,900.0	100.0	15.4	52.61	-207.3	-4,097.5	712.2	618.4	93.79	7.594	
10,600.0	7,122.1	6,900.0	6,900.0	102.8	15.4	52.61	-207.3	-4,097.5	625.3	529.3	96.04	6.511	
10,700.0	7,123.1	6,900.0	6,900.0	105.6	15.4	52.61	-207.3	-4,097.5	543.0	444.7	98.29	5.524	
10,800.0	7,124.1	6,900.0	6,900.0	108.3	15.4	52.61	-207.3	-4,097.5	467.5	367.0	100.54	4.650	
10,900.0	7,125.1	6,900.0	6,900.0	111.1	15.4	52.61	-207.3	-4,097.5	402.9	300.1	102.79	3.920	
11,000.0	7,126.1	6,900.0	6,900.0	113.9	15.4	52.61	-207.3	-4,097.5	355.1	250.1	105.04	3.381	
11,100.0	7,127.1	6,900.0	6,900.0	116.7	15.4	52.61	-207.3	-4,097.5	331.5	224.2	107.29	3.089	
11,131.2	7,127.4	6,900.0	6,900.0	117.5	15.4	52.61	-207.3	-4,097.5	330.0	222.0	107.99	3.056	CC, ES, SF
11,200.0	7,128.0	6,900.0	6,900.0	119.4	15.4	52.61	-207.3	-4,097.5	337.1	227.6	109.55	3.077	
11,300.0	7,129.0	6,900.0	6,900.0	122.2	15.4	52.61	-207.3	-4,097.5	370.7	258.9	111.80	3.316	
11,400.0	7,130.0	6,900.0	6,900.0	125.0	15.4	52.61	-207.3	-4,097.5	425.7	311.6	114.06	3.732	
11,496.8	7,131.0	6,900.0	6,900.0	127.7	15.4	52.61	-207.3	-4,097.5	492.6	376.3	116.24	4.237	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Stonebraker 28U-234 - Wellbore #1 - Plan #2 (7-23-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.02	90.02	0.0	28.0	28.0				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	90.02	0.0	28.0	28.0	27.7	0.22	124.436	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	90.02	0.0	28.0	28.0	27.3	0.67	41.479	
300.0	300.0	300.0	300.0	0.6	0.6	90.02	90.02	0.0	28.0	28.0	26.8	1.12	24.887	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	90.02	0.0	28.0	28.0	26.4	1.57	17.777	
500.0	500.0	500.0	500.0	1.0	1.0	90.02	90.02	0.0	28.0	28.0	25.9	2.02	13.826	
600.0	600.0	600.0	600.0	1.2	1.2	90.02	90.02	0.0	28.0	28.0	25.5	2.47	11.312	
700.0	700.0	700.0	700.0	1.5	1.5	90.02	90.02	0.0	28.0	28.0	25.0	2.92	9.572	
800.0	800.0	800.0	800.0	1.7	1.7	90.02	90.02	0.0	28.0	28.0	24.6	3.37	8.296	
900.0	900.0	900.0	900.0	1.9	1.9	90.02	90.02	0.0	28.0	28.0	24.1	3.82	7.320	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.02	90.02	0.0	28.0	28.0	23.7	4.27	6.549	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.02	90.02	0.0	28.0	28.0	23.2	4.72	5.926	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.02	90.02	0.0	28.0	28.0	22.8	5.17	5.410	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	90.02	90.02	0.0	28.0	28.0	22.3	5.62	4.977	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	90.02	90.02	0.0	28.0	28.0	21.9	6.07	4.609	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	90.02	90.02	0.0	28.0	28.0	21.5	6.52	4.291 CC, ES	
1,600.0	1,600.0	1,599.0	1,599.0	3.5	3.5	89.25	89.25	0.4	29.6	29.7	22.7	6.95	4.264	
1,700.0	1,700.0	1,697.8	1,697.6	3.7	3.7	87.39	87.39	1.6	34.6	34.7	27.3	7.38	4.703	
1,800.0	1,800.0	1,796.1	1,795.6	3.9	3.9	85.27	85.27	3.5	42.8	43.2	35.4	7.82	5.528	
1,900.0	1,900.0	1,893.7	1,892.5	4.2	4.1	83.41	83.41	6.3	54.2	55.1	46.9	8.25	6.679	
2,000.0	2,000.0	1,992.0	1,989.7	4.4	4.4	81.98	81.98	9.6	68.2	69.7	61.0	8.70	8.010	
2,100.0	2,100.0	2,091.0	2,087.6	4.6	4.6	-73.74	-73.74	13.0	82.5	83.9	74.8	9.09	9.228	
2,200.0	2,199.8	2,189.9	2,185.4	4.8	4.9	-76.97	-76.97	16.4	96.7	97.4	88.0	9.48	10.275	
2,300.0	2,299.5	2,288.7	2,283.1	4.9	5.2	-81.12	-81.12	19.8	110.9	110.6	100.8	9.89	11.192	
2,400.0	2,398.7	2,387.2	2,380.6	5.1	5.5	-85.90	-85.90	23.2	125.1	124.1	113.8	10.31	12.032	
2,500.0	2,497.5	2,485.4	2,477.7	5.4	5.8	-91.09	-91.09	26.6	139.3	138.3	127.6	10.77	12.840	
2,588.4	2,584.3	2,571.8	2,563.1	5.6	6.1	-95.85	-95.85	29.6	151.7	152.1	140.9	11.21	13.561	
2,600.0	2,595.6	2,583.1	2,574.3	5.6	6.1	-96.51	-96.51	30.0	153.4	154.0	142.7	11.27	13.657	
2,700.0	2,693.5	2,680.6	2,670.7	5.9	6.4	-101.57	-101.57	33.3	167.4	171.1	159.3	11.81	14.488	
2,800.0	2,791.4	2,778.1	2,767.1	6.2	6.7	-105.70	-105.70	36.7	181.4	189.3	177.0	12.37	15.305	
2,900.0	2,889.3	2,875.6	2,863.5	6.5	7.0	-109.11	-109.11	40.0	195.5	208.3	195.4	12.95	16.092	
3,000.0	2,987.2	2,978.9	2,965.9	6.8	7.3	-112.31	-112.31	43.2	209.0	226.9	213.4	13.50	16.801	
3,100.0	3,085.1	3,083.5	3,070.0	7.2	7.5	-115.60	-115.60	45.6	219.0	243.2	229.1	14.05	17.306	
3,200.0	3,183.0	3,188.4	3,174.7	7.5	7.7	-119.03	-119.03	47.2	225.3	257.4	242.8	14.59	17.643	
3,300.0	3,280.9	3,293.3	3,279.6	7.9	7.9	-122.65	-122.65	47.8	227.9	269.9	254.8	15.11	17.861	
3,400.0	3,378.8	3,392.6	3,378.8	8.3	8.1	-126.14	-126.14	47.8	228.0	281.6	266.0	15.61	18.044	
3,500.0	3,476.7	3,490.4	3,476.7	8.6	8.3	-129.30	-129.30	47.8	228.0	294.3	278.2	16.11	18.268	
3,600.0	3,574.6	3,588.3	3,574.6	9.0	8.5	-132.21	-132.21	47.8	228.0	307.8	291.2	16.60	18.541	
3,700.0	3,672.5	3,686.2	3,672.5	9.4	8.7	-134.87	-134.87	47.8	228.0	322.0	304.9	17.08	18.852	
3,800.0	3,770.4	3,784.1	3,770.4	9.8	8.9	-137.31	-137.31	47.8	228.0	336.8	319.3	17.55	19.192	
3,900.0	3,868.3	3,882.0	3,868.3	10.2	9.1	-139.54	-139.54	47.8	228.0	352.2	334.2	18.01	19.554	
4,000.0	3,966.2	3,979.9	3,966.2	10.6	9.3	-141.58	-141.58	47.8	228.0	368.1	349.6	18.47	19.929	
4,100.0	4,064.1	4,077.8	4,064.1	11.1	9.5	-143.46	-143.46	47.8	228.0	384.4	365.5	18.92	20.314	
4,200.0	4,162.0	4,175.7	4,162.0	11.5	9.7	-145.18	-145.18	47.8	228.0	401.1	381.7	19.37	20.704	
4,300.0	4,259.9	4,273.6	4,259.9	11.9	9.9	-146.77	-146.77	47.8	228.0	418.1	398.3	19.82	21.095	
4,400.0	4,357.8	4,371.5	4,357.8	12.3	10.1	-148.23	-148.23	47.8	228.0	435.4	415.1	20.27	21.485	
4,500.0	4,455.7	4,469.4	4,455.7	12.7	10.3	-149.58	-149.58	47.8	228.0	453.0	432.3	20.71	21.873	
4,561.3	4,515.7	4,529.5	4,515.7	13.0	10.4	-150.36	-150.36	47.8	228.0	463.9	442.9	20.98	22.108	
4,600.0	4,553.6	4,567.4	4,553.6	13.2	10.5	-150.88	-150.88	47.8	228.0	470.5	449.4	21.17	22.226	
4,700.0	4,652.1	4,665.9	4,652.1	13.5	10.7	-152.02	-152.02	47.8	228.0	485.8	464.2	21.64	22.454	
4,800.0	4,751.1	4,764.9	4,751.1	13.7	10.9	-152.88	-152.88	47.8	228.0	498.2	476.1	22.09	22.553	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Stonebraker 28U-234 - Wellbore #1 - Plan #2 (7-23-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
4,900.0	4,850.6	4,864.3	4,850.6	14.0	11.1	-153.50	47.8	228.0	507.5	485.0	22.53	22.532		
5,000.0	4,950.3	4,964.1	4,950.3	14.2	11.3	-153.90	47.8	228.0	513.8	490.8	22.94	22.396		
5,100.0	5,050.3	5,064.0	5,050.3	14.4	11.5	-154.10	47.8	228.0	516.9	493.6	23.34	22.151		
5,149.7	5,100.0	5,113.7	5,100.0	14.5	11.6	-0.22	47.8	228.0	517.3	492.3	24.96	20.725		
5,200.0	5,150.3	5,164.0	5,150.3	14.5	11.8	-0.22	47.8	228.0	517.3	492.1	25.15	20.567		
5,300.0	5,250.3	5,264.0	5,250.3	14.7	12.0	-0.22	47.8	228.0	517.3	491.8	25.53	20.262		
5,400.0	5,350.3	5,364.0	5,350.3	14.9	12.2	-0.22	47.8	228.0	517.3	491.4	25.91	19.965		
5,500.0	5,450.3	5,464.0	5,450.3	15.0	12.4	-0.22	47.8	228.0	517.3	491.0	26.29	19.674		
5,600.0	5,550.3	5,564.0	5,550.3	15.2	12.6	-0.22	47.8	228.0	517.3	490.6	26.68	19.391		
5,700.0	5,650.3	5,664.0	5,650.3	15.3	12.8	-0.22	47.8	228.0	517.3	490.2	27.06	19.114		
5,800.0	5,750.3	5,764.0	5,750.3	15.5	13.0	-0.22	47.8	228.0	517.3	489.8	27.45	18.844		
5,900.0	5,850.3	5,864.0	5,850.3	15.7	13.2	-0.22	47.8	228.0	517.3	489.5	27.84	18.581		
6,000.0	5,950.3	5,964.0	5,950.3	15.8	13.5	-0.22	47.8	228.0	517.3	489.1	28.23	18.323		
6,100.0	6,050.3	6,064.0	6,050.3	16.0	13.7	-0.22	47.8	228.0	517.3	488.7	28.62	18.072		
6,164.5	6,114.7	6,128.5	6,114.7	16.1	13.8	-0.22	47.8	228.0	517.3	488.4	28.88	17.913		
6,200.0	6,150.3	6,164.0	6,150.3	16.2	13.9	-0.23	47.8	227.9	517.3	488.3	29.02	17.827		
6,300.0	6,250.3	6,263.1	6,249.0	16.3	14.1	-1.03	47.8	220.7	517.4	488.0	29.41	17.590		
6,369.0	6,319.2	6,329.6	6,314.4	16.4	14.1	-2.35	47.8	208.7	517.8	488.1	29.70	17.433		
6,400.0	6,350.3	6,358.9	6,342.8	16.5	14.2	86.90	47.8	201.7	518.1	489.7	28.37	18.259		
6,450.0	6,400.1	6,405.6	6,387.5	16.6	14.2	85.72	47.8	188.1	518.8	490.3	28.46	18.227		
6,500.0	6,449.6	6,451.7	6,430.7	16.6	14.3	84.57	47.8	172.1	519.7	491.2	28.54	18.209		
6,550.0	6,498.6	6,497.3	6,472.5	16.7	14.3	83.44	47.8	153.8	520.9	492.2	28.62	18.201		
6,600.0	6,546.8	6,542.3	6,512.6	16.7	14.4	82.35	47.8	133.2	522.1	493.4	28.69	18.196		
6,650.0	6,594.0	6,586.9	6,551.0	16.7	14.5	81.29	47.8	110.6	523.6	494.8	28.78	18.189		
6,700.0	6,640.0	6,631.1	6,587.6	16.7	14.6	80.28	47.8	86.0	525.1	496.2	28.89	18.174		
6,750.0	6,684.7	6,674.8	6,622.5	16.8	14.7	79.31	47.8	59.6	526.7	497.7	29.03	18.144		
6,800.0	6,727.8	6,718.2	6,655.5	16.8	14.9	78.38	47.8	31.5	528.4	499.2	29.21	18.091		
6,850.0	6,769.1	6,761.2	6,686.7	16.8	15.1	77.51	47.8	1.8	530.2	500.7	29.44	18.009		
6,900.0	6,808.5	6,803.9	6,715.8	16.8	15.3	76.68	47.8	-29.4	531.9	502.2	29.73	17.891		
6,950.0	6,845.9	6,846.3	6,743.1	16.8	15.6	75.91	47.8	-61.9	533.6	503.5	30.10	17.728		
7,000.0	6,880.9	6,888.4	6,768.3	16.8	15.9	75.20	47.8	-95.6	535.3	504.8	30.57	17.515		
7,050.0	6,913.6	6,930.3	6,791.5	16.9	16.3	74.54	47.8	-130.5	537.0	505.9	31.13	17.251		
7,100.0	6,943.7	6,972.0	6,812.6	16.9	16.7	73.94	47.8	-166.4	538.5	506.7	31.80	16.937		
7,150.0	6,971.2	7,013.4	6,831.7	16.9	17.2	73.40	47.8	-203.2	540.0	507.4	32.58	16.574		
7,200.0	6,995.8	7,054.7	6,848.7	17.1	17.8	72.92	47.8	-240.8	541.3	507.9	33.48	16.168		
7,250.0	7,017.6	7,100.0	6,864.9	17.7	18.4	72.47	47.8	-283.1	542.6	508.0	34.56	15.699		
7,300.0	7,036.3	7,136.9	6,876.3	18.3	19.0	72.14	47.8	-318.1	543.6	507.9	35.66	15.244		
7,350.0	7,052.0	7,177.8	6,886.9	19.1	19.7	71.85	47.8	-357.6	544.5	507.5	36.92	14.745		
7,400.0	7,064.6	7,218.6	6,895.3	19.9	20.4	71.61	47.8	-397.5	545.2	506.9	38.30	14.236		
7,450.0	7,073.9	7,259.3	6,901.6	20.8	21.1	71.44	47.8	-437.8	545.7	505.9	39.77	13.722		
7,489.0	7,079.0	7,291.0	6,905.1	21.5	21.8	71.35	47.8	-469.3	546.0	505.0	40.98	13.323		
7,500.0	7,080.2	7,300.0	6,905.8	21.7	21.9	71.33	47.8	-478.3	546.0	504.7	41.34	13.209		
7,563.0	7,086.7	7,350.0	6,907.9	23.0	22.9	71.02	47.8	-528.2	547.3	503.9	43.40	12.611		
7,600.0	7,090.0	7,385.3	6,907.8	23.7	23.7	70.65	47.8	-563.5	548.4	503.7	44.70	12.270		
7,671.6	7,093.0	7,456.7	6,907.4	25.3	25.2	70.27	47.8	-634.9	549.6	502.1	47.44	11.585		
7,700.0	7,093.2	7,485.2	6,907.2	25.9	25.8	70.22	47.8	-663.4	549.7	501.1	48.59	11.313		
7,800.0	7,094.2	7,585.1	6,906.6	28.1	28.1	70.07	47.8	-763.3	550.3	497.5	52.81	10.420		
7,900.0	7,095.2	7,685.1	6,906.0	30.5	30.4	69.91	47.8	-863.3	550.8	493.6	57.19	9.631		
8,000.0	7,096.2	7,785.1	6,905.4	32.9	32.9	69.75	47.8	-963.3	551.4	489.7	61.70	8.936		
8,100.0	7,097.2	7,885.1	6,904.8	35.4	35.4	69.60	47.8	-1,063.3	551.9	485.6	66.31	8.323		
8,200.0	7,098.2	7,985.1	6,904.2	37.9	37.9	69.44	47.8	-1,163.3	552.5	481.5	71.00	7.782		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Stonebraker 28U-234 - Wellbore #1 - Plan #2 (7-23-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	7,099.2	8,085.1	6,903.6	40.4	40.5	69.28	69.28	47.8	-1,263.3	553.1	477.3	75.74	7.302	
8,400.0	7,100.2	8,185.1	6,902.9	43.0	43.1	69.13	69.13	47.8	-1,363.3	553.6	473.1	80.54	6.874	
8,500.0	7,101.2	8,285.1	6,902.3	45.6	45.7	68.97	68.97	47.8	-1,463.2	554.2	468.8	85.38	6.491	
8,600.0	7,102.2	8,385.0	6,901.7	48.2	48.3	68.82	68.82	47.8	-1,563.2	554.8	464.5	90.24	6.148	
8,700.0	7,103.2	8,485.0	6,901.1	50.9	51.0	68.66	68.66	47.8	-1,663.2	555.4	460.2	95.13	5.838	
8,800.0	7,104.2	8,585.0	6,900.5	53.6	53.6	68.51	68.51	47.8	-1,763.2	555.9	455.9	100.03	5.558	
8,900.0	7,105.2	8,685.0	6,899.9	56.2	56.3	68.36	68.36	47.8	-1,863.2	556.5	451.6	104.96	5.303	
9,000.0	7,106.2	8,785.0	6,899.3	58.9	59.0	68.20	68.20	47.8	-1,963.2	557.1	447.2	109.89	5.070	
9,100.0	7,107.2	8,885.0	6,898.7	61.6	61.7	68.05	68.05	47.8	-2,063.2	557.7	442.9	114.83	4.857	
9,200.0	7,108.2	8,985.0	6,898.1	64.3	64.4	67.90	67.90	47.8	-2,163.1	558.3	438.6	119.77	4.662	
9,300.0	7,109.2	9,085.0	6,897.4	67.1	67.2	67.74	67.74	47.8	-2,263.1	558.9	434.2	124.72	4.481	
9,400.0	7,110.1	9,184.9	6,896.8	69.8	69.9	67.59	67.59	47.8	-2,363.1	559.6	429.9	129.67	4.315	
9,500.0	7,111.1	9,284.9	6,896.2	72.5	72.6	67.44	67.44	47.8	-2,463.1	560.2	425.5	134.62	4.161	
9,600.0	7,112.1	9,384.9	6,895.6	75.2	75.4	67.29	67.29	47.8	-2,563.1	560.8	421.2	139.57	4.018	
9,700.0	7,113.1	9,484.9	6,895.0	78.0	78.1	67.14	67.14	47.8	-2,663.1	561.4	416.9	144.52	3.885	
9,800.0	7,114.1	9,584.9	6,894.4	80.7	80.9	66.99	66.99	47.8	-2,763.1	562.0	412.6	149.47	3.760	
9,900.0	7,115.1	9,684.9	6,893.8	83.5	83.6	66.84	66.84	47.8	-2,863.0	562.7	408.3	154.41	3.644	
10,000.0	7,116.1	9,784.9	6,893.2	86.2	86.4	66.69	66.69	47.8	-2,963.0	563.3	404.0	159.35	3.535	
10,100.0	7,117.1	9,884.9	6,892.6	89.0	89.1	66.54	66.54	47.8	-3,063.0	563.9	399.7	164.28	3.433	
10,200.0	7,118.1	9,984.8	6,891.9	91.7	91.9	66.39	66.39	47.8	-3,163.0	564.6	395.4	169.20	3.337	
10,300.0	7,119.1	10,084.8	6,891.3	94.5	94.7	66.24	66.24	47.8	-3,263.0	565.2	391.1	174.12	3.246	
10,400.0	7,120.1	10,184.8	6,890.7	97.3	97.4	66.09	66.09	47.8	-3,363.0	565.9	386.8	179.03	3.161	
10,500.0	7,121.1	10,284.8	6,890.1	100.0	100.2	65.94	65.94	47.8	-3,462.9	566.5	382.6	183.94	3.080	
10,600.0	7,122.1	10,384.8	6,889.5	102.8	103.0	65.79	65.79	47.8	-3,562.9	567.2	378.3	188.83	3.004	
10,700.0	7,123.1	10,484.8	6,888.9	105.6	105.7	65.65	65.65	47.8	-3,662.9	567.8	374.1	193.72	2.931	
10,800.0	7,124.1	10,584.8	6,888.3	108.3	108.5	65.50	65.50	47.8	-3,762.9	568.5	369.9	198.60	2.863	
10,900.0	7,125.1	10,684.7	6,887.7	111.1	111.3	65.35	65.35	47.8	-3,862.9	569.2	365.7	203.47	2.797	
11,000.0	7,126.1	10,784.7	6,887.1	113.9	114.1	65.20	65.20	47.8	-3,962.9	569.8	361.5	208.33	2.735	
11,100.0	7,127.1	10,884.7	6,886.4	116.7	116.8	65.06	65.06	47.8	-4,062.9	570.5	357.3	213.19	2.676	
11,200.0	7,128.0	10,984.7	6,885.8	119.4	119.6	64.91	64.91	47.8	-4,162.8	571.2	353.2	218.03	2.620	
11,300.0	7,129.0	11,084.7	6,885.2	122.2	122.4	64.77	64.77	47.8	-4,262.8	571.9	349.0	222.86	2.566	
11,400.0	7,130.0	11,184.7	6,884.6	125.0	125.2	64.62	64.62	47.8	-4,362.8	572.6	344.9	227.69	2.515	
11,496.8	7,131.0	11,281.5	6,884.0	127.7	127.9	64.48	64.48	47.8	-4,459.6	573.2	340.9	232.35	2.467 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W - Stonebraker 28V-214 - Wellbore #1 - Plan #1 (7-24-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
3,300.0	3,280.9	3,560.5	3,496.1	7.9	13.0	23.61	23.61	-1,139.9	157.4	983.1	967.3	15.77	62.347	
3,400.0	3,378.8	3,651.9	3,585.0	8.3	13.5	23.70	23.70	-1,119.0	162.2	942.6	926.4	16.27	57.945	
3,500.0	3,476.7	3,743.4	3,673.9	8.6	13.9	23.81	23.81	-1,098.1	167.0	902.2	885.4	16.77	53.794	
3,600.0	3,574.6	3,834.8	3,762.8	9.0	14.3	23.92	23.92	-1,077.2	171.8	861.8	844.5	17.28	49.875	
3,700.0	3,672.5	3,926.3	3,851.7	9.4	14.8	24.05	24.05	-1,056.3	176.6	821.3	803.6	17.79	46.172	
3,800.0	3,770.4	4,017.7	3,940.6	9.8	15.2	24.19	24.19	-1,035.4	181.4	780.9	762.6	18.30	42.669	
3,900.0	3,868.3	4,109.2	4,029.4	10.2	15.7	24.34	24.34	-1,014.5	186.1	740.5	721.7	18.82	39.352	
4,000.0	3,966.2	4,200.6	4,118.3	10.6	16.1	24.51	24.51	-993.6	190.9	700.1	680.7	19.33	36.208	
4,100.0	4,064.1	4,292.1	4,207.2	11.1	16.5	24.70	24.70	-972.6	195.7	659.7	639.8	19.85	33.224	
4,200.0	4,162.0	4,383.5	4,296.1	11.5	17.0	24.92	24.92	-951.7	200.5	619.3	598.9	20.38	30.390	
4,300.0	4,259.9	4,475.0	4,385.0	11.9	17.4	25.16	25.16	-930.8	205.3	578.9	558.0	20.90	27.696	
4,400.0	4,357.8	4,566.4	4,473.9	12.3	17.9	25.45	25.45	-909.9	210.0	538.5	517.1	21.43	25.132	
4,500.0	4,455.7	4,657.2	4,557.8	12.7	18.3	25.76	25.76	-890.3	214.5	498.3	476.4	21.93	22.722	
4,561.3	4,515.7	4,700.0	4,604.0	13.0	18.5	25.98	25.98	-880.4	216.8	474.6	452.4	22.22	21.362	
4,600.0	4,553.6	4,732.3	4,635.6	13.2	18.6	26.01	26.01	-874.0	218.3	460.3	437.9	22.44	20.511	
4,700.0	4,652.1	4,814.3	4,716.2	13.5	18.8	26.07	26.07	-859.4	221.6	427.4	404.4	23.00	18.584	
4,800.0	4,751.1	4,900.0	4,801.0	13.7	19.1	26.13	26.13	-846.5	224.5	400.1	376.6	23.52	17.010	
4,900.0	4,850.6	4,984.8	4,885.1	14.0	19.3	26.17	26.17	-836.2	226.9	378.6	354.6	24.00	15.775	
5,000.0	4,950.3	5,072.6	4,972.5	14.2	19.5	26.16	26.16	-828.1	228.8	363.2	338.7	24.45	14.855	
5,100.0	5,050.3	5,161.3	5,061.0	14.4	19.7	26.09	26.09	-822.6	230.0	353.8	329.0	24.86	14.235	
5,149.7	5,100.0	5,205.7	5,105.3	14.5	19.7	179.93	179.93	-820.8	230.4	351.5	318.2	33.32	10.549	
5,200.0	5,150.3	5,250.6	5,150.2	14.5	19.8	179.89	179.89	-819.7	230.7	350.2	316.8	33.45	10.469	
5,275.3	5,225.6	5,319.9	5,219.6	14.7	19.9	179.87	179.87	-819.3	230.8	349.8	316.1	33.66	10.391	
5,300.0	5,250.3	5,344.6	5,244.3	14.7	19.9	179.87	179.87	-819.3	230.8	349.8	316.0	33.73	10.370	
5,400.0	5,350.3	5,444.6	5,344.3	14.9	20.0	179.87	179.87	-819.3	230.8	349.8	315.8	34.01	10.285	
5,500.0	5,450.3	5,544.6	5,444.3	15.0	20.1	179.87	179.87	-819.3	230.8	349.8	315.5	34.30	10.198	
5,600.0	5,550.3	5,644.6	5,544.3	15.2	20.3	179.87	179.87	-819.3	230.8	349.8	315.2	34.59	10.112	
5,700.0	5,650.3	5,744.6	5,644.3	15.3	20.4	179.87	179.87	-819.3	230.8	349.8	314.9	34.88	10.027	
5,800.0	5,750.3	5,844.6	5,744.3	15.5	20.5	179.87	179.87	-819.3	230.8	349.8	314.6	35.18	9.942	
5,900.0	5,850.3	5,944.6	5,844.3	15.7	20.7	179.87	179.87	-819.3	230.8	349.8	314.3	35.48	9.858	
6,000.0	5,950.3	6,044.6	5,944.3	15.8	20.8	179.87	179.87	-819.3	230.8	349.8	314.0	35.78	9.774	
6,100.0	6,050.3	6,144.6	6,044.3	16.0	20.9	179.87	179.87	-819.3	230.8	349.8	313.7	36.09	9.691	
6,200.0	6,150.3	6,244.6	6,144.3	16.2	21.1	179.87	179.87	-819.3	230.8	349.8	313.4	36.40	9.609	
6,253.0	6,203.3	6,297.6	6,197.3	16.2	21.1	-180.00	-180.00	-819.3	230.0	349.8	313.2	36.56	9.566 CC	
6,300.0	6,250.3	6,344.4	6,243.9	16.3	21.2	-179.42	-179.42	-819.3	226.5	349.8	313.1	36.71	9.529	
6,369.0	6,319.2	6,411.8	6,310.6	16.4	21.2	-177.77	-177.77	-819.3	216.4	350.0	313.1	36.90	9.485	
6,400.0	6,350.3	6,441.6	6,339.7	16.5	21.3	-86.81	-86.81	-819.3	210.1	350.3	320.7	29.66	11.812	
6,450.0	6,400.1	6,489.2	6,385.6	16.6	21.3	-85.29	-85.29	-819.3	197.6	351.0	321.2	29.80	11.779	
6,500.0	6,449.6	6,536.2	6,430.1	16.6	21.3	-83.80	-83.80	-819.3	182.5	351.9	322.0	29.93	11.756	
6,550.0	6,498.6	6,582.8	6,473.2	16.7	21.3	-82.34	-82.34	-819.3	165.0	353.0	323.0	30.07	11.741	
6,600.0	6,546.8	6,628.8	6,514.7	16.7	21.3	-80.93	-80.93	-819.3	145.0	354.3	324.1	30.20	11.733	
6,650.0	6,594.0	6,674.4	6,554.5	16.7	21.4	-79.57	-79.57	-819.3	122.8	355.8	325.5	30.34	11.729	
6,700.0	6,640.0	6,719.6	6,592.6	16.7	21.4	-78.27	-78.27	-819.3	98.5	357.4	327.0	30.48	11.729	
6,750.0	6,684.7	6,764.4	6,628.9	16.8	21.4	-77.02	-77.02	-819.3	72.2	359.2	328.5	30.62	11.728	
6,800.0	6,727.8	6,808.9	6,663.3	16.8	21.4	-75.84	-75.84	-819.3	44.1	361.0	330.2	30.79	11.724	
6,850.0	6,769.1	6,853.0	6,695.8	16.8	21.5	-74.72	-74.72	-819.3	14.3	362.8	331.9	30.98	11.713	
6,900.0	6,808.5	6,896.7	6,726.3	16.8	21.5	-73.67	-73.67	-819.3	-17.1	364.7	333.5	31.19	11.695	
6,950.0	6,845.9	6,940.2	6,754.7	16.8	21.5	-72.69	-72.69	-819.3	-50.0	366.6	335.2	31.46	11.653	
7,000.0	6,880.9	6,983.5	6,781.1	16.8	21.6	-71.78	-71.78	-819.3	-84.3	368.5	336.7	31.79	11.591	
7,050.0	6,913.6	7,026.5	6,805.4	16.9	21.7	-70.94	-70.94	-819.3	-119.7	370.3	338.1	32.19	11.502	
7,100.0	6,943.7	7,069.3	6,827.5	16.9	21.8	-70.18	-70.18	-819.3	-156.4	372.0	339.3	32.68	11.383	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W - Stonebraker 28V-214 - Wellbore #1 - Plan #1 (7-24-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,150.0	6,971.2	7,111.9	6,847.5	16.9	21.9	-69.50	-819.3	-194.0	373.6	340.3	33.26	11.232		
7,200.0	6,995.8	7,154.3	6,865.3	17.1	22.1	-68.89	-819.3	-232.5	375.1	341.1	33.95	11.047		
7,250.0	7,017.6	7,200.0	6,882.0	17.7	22.4	-68.32	-819.3	-275.0	376.4	341.6	34.80	10.816		
7,300.0	7,036.3	7,238.7	6,894.1	18.3	22.6	-67.90	-819.3	-311.7	377.6	341.9	35.70	10.577		
7,350.0	7,052.0	7,280.7	6,905.2	19.1	23.0	-67.52	-819.3	-352.3	378.6	341.8	36.76	10.300		
7,400.0	7,064.6	7,322.7	6,914.0	19.9	23.5	-67.21	-819.3	-393.3	379.4	341.5	37.94	10.001		
7,450.0	7,073.9	7,364.5	6,920.6	20.8	24.0	-66.98	-819.3	-434.6	380.0	340.8	39.23	9.687		
7,489.0	7,079.0	7,400.0	6,924.3	21.5	24.5	-66.85	-819.3	-469.9	380.4	340.0	40.37	9.423		
7,489.2	7,079.0	7,400.0	6,924.3	21.5	24.5	-66.85	-819.3	-469.9	380.4	340.0	40.37	9.423		
7,500.0	7,080.2	7,406.3	6,924.8	21.7	24.6	-66.83	-819.3	-476.2	380.5	339.8	40.66	9.357		
7,563.0	7,086.7	7,458.8	6,926.9	23.0	25.4	-66.36	-819.3	-528.6	382.1	339.5	42.61	8.967		
7,600.0	7,090.0	7,493.3	6,926.7	23.7	26.0	-65.85	-819.3	-563.2	383.5	339.8	43.73	8.771		
7,671.6	7,093.0	7,564.8	6,926.1	25.3	27.3	-65.30	-819.3	-634.6	385.0	338.8	46.19	8.335		
7,700.0	7,093.2	7,593.2	6,925.8	25.9	27.9	-65.23	-819.3	-663.1	385.2	337.9	47.28	8.148		
7,800.0	7,094.2	7,693.2	6,924.9	28.1	29.9	-64.97	-819.3	-763.0	386.0	334.8	51.26	7.531		
7,900.0	7,095.2	7,793.2	6,924.0	30.5	32.1	-64.72	-819.3	-863.0	386.8	331.4	55.39	6.983		
8,000.0	7,096.2	7,893.2	6,923.1	32.9	34.4	-64.47	-819.3	-963.0	387.6	328.0	59.65	6.498		
8,100.0	7,097.2	7,993.2	6,922.2	35.4	36.7	-64.22	-819.3	-1,063.0	388.4	324.4	64.00	6.070		
8,200.0	7,098.2	8,093.1	6,921.4	37.9	39.2	-63.97	-819.3	-1,163.0	389.3	320.8	68.41	5.690		
8,300.0	7,099.2	8,193.1	6,920.5	40.4	41.6	-63.72	-819.3	-1,262.9	390.1	317.2	72.88	5.352		
8,400.0	7,100.2	8,293.1	6,919.6	43.0	44.1	-63.47	-819.3	-1,362.9	390.9	313.5	77.39	5.052		
8,500.0	7,101.2	8,393.1	6,918.7	45.6	46.7	-63.22	-819.3	-1,462.9	391.8	309.8	81.92	4.782		
8,600.0	7,102.2	8,493.1	6,917.8	48.2	49.3	-62.98	-819.3	-1,562.9	392.6	306.1	86.48	4.540		
8,700.0	7,103.2	8,593.1	6,916.9	50.9	51.9	-62.73	-819.3	-1,662.8	393.5	302.4	91.05	4.322		
8,800.0	7,104.2	8,693.0	6,916.0	53.6	54.5	-62.49	-819.3	-1,762.8	394.3	298.7	95.63	4.124		
8,900.0	7,105.2	8,793.0	6,915.1	56.2	57.1	-62.25	-819.3	-1,862.8	395.2	295.0	100.22	3.944		
9,000.0	7,106.2	8,893.0	6,914.2	58.9	59.8	-62.01	-819.3	-1,962.8	396.1	291.3	104.80	3.780		
9,100.0	7,107.2	8,993.0	6,913.3	61.6	62.4	-61.77	-819.3	-2,062.8	397.0	287.6	109.38	3.629		
9,200.0	7,108.2	9,093.0	6,912.5	64.3	65.1	-61.53	-819.3	-2,162.7	397.9	283.9	113.96	3.491		
9,300.0	7,109.2	9,192.9	6,911.6	67.1	67.8	-61.29	-819.3	-2,262.7	398.8	280.2	118.54	3.364		
9,400.0	7,110.1	9,292.9	6,910.7	69.8	70.5	-61.05	-819.3	-2,362.7	399.7	276.6	123.10	3.247		
9,500.0	7,111.1	9,392.9	6,909.8	72.5	73.2	-60.82	-819.3	-2,462.7	400.6	273.0	127.65	3.138		
9,600.0	7,112.1	9,492.9	6,908.9	75.2	75.9	-60.58	-819.3	-2,562.6	401.5	269.3	132.20	3.037		
9,700.0	7,113.1	9,592.9	6,908.0	78.0	78.6	-60.35	-819.3	-2,662.6	402.5	265.7	136.73	2.943		
9,800.0	7,114.1	9,692.9	6,907.1	80.7	81.4	-60.12	-819.3	-2,762.6	403.4	262.1	141.24	2.856		
9,900.0	7,115.1	9,792.8	6,906.2	83.5	84.1	-59.88	-819.3	-2,862.6	404.3	258.6	145.75	2.774		
10,000.0	7,116.1	9,892.8	6,905.3	86.2	86.8	-59.65	-819.3	-2,962.6	405.3	255.0	150.24	2.698		
10,100.0	7,117.1	9,992.8	6,904.4	89.0	89.6	-59.42	-819.3	-3,062.5	406.2	251.5	154.71	2.626		
10,200.0	7,118.1	10,092.8	6,903.6	91.7	92.3	-59.20	-819.3	-3,162.5	407.2	248.0	159.17	2.558		
10,300.0	7,119.1	10,192.8	6,902.7	94.5	95.0	-58.97	-819.3	-3,262.5	408.2	244.6	163.61	2.495		
10,400.0	7,120.1	10,292.8	6,901.8	97.3	97.8	-58.74	-819.3	-3,362.5	409.1	241.1	168.03	2.435		
10,500.0	7,121.1	10,392.7	6,900.9	100.0	100.5	-58.52	-819.3	-3,462.5	410.1	237.7	172.44	2.378		
10,600.0	7,122.1	10,492.7	6,900.0	102.8	103.3	-58.29	-819.3	-3,562.4	411.1	234.3	176.82	2.325		
10,700.0	7,123.1	10,592.7	6,899.1	105.6	106.1	-58.07	-819.3	-3,662.4	412.1	230.9	181.19	2.274		
10,800.0	7,124.1	10,692.7	6,898.2	108.3	108.8	-57.85	-819.2	-3,762.4	413.1	227.5	185.54	2.226		
10,900.0	7,125.1	10,792.7	6,897.3	111.1	111.6	-57.63	-819.2	-3,862.4	414.1	224.2	189.88	2.181		
11,000.0	7,126.1	10,892.6	6,896.4	113.9	114.3	-57.41	-819.2	-3,962.3	415.1	220.9	194.19	2.138		
11,100.0	7,127.1	10,992.6	6,895.5	116.7	117.1	-57.19	-819.2	-4,062.3	416.1	217.6	198.49	2.096		
11,200.0	7,128.0	11,092.6	6,894.7	119.4	119.9	-56.97	-819.2	-4,162.3	417.1	214.4	202.76	2.057		
11,300.0	7,129.0	11,192.6	6,893.8	122.2	122.6	-56.76	-819.2	-4,262.3	418.2	211.2	207.02	2.020		
11,400.0	7,130.0	11,292.6	6,892.9	125.0	125.4	-56.54	-819.2	-4,362.3	419.2	208.0	211.26	1.984		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Offset Design Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W - Stonebraker 28V-214 - Wellbore #1 - Plan #1 (7-24-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
11,496.8	7,131.0	11,389.4	6,892.0	127.7	128.1	-56.33	-819.2	-4,459.0	420.2	204.9	215.34	1.951 ES, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
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Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-23-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4978.0ft (RKB Ensign 32 - 1 Coordinates are relative to: Stonebraker 28V-414
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.62°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28V-414
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28U-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4978.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28V-414	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
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