

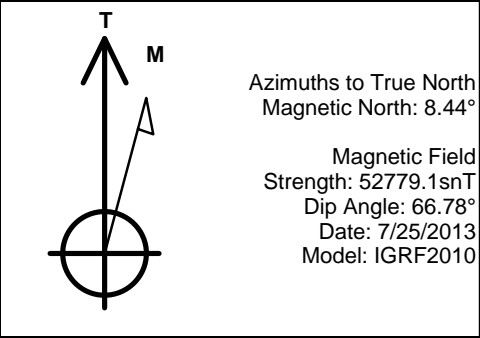
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stonebraker 28W-304**
Surface Location: Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4958.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1284762.73	3266355.95	40.111140	-104.547680	

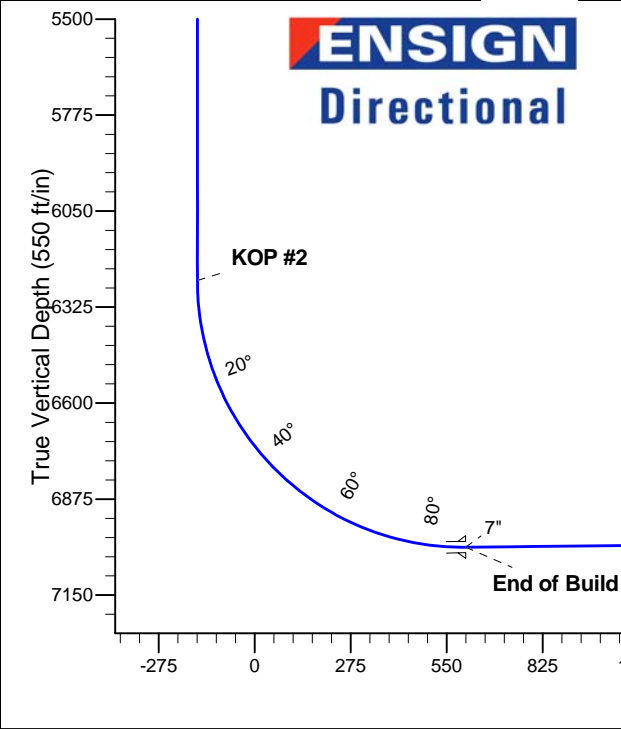
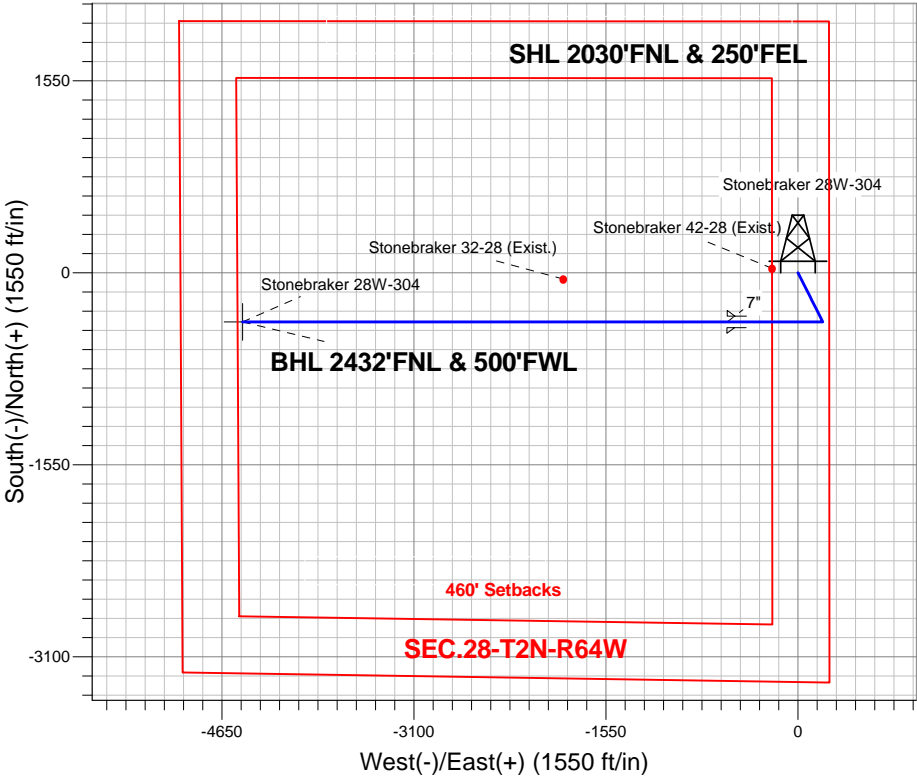
RKB Ensign 32 - 15' WELL @ 4973.0ft (RKB Ensign 32 - 15')

WELLBORE TARGET DETAILS				
Name	TVD	+N/-S	+E/-W	Shape
BHL 2432'FNL & 500'FWL	6972.0	-396.7	-4483.8	Point

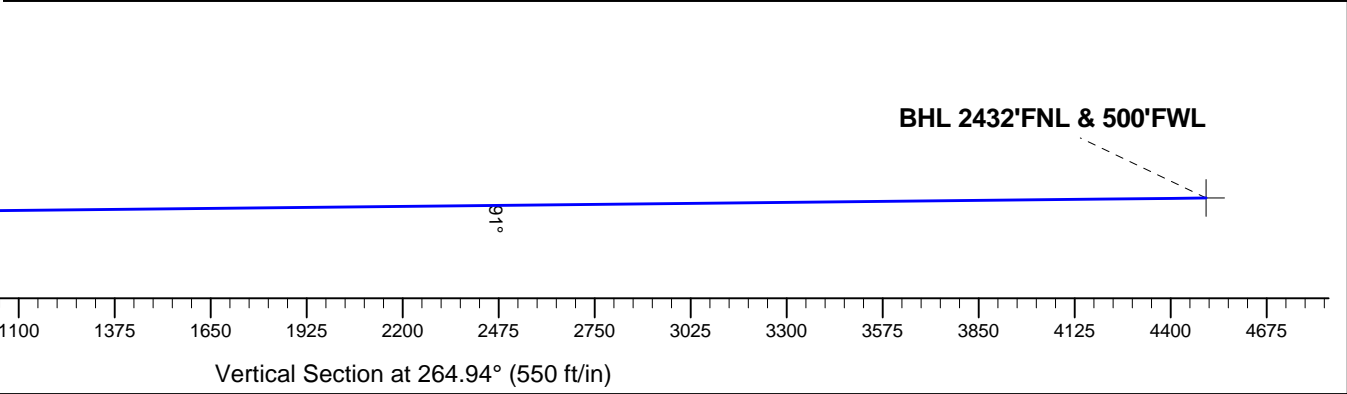


ANNOTATIONS		
TVD	MD	Annotation
1000.0	1000.0	KOP #1
6249.0	6279.4	KOP #2
7013.0	7487.4	End of Build

Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W
Stonebraker 28W-304
Plan #2 (7-25-13)
9:37, July 29 2013



SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec	
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	1409.0	8.18	153.24	1407.7	-26.0	13.1	2.00	153.24	-10.8		
4	4121.3	8.18	153.24	4092.3	-370.7	186.9	0.00	0.00	-153.5		
5	4530.4	0.00	0.00	4500.0	-396.7	200.0	2.00	180.00	-164.3		
6	6279.4	0.00	0.00	6249.1	-396.7	200.0	0.00	0.00	-164.3		
7	7487.4	90.60	270.00	7013.0	-396.7	-571.9	7.50	270.00	604.7		
8	11399.5	90.60	270.00	6972.0	-396.7	-4483.8	0.00	0.00	4501.3	BHL 2432'FNL & 500'FWL	





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T2N-R64W

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

Stonebraker 28W-304

Wellbore #1

Plan: Plan #2 (7-25-13)

Standard Planning Report

29 July, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-25-13)		

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 28VW-HZ Pad Sec.28-T2N-R64W											
Site Position:						Northing:			1,284,762.75 ft			Latitude:			40.111140		
From:			Lat/Long			Easting:			3,266,355.95 ft			Longitude:			-104.547680		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.62 °		

Well	Stonebraker 28W-304					
Well Position	+N-S	0.0 ft	Northing:	1,284,762.73 ft	Latitude:	40.111140
	+E-W	0.0 ft	Easting:	3,266,355.95 ft	Longitude:	-104.547680
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,958.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/25/2013	8.44	66.78	52,779

Design	Plan #2 (7-25-13)			
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	264.94

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,409.0	8.18	153.24	1,407.7	-26.0	13.1	2.00	2.00	0.00	153.24	
4,121.3	8.18	153.24	4,092.3	-370.7	186.9	0.00	0.00	0.00	0.00	
4,530.4	0.00	0.00	4,500.0	-396.7	200.0	2.00	-2.00	0.00	180.00	
6,279.4	0.00	0.00	6,249.1	-396.7	200.0	0.00	0.00	0.00	0.00	
7,487.4	90.60	270.00	7,013.0	-396.7	-571.9	7.50	7.50	0.00	270.00	
11,399.5	90.60	270.00	6,972.0	-396.7	-4,483.8	0.00	0.00	0.00	0.00	BHL 2432'FNL & 5C

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-25-13)		

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
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	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
KOP #1									
1,100.0	2.00	153.24	1,100.0	-1.6	0.8	-0.6	2.00	2.00	0.00
1,200.0	4.00	153.24	1,199.8	-6.2	3.1	-2.6	2.00	2.00	0.00
1,300.0	6.00	153.24	1,299.5	-14.0	7.1	-5.8	2.00	2.00	0.00
1,400.0	8.00	153.24	1,398.7	-24.9	12.6	-10.3	2.00	2.00	0.00
1,409.0	8.18	153.24	1,407.7	-26.0	13.1	-10.8	2.00	2.00	0.00
1,500.0	8.18	153.24	1,497.7	-37.6	19.0	-15.6	0.00	0.00	0.00
1,600.0	8.18	153.24	1,596.7	-50.3	25.4	-20.8	0.00	0.00	0.00
1,700.0	8.18	153.24	1,695.7	-63.0	31.8	-26.1	0.00	0.00	0.00
1,800.0	8.18	153.24	1,794.6	-75.7	38.2	-31.3	0.00	0.00	0.00
1,900.0	8.18	153.24	1,893.6	-88.4	44.6	-36.6	0.00	0.00	0.00
2,000.0	8.18	153.24	1,992.6	-101.1	51.0	-41.9	0.00	0.00	0.00
2,100.0	8.18	153.24	2,091.6	-113.8	57.4	-47.1	0.00	0.00	0.00
2,200.0	8.18	153.24	2,190.6	-126.5	63.8	-52.4	0.00	0.00	0.00
2,300.0	8.18	153.24	2,289.5	-139.2	70.2	-57.7	0.00	0.00	0.00
2,400.0	8.18	153.24	2,388.5	-151.9	76.6	-62.9	0.00	0.00	0.00
2,500.0	8.18	153.24	2,487.5	-164.7	83.0	-68.2	0.00	0.00	0.00
2,600.0	8.18	153.24	2,586.5	-177.4	89.4	-73.4	0.00	0.00	0.00
2,700.0	8.18	153.24	2,685.5	-190.1	95.8	-78.7	0.00	0.00	0.00
2,800.0	8.18	153.24	2,784.5	-202.8	102.2	-84.0	0.00	0.00	0.00
2,900.0	8.18	153.24	2,883.4	-215.5	108.6	-89.2	0.00	0.00	0.00
3,000.0	8.18	153.24	2,982.4	-228.2	115.0	-94.5	0.00	0.00	0.00
3,100.0	8.18	153.24	3,081.4	-240.9	121.4	-99.7	0.00	0.00	0.00
3,200.0	8.18	153.24	3,180.4	-253.6	127.9	-105.0	0.00	0.00	0.00
3,300.0	8.18	153.24	3,279.4	-266.3	134.3	-110.3	0.00	0.00	0.00
3,400.0	8.18	153.24	3,378.4	-279.0	140.7	-115.5	0.00	0.00	0.00
3,500.0	8.18	153.24	3,477.3	-291.7	147.1	-120.8	0.00	0.00	0.00
3,600.0	8.18	153.24	3,576.3	-304.4	153.5	-126.1	0.00	0.00	0.00
3,700.0	8.18	153.24	3,675.3	-317.1	159.9	-131.3	0.00	0.00	0.00
3,800.0	8.18	153.24	3,774.3	-329.8	166.3	-136.6	0.00	0.00	0.00
3,900.0	8.18	153.24	3,873.3	-342.5	172.7	-141.8	0.00	0.00	0.00
4,000.0	8.18	153.24	3,972.2	-355.3	179.1	-147.1	0.00	0.00	0.00
4,100.0	8.18	153.24	4,071.2	-368.0	185.5	-152.4	0.00	0.00	0.00
4,121.3	8.18	153.24	4,092.3	-370.7	186.9	-153.5	0.00	0.00	0.00
4,200.0	6.61	153.24	4,170.4	-379.7	191.4	-157.2	2.00	-2.00	0.00
4,300.0	4.61	153.24	4,269.9	-388.4	195.8	-160.8	2.00	-2.00	0.00
4,400.0	2.61	153.24	4,369.7	-394.1	198.7	-163.2	2.00	-2.00	0.00
4,500.0	0.61	153.24	4,469.6	-396.6	199.9	-164.2	2.00	-2.00	0.00
4,530.4	0.00	0.00	4,500.0	-396.7	200.0	-164.3	2.00	-2.00	0.00
4,600.0	0.00	0.00	4,569.6	-396.7	200.0	-164.3	0.00	0.00	0.00
4,700.0	0.00	0.00	4,669.6	-396.7	200.0	-164.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-25-13)		

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)
4,800.0	0.00	0.00	4,769.6	-396.7	200.0	-164.3	0.00	0.00	0.00
4,900.0	0.00	0.00	4,869.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,000.0	0.00	0.00	4,969.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,100.0	0.00	0.00	5,069.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,200.0	0.00	0.00	5,169.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,300.0	0.00	0.00	5,269.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,400.0	0.00	0.00	5,369.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,500.0	0.00	0.00	5,469.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,600.0	0.00	0.00	5,569.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,700.0	0.00	0.00	5,669.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,769.6	-396.7	200.0	-164.3	0.00	0.00	0.00
5,900.0	0.00	0.00	5,869.6	-396.7	200.0	-164.3	0.00	0.00	0.00
6,000.0	0.00	0.00	5,969.6	-396.7	200.0	-164.3	0.00	0.00	0.00
6,100.0	0.00	0.00	6,069.6	-396.7	200.0	-164.3	0.00	0.00	0.00
6,200.0	0.00	0.00	6,169.6	-396.7	200.0	-164.3	0.00	0.00	0.00
6,279.4	0.00	0.00	6,249.0	-396.7	200.0	-164.3	0.00	0.00	0.00
KOP #2									
6,300.0	1.54	270.00	6,269.6	-396.7	199.7	-164.0	7.48	7.48	0.00
6,400.0	9.04	270.00	6,369.1	-396.7	190.5	-154.8	7.50	7.50	0.00
6,500.0	16.54	270.00	6,466.6	-396.7	168.4	-132.8	7.50	7.50	0.00
6,600.0	24.04	270.00	6,560.3	-396.7	133.7	-98.2	7.50	7.50	0.00
6,700.0	31.54	270.00	6,648.7	-396.7	87.1	-51.8	7.50	7.50	0.00
6,800.0	39.04	270.00	6,730.3	-396.7	29.4	5.7	7.50	7.50	0.00
6,900.0	46.54	270.00	6,803.6	-396.7	-38.5	73.3	7.50	7.50	0.00
7,000.0	54.04	270.00	6,867.4	-396.7	-115.4	149.9	7.50	7.50	0.00
7,100.0	61.54	270.00	6,920.7	-396.7	-199.9	234.1	7.50	7.50	0.00
7,200.0	69.04	270.00	6,962.5	-396.7	-290.7	324.5	7.50	7.50	0.00
7,300.0	76.54	270.00	6,992.0	-396.7	-386.1	419.6	7.50	7.50	0.00
7,400.0	84.04	270.00	7,008.9	-396.7	-484.6	517.7	7.50	7.50	0.00
7,487.4	90.60	270.00	7,013.0	-396.7	-571.9	604.6	7.50	7.50	0.00
End of Build - 7"									
7,500.0	90.60	270.00	7,012.8	-396.7	-584.5	617.2	0.03	0.03	0.00
7,600.0	90.60	270.00	7,011.8	-396.7	-684.5	716.8	0.00	0.00	0.00
7,700.0	90.60	270.00	7,010.7	-396.7	-784.5	816.4	0.00	0.00	0.00
7,800.0	90.60	270.00	7,009.7	-396.7	-884.5	916.0	0.00	0.00	0.00
7,900.0	90.60	270.00	7,008.6	-396.7	-984.5	1,015.6	0.00	0.00	0.00
8,000.0	90.60	270.00	7,007.6	-396.7	-1,084.5	1,115.2	0.00	0.00	0.00
8,100.0	90.60	270.00	7,006.6	-396.7	-1,184.5	1,214.8	0.00	0.00	0.00
8,200.0	90.60	270.00	7,005.5	-396.7	-1,284.5	1,314.4	0.00	0.00	0.00
8,300.0	90.60	270.00	7,004.5	-396.7	-1,384.5	1,414.0	0.00	0.00	0.00
8,400.0	90.60	270.00	7,003.4	-396.7	-1,484.5	1,513.6	0.00	0.00	0.00
8,500.0	90.60	270.00	7,002.4	-396.7	-1,584.4	1,613.2	0.00	0.00	0.00
8,600.0	90.60	270.00	7,001.3	-396.7	-1,684.4	1,712.8	0.00	0.00	0.00
8,700.0	90.60	270.00	7,000.3	-396.7	-1,784.4	1,812.4	0.00	0.00	0.00
8,800.0	90.60	270.00	6,999.2	-396.7	-1,884.4	1,912.1	0.00	0.00	0.00
8,900.0	90.60	270.00	6,998.2	-396.7	-1,984.4	2,011.7	0.00	0.00	0.00
9,000.0	90.60	270.00	6,997.1	-396.7	-2,084.4	2,111.3	0.00	0.00	0.00
9,100.0	90.60	270.00	6,996.1	-396.7	-2,184.4	2,210.9	0.00	0.00	0.00
9,200.0	90.60	270.00	6,995.0	-396.7	-2,284.4	2,310.5	0.00	0.00	0.00
9,300.0	90.60	270.00	6,994.0	-396.7	-2,384.4	2,410.1	0.00	0.00	0.00
9,400.0	90.60	270.00	6,992.9	-396.7	-2,484.4	2,509.7	0.00	0.00	0.00
9,500.0	90.60	270.00	6,991.9	-396.7	-2,584.4	2,609.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Project:	SEC.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	North Reference:	True
Well:	Stonebraker 28W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-25-13)		

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)	
9,600.0	90.60	270.00	6,990.8	-396.7	-2,684.4	2,708.9	0.00	0.00	0.00	
9,700.0	90.60	270.00	6,989.8	-396.7	-2,784.4	2,808.5	0.00	0.00	0.00	
9,800.0	90.60	270.00	6,988.7	-396.7	-2,884.4	2,908.1	0.00	0.00	0.00	
9,900.0	90.60	270.00	6,987.7	-396.7	-2,984.4	3,007.7	0.00	0.00	0.00	
10,000.0	90.60	270.00	6,986.7	-396.7	-3,084.4	3,107.3	0.00	0.00	0.00	
10,100.0	90.60	270.00	6,985.6	-396.7	-3,184.4	3,206.9	0.00	0.00	0.00	
10,200.0	90.60	270.00	6,984.6	-396.7	-3,284.4	3,306.5	0.00	0.00	0.00	
10,300.0	90.60	270.00	6,983.5	-396.7	-3,384.3	3,406.1	0.00	0.00	0.00	
10,400.0	90.60	270.00	6,982.5	-396.7	-3,484.3	3,505.7	0.00	0.00	0.00	
10,500.0	90.60	270.00	6,981.4	-396.7	-3,584.3	3,605.3	0.00	0.00	0.00	
10,600.0	90.60	270.00	6,980.4	-396.7	-3,684.3	3,705.0	0.00	0.00	0.00	
10,700.0	90.60	270.00	6,979.3	-396.7	-3,784.3	3,804.6	0.00	0.00	0.00	
10,800.0	90.60	270.00	6,978.3	-396.7	-3,884.3	3,904.2	0.00	0.00	0.00	
10,900.0	90.60	270.00	6,977.2	-396.7	-3,984.3	4,003.8	0.00	0.00	0.00	
11,000.0	90.60	270.00	6,976.2	-396.7	-4,084.3	4,103.4	0.00	0.00	0.00	
11,100.0	90.60	270.00	6,975.1	-396.7	-4,184.3	4,203.0	0.00	0.00	0.00	
11,200.0	90.60	270.00	6,974.1	-396.7	-4,284.3	4,302.6	0.00	0.00	0.00	
11,300.0	90.60	270.00	6,973.0	-396.7	-4,384.3	4,402.2	0.00	0.00	0.00	
11,399.5	90.60	270.00	6,972.0	-396.7	-4,483.8	4,501.3	0.00	0.00	0.00	
BHL 2432'FNL & 500'FWL										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,487.4	7,013.0	7"	7	7-1/2	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
1,000.0	1,000.0	0.0	0.0	KOP #1
6,279.4	6,249.0	-396.7	200.0	KOP #2
7,487.4	7,013.0	-396.7	-571.9	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T2N-R64W

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

Stonebraker 28W-304

Wellbore #1

Plan #2 (7-25-13)

Anticollision Report

29 July, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (7-25-13)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	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 7/29/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,399.5	Plan #2 (7-25-13) (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						
Stonebraker 32-28 (Exist.) - Wellbore #1 - Design #1	8,812.9	6,900.0	355.1	285.4	5.090	CC, ES
Stonebraker 32-28 (Exist.) - Wellbore #1 - Design #1	8,900.0	6,900.0	365.7	293.6	5.074	SF
Stonebraker 42-28 (Exist.) - Wellbore #1 - Design #1	1,000.0	996.0	212.9	208.7	49.963	CC, ES
Stonebraker 42-28 (Exist.) - Wellbore #1 - Design #1	7,200.0	6,900.0	444.5	411.4	13.415	SF
Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W						
Stonebraker 28V-234 - Wellbore #1 - Plan #1 (7-24-12)	1,000.0	1,000.0	29.1	24.9	6.825	CC, ES
Stonebraker 28V-234 - Wellbore #1 - Plan #1 (7-24-12)	11,399.5	11,322.2	634.6	381.2	2.504	SF

Offset Design												
Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Stonebraker 32-28 (Exist.) - Wellbore #1 - Design #1												
Survey Program: 0-MWD												
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
7,900.0	7,008.6	6,900.0	6,900.0	32.6	15.4	76.80	-50.9	-1,896.4	979.5	933.0	46.53	21.053
8,000.0	7,007.6	6,900.0	6,900.0	35.1	15.4	76.80	-50.9	-1,896.4	887.0	838.1	48.95	18.121
8,100.0	7,006.6	6,900.0	6,900.0	37.6	15.4	76.80	-50.9	-1,896.4	796.4	745.0	51.42	15.488
8,200.0	7,005.5	6,900.0	6,900.0	40.1	15.4	76.80	-50.9	-1,896.4	708.3	654.4	53.93	13.135
8,300.0	7,004.5	6,900.0	6,900.0	42.7	15.4	76.80	-50.9	-1,896.4	623.8	567.4	56.46	11.048
8,400.0	7,003.4	6,900.0	6,900.0	45.4	15.4	76.80	-50.9	-1,896.4	544.6	485.6	59.02	9.227
8,500.0	7,002.4	6,900.0	6,900.0	48.0	15.4	76.80	-50.9	-1,896.4	473.3	411.7	61.60	7.683
8,600.0	7,001.3	6,900.0	6,900.0	50.6	15.4	76.80	-50.9	-1,896.4	414.0	349.8	64.20	6.449
8,700.0	7,000.3	6,900.0	6,900.0	53.3	15.4	76.80	-50.9	-1,896.4	372.6	305.8	66.81	5.578
8,800.0	6,999.2	6,900.0	6,900.0	56.0	15.4	76.80	-50.9	-1,896.4	355.4	285.9	69.43	5.118
8,812.9	6,999.1	6,900.0	6,900.0	56.3	15.4	76.80	-50.9	-1,896.4	355.1	285.4	69.77	5.090 CC, ES
8,900.0	6,998.2	6,900.0	6,900.0	58.7	15.4	76.80	-50.9	-1,896.4	365.7	293.6	72.07	5.074 SF
9,000.0	6,997.1	6,900.0	6,900.0	61.4	15.4	76.80	-50.9	-1,896.4	401.4	326.7	74.71	5.373
9,100.0	6,996.1	6,900.0	6,900.0	64.1	15.4	76.80	-50.9	-1,896.4	456.7	379.3	77.37	5.903
9,200.0	6,995.0	6,900.0	6,900.0	66.8	15.4	76.80	-50.9	-1,896.4	525.4	445.3	80.03	6.565
9,300.0	6,994.0	6,900.0	6,900.0	69.6	15.4	76.80	-50.9	-1,896.4	602.9	520.2	82.69	7.291
9,400.0	6,992.9	6,900.0	6,900.0	72.3	15.4	76.80	-50.9	-1,896.4	686.2	600.8	85.36	8.039
9,500.0	6,991.9	6,900.0	6,900.0	75.0	15.4	76.80	-50.9	-1,896.4	773.5	685.5	88.04	8.786

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 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Offset Design													Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Stonebraker 32-28 (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							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
9,600.0	6,990.8	6,900.0	6,900.0	77.8	15.4	76.80	-50.9	-1,896.4	863.6	772.8	90.72	9.519					
9,700.0	6,989.8	6,900.0	6,900.0	80.5	15.4	76.80	-50.9	-1,896.4	955.6	862.2	93.40	10.231					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Offset Design													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	
0.0	0.0	0.0	0.0	0.0	0.0	-80.15	36.4	-209.8	213.0					
100.0	100.0	96.0	96.0	0.1	0.1	-80.15	36.4	-209.8	212.9	212.7	0.22	966.602		
200.0	200.0	196.0	196.0	0.3	0.3	-80.15	36.4	-209.8	212.9	212.3	0.67	320.035		
300.0	300.0	296.0	296.0	0.6	0.6	-80.15	36.4	-209.8	212.9	211.8	1.11	190.989		
400.0	400.0	396.0	396.0	0.8	0.8	-80.15	36.4	-209.8	212.9	211.4	1.56	136.107		
500.0	500.0	496.0	496.0	1.0	1.0	-80.15	36.4	-209.8	212.9	210.9	2.01	105.726		
600.0	600.0	596.0	596.0	1.2	1.2	-80.15	36.4	-209.8	212.9	210.5	2.46	86.433		
700.0	700.0	696.0	696.0	1.5	1.5	-80.15	36.4	-209.8	212.9	210.0	2.91	73.094		
800.0	800.0	796.0	796.0	1.7	1.7	-80.15	36.4	-209.8	212.9	209.6	3.36	63.322		
900.0	900.0	896.0	896.0	1.9	1.9	-80.15	36.4	-209.8	212.9	209.1	3.81	55.855		
1,000.0	1,000.0	996.0	996.0	2.1	2.1	-80.15	36.4	-209.8	212.9	208.7	4.26	49.963 CC, ES		
1,100.0	1,100.0	1,096.0	1,096.0	2.3	2.4	126.97	36.4	-209.8	214.0	209.3	4.68	45.687		
1,200.0	1,199.8	1,195.8	1,195.8	2.5	2.6	128.02	36.4	-209.8	217.2	212.1	5.08	42.714		
1,300.0	1,299.5	1,295.5	1,295.5	2.7	2.8	129.70	36.4	-209.8	222.6	217.1	5.49	40.521		
1,400.0	1,398.7	1,394.7	1,394.7	2.9	3.0	131.90	36.4	-209.8	230.6	224.7	5.92	38.973		
1,500.0	1,497.7	1,493.7	1,493.7	3.2	3.2	134.40	36.4	-209.8	240.4	234.1	6.36	37.812		
1,600.0	1,596.7	1,592.7	1,592.7	3.4	3.5	136.71	36.4	-209.8	250.6	243.8	6.81	36.805		
1,700.0	1,695.7	1,691.7	1,691.7	3.7	3.7	138.84	36.4	-209.8	261.2	253.9	7.27	35.945		
1,800.0	1,794.6	1,790.6	1,790.6	4.0	3.9	140.80	36.4	-209.8	272.1	264.4	7.73	35.212		
1,900.0	1,893.6	1,889.6	1,889.6	4.3	4.1	142.62	36.4	-209.8	283.3	275.2	8.19	34.589		
2,000.0	1,992.6	1,988.6	1,988.6	4.6	4.4	144.29	36.4	-209.8	294.8	286.2	8.66	34.059		
2,100.0	2,091.6	2,087.6	2,087.6	5.0	4.6	145.84	36.4	-209.8	306.5	297.4	9.12	33.606		
2,200.0	2,190.6	2,186.6	2,186.6	5.3	4.8	147.27	36.4	-209.8	318.4	308.9	9.59	33.217		
2,300.0	2,289.5	2,285.5	2,285.5	5.6	5.0	148.60	36.4	-209.8	330.5	320.5	10.05	32.884		
2,400.0	2,388.5	2,384.5	2,384.5	5.9	5.2	149.84	36.4	-209.8	342.8	332.3	10.52	32.596		
2,500.0	2,487.5	2,483.5	2,483.5	6.3	5.5	150.99	36.4	-209.8	355.2	344.2	10.98	32.348		
2,600.0	2,586.5	2,582.5	2,582.5	6.6	5.7	152.06	36.4	-209.8	367.7	356.3	11.44	32.131		
2,700.0	2,685.5	2,681.5	2,681.5	6.9	5.9	153.06	36.4	-209.8	380.4	368.5	11.91	31.943		
2,800.0	2,784.5	2,780.5	2,780.5	7.3	6.1	154.00	36.4	-209.8	393.2	380.8	12.37	31.778		
2,900.0	2,883.4	2,879.4	2,879.4	7.6	6.4	154.88	36.4	-209.8	406.0	393.2	12.83	31.634		
3,000.0	2,982.4	2,978.4	2,978.4	8.0	6.6	155.70	36.4	-209.8	419.0	405.7	13.30	31.507		
3,100.0	3,081.4	3,077.4	3,077.4	8.3	6.8	156.48	36.4	-209.8	432.0	418.2	13.76	31.394		
3,200.0	3,180.4	3,176.4	3,176.4	8.7	7.0	157.21	36.4	-209.8	445.1	430.9	14.22	31.295		
3,300.0	3,279.4	3,275.4	3,275.4	9.0	7.2	157.90	36.4	-209.8	458.3	443.6	14.69	31.206		
3,400.0	3,378.4	3,374.4	3,374.4	9.3	7.5	158.55	36.4	-209.8	471.5	456.4	15.15	31.128		
3,500.0	3,477.3	3,473.3	3,473.3	9.7	7.7	159.16	36.4	-209.8	484.8	469.2	15.61	31.058		
3,600.0	3,576.3	3,572.3	3,572.3	10.0	7.9	159.74	36.4	-209.8	498.1	482.1	16.07	30.995		
3,700.0	3,675.3	3,671.3	3,671.3	10.4	8.1	160.29	36.4	-209.8	511.5	495.0	16.53	30.938		
3,800.0	3,774.3	3,770.3	3,770.3	10.7	8.4	160.82	36.4	-209.8	525.0	508.0	17.00	30.888		
3,900.0	3,873.3	3,869.3	3,869.3	11.1	8.6	161.31	36.4	-209.8	538.4	521.0	17.46	30.842		
4,000.0	3,972.2	3,968.2	3,968.2	11.4	8.8	161.79	36.4	-209.8	551.9	534.0	17.92	30.801		
4,100.0	4,071.2	4,067.2	4,067.2	11.8	9.0	162.24	36.4	-209.8	565.5	547.1	18.38	30.763		
4,200.0	4,170.4	4,166.4	4,166.4	12.1	9.3	162.69	36.4	-209.8	578.1	559.2	18.85	30.661		
4,300.0	4,269.9	4,265.9	4,265.9	12.3	9.5	163.03	36.4	-209.8	587.4	568.1	19.29	30.452		
4,400.0	4,369.7	4,365.7	4,365.7	12.5	9.7	163.24	36.4	-209.8	593.4	573.7	19.70	30.117		
4,500.0	4,469.6	4,465.6	4,465.6	12.7	9.9	163.34	36.4	-209.8	596.1	576.0	20.10	29.663		
4,600.0	4,569.6	4,565.6	4,565.6	12.8	10.1	-43.41	36.4	-209.8	596.3	573.5	22.77	26.186		
4,700.0	4,669.6	4,665.6	4,665.6	13.0	10.4	-43.41	36.4	-209.8	596.3	573.1	23.14	25.762		
4,800.0	4,769.6	4,765.6	4,765.6	13.1	10.6	-43.41	36.4	-209.8	596.3	572.7	23.52	25.350		
4,900.0	4,869.6	4,865.6	4,865.6	13.3	10.8	-43.41	36.4	-209.8	596.3	572.4	23.90	24.948		
5,000.0	4,969.6	4,965.6	4,965.6	13.4	11.0	-43.41	36.4	-209.8	596.3	572.0	24.28	24.557		

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 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Offset Design										Stonebraker 28U-HZ Pad Sec.28-T2N-R64W - Stonebraker 42-28 (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							Warning		
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				
5,100.0	5,069.6	5,065.6	5,065.6	13.6	11.3	-43.41	36.4	-209.8	596.3	571.6	24.66	24.176				
5,200.0	5,169.6	5,165.6	5,165.6	13.7	11.5	-43.41	36.4	-209.8	596.3	571.2	25.05	23.805				
5,300.0	5,269.6	5,265.6	5,265.6	13.9	11.7	-43.41	36.4	-209.8	596.3	570.8	25.43	23.444				
5,400.0	5,369.6	5,365.6	5,365.6	14.1	11.9	-43.41	36.4	-209.8	596.3	570.4	25.82	23.091				
5,500.0	5,469.6	5,465.6	5,465.6	14.2	12.2	-43.41	36.4	-209.8	596.3	570.0	26.21	22.748				
5,600.0	5,569.6	5,565.6	5,565.6	14.4	12.4	-43.41	36.4	-209.8	596.3	569.7	26.60	22.413				
5,700.0	5,669.6	5,665.6	5,665.6	14.5	12.6	-43.41	36.4	-209.8	596.3	569.3	27.00	22.087				
5,800.0	5,769.6	5,765.6	5,765.6	14.7	12.8	-43.41	36.4	-209.8	596.3	568.9	27.39	21.769				
5,900.0	5,869.6	5,865.6	5,865.6	14.9	13.1	-43.41	36.4	-209.8	596.3	568.5	27.79	21.459				
6,000.0	5,969.6	5,965.6	5,965.6	15.1	13.3	-43.41	36.4	-209.8	596.3	568.1	28.18	21.156				
6,100.0	6,069.6	6,065.6	6,065.6	15.2	13.5	-43.41	36.4	-209.8	596.3	567.7	28.58	20.861				
6,200.0	6,169.6	6,165.6	6,165.6	15.4	13.7	-43.41	36.4	-209.8	596.3	567.3	28.98	20.573				
6,300.0	6,269.6	6,265.6	6,265.6	15.6	14.0	46.62	36.4	-209.8	596.1	568.5	27.55	21.635				
6,400.0	6,369.1	6,365.1	6,365.1	15.7	14.2	47.61	36.4	-209.8	589.8	562.0	27.76	21.248				
6,500.0	6,466.6	6,462.6	6,462.6	15.8	14.4	50.07	36.4	-209.8	575.0	547.2	27.81	20.674				
6,600.0	6,560.3	6,556.3	6,556.3	15.9	14.6	54.08	36.4	-209.8	552.8	525.0	27.84	19.854				
6,700.0	6,648.7	6,644.7	6,644.7	15.9	14.8	59.71	36.4	-209.8	525.1	497.1	28.05	18.724				
6,800.0	6,730.3	6,726.3	6,726.3	16.0	15.0	66.79	36.4	-209.8	494.8	466.2	28.60	17.301				
6,900.0	6,803.6	6,799.6	6,799.6	16.0	15.2	74.78	36.4	-209.8	465.8	436.2	29.54	15.768				
7,000.0	6,867.4	6,863.4	6,863.4	16.1	15.3	82.71	36.4	-209.8	443.3	412.6	30.72	14.431				
7,100.0	6,920.7	6,900.0	6,900.0	16.7	15.4	87.44	36.4	-209.8	433.6	401.7	31.90	13.592				
7,100.7	6,921.1	6,900.0	6,900.0	16.7	15.4	87.44	36.4	-209.8	433.6	401.7	31.91	13.588				
7,200.0	6,962.5	6,900.0	6,900.0	18.0	15.4	86.61	36.4	-209.8	444.5	411.4	33.13	13.415 SF				
7,300.0	6,992.0	6,900.0	6,900.0	19.5	15.4	84.13	36.4	-209.8	475.9	441.3	34.58	13.763				
7,400.0	7,008.9	6,900.0	6,900.0	21.4	15.4	80.08	36.4	-209.8	523.6	487.6	36.03	14.531				
7,500.0	7,012.8	6,900.0	6,900.0	23.4	15.4	75.41	36.4	-209.8	583.0	545.6	37.35	15.609				
7,600.0	7,011.8	6,900.0	6,900.0	25.5	15.4	75.41	36.4	-209.8	651.6	612.2	39.43	16.526				
7,700.0	7,010.7	6,900.0	6,900.0	27.8	15.4	75.41	36.4	-209.8	727.5	685.9	41.63	17.478				
7,800.0	7,009.7	6,900.0	6,900.0	30.2	15.4	75.41	36.4	-209.8	808.7	764.8	43.91	18.416				
7,900.0	7,008.6	6,900.0	6,900.0	32.6	15.4	75.41	36.4	-209.8	893.7	847.4	46.27	19.316				
8,000.0	7,007.6	6,900.0	6,900.0	35.1	15.4	75.41	36.4	-209.8	981.5	932.9	48.68	20.163				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Offset Design		Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W - Stonebraker 28V-234 - 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							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	0.00	29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.22	129.680		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.227		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.936		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.526		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.409		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.789		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.975		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.645		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	29.1	0.0	29.1	25.3	3.82	7.628		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	29.1	0.0	29.1	24.9	4.27	6.825 CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-154.70	29.1	0.0	30.7	26.0	4.69	6.545		
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	-158.27	29.1	0.0	35.5	30.4	5.09	6.974		
1,300.0	1,299.5	1,299.5	1,299.5	2.7	2.8	-162.45	29.1	0.0	43.7	38.2	5.50	7.958		
1,400.0	1,398.7	1,398.7	1,398.7	2.9	3.0	-166.19	29.1	0.0	55.5	49.6	5.90	9.404		
1,500.0	1,497.7	1,497.7	1,497.7	3.2	3.3	-168.99	29.1	0.0	69.4	63.1	6.32	10.980		
1,600.0	1,596.7	1,596.7	1,596.7	3.4	3.5	-170.86	29.1	0.0	83.4	76.6	6.75	12.363		
1,700.0	1,695.7	1,695.7	1,695.7	3.7	3.7	-172.18	29.1	0.0	97.5	90.3	7.18	13.580		
1,800.0	1,794.6	1,794.6	1,794.6	4.0	3.9	-173.18	29.1	0.0	111.6	104.0	7.61	14.657		
1,900.0	1,893.6	1,893.6	1,893.6	4.3	4.1	-173.95	29.1	0.0	125.7	117.7	8.05	15.613		
2,000.0	1,992.6	1,992.6	1,992.6	4.6	4.4	-174.56	29.1	0.0	139.9	131.4	8.50	16.466		
2,100.0	2,091.6	2,089.6	2,089.6	5.0	4.6	-174.57	30.1	1.0	154.6	145.7	8.93	17.308		
2,200.0	2,190.6	2,186.0	2,185.8	5.3	4.8	-173.58	33.5	4.2	170.8	161.4	9.38	18.214		
2,300.0	2,289.5	2,281.6	2,281.2	5.6	5.0	-171.86	39.0	9.7	188.4	178.6	9.83	19.178		
2,400.0	2,388.5	2,376.3	2,375.3	5.9	5.2	-169.67	46.8	17.3	207.8	197.5	10.29	20.199		
2,500.0	2,487.5	2,472.5	2,470.5	6.3	5.5	-167.27	56.4	26.7	228.7	218.0	10.77	21.240		
2,600.0	2,586.5	2,569.9	2,566.9	6.6	5.7	-165.21	66.3	36.4	250.1	238.8	11.26	22.207		
2,700.0	2,685.5	2,667.2	2,663.2	6.9	6.0	-163.48	76.1	46.1	271.7	260.0	11.77	23.097		
2,800.0	2,784.5	2,764.5	2,759.5	7.3	6.2	-162.00	86.0	55.8	293.6	281.3	12.27	23.921		
2,900.0	2,883.4	2,861.9	2,855.9	7.6	6.5	-160.73	95.9	65.4	315.6	302.8	12.79	24.681		
3,000.0	2,982.4	2,959.2	2,952.2	8.0	6.8	-159.62	105.8	75.1	337.7	324.4	13.30	25.383		
3,100.0	3,081.4	3,056.5	3,048.6	8.3	7.0	-158.65	115.6	84.8	359.9	346.1	13.83	26.032		
3,200.0	3,180.4	3,153.8	3,144.9	8.7	7.3	-157.79	125.5	94.5	382.2	367.9	14.35	26.634		
3,300.0	3,279.4	3,251.2	3,241.2	9.0	7.6	-157.02	135.4	104.1	404.6	389.7	14.88	27.193		
3,400.0	3,378.4	3,348.5	3,337.6	9.3	7.9	-156.34	145.2	113.8	427.1	411.6	15.41	27.713		
3,500.0	3,477.3	3,445.8	3,433.9	9.7	8.2	-155.72	155.1	123.5	449.6	433.6	15.94	28.198		
3,600.0	3,576.3	3,543.1	3,530.3	10.0	8.5	-155.16	165.0	133.2	472.1	455.6	16.48	28.650		
3,700.0	3,675.3	3,640.5	3,626.6	10.4	8.8	-154.66	174.9	142.9	494.7	477.7	17.01	29.074		
3,800.0	3,774.3	3,737.8	3,722.9	10.7	9.1	-154.19	184.7	152.5	517.3	499.8	17.55	29.471		
3,900.0	3,873.3	3,835.1	3,819.3	11.1	9.4	-153.77	194.6	162.2	540.0	521.9	18.09	29.843		
4,000.0	3,972.2	3,932.5	3,915.6	11.4	9.7	-153.38	204.5	171.9	562.6	544.0	18.63	30.193		
4,100.0	4,071.2	4,033.0	4,015.2	11.8	10.0	-153.01	214.6	181.8	585.3	566.1	19.18	30.520		
4,200.0	4,170.4	4,148.1	4,129.5	12.1	10.3	-152.92	224.0	191.0	605.1	585.4	19.71	30.693		
4,300.0	4,269.9	4,265.0	4,246.0	12.3	10.6	-152.97	230.2	197.1	619.1	598.9	20.18	30.682		
4,400.0	4,369.7	4,383.0	4,364.0	12.5	10.8	-153.10	233.0	199.8	627.1	606.5	20.60	30.444		
4,500.0	4,469.6	4,488.6	4,469.6	12.7	11.0	-153.24	233.1	200.0	629.7	608.7	20.97	30.031		
4,600.0	4,569.6	4,588.6	4,569.6	12.8	11.2	0.00	233.1	200.0	629.8	606.9	22.93	27.466		
4,700.0	4,669.6	4,688.6	4,669.6	13.0	11.4	0.00	233.1	200.0	629.8	606.6	23.29	27.047		
4,800.0	4,769.6	4,788.6	4,769.6	13.1	11.6	0.00	233.1	200.0	629.8	606.2	23.65	26.636		
4,900.0	4,869.6	4,888.6	4,869.6	13.3	11.8	0.00	233.1	200.0	629.8	605.8	24.01	26.235		
5,000.0	4,969.6	4,988.6	4,969.6	13.4	12.0	0.00	233.1	200.0	629.8	605.5	24.37	25.843		

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 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Offset Design		Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W - Stonebraker 28V-234 - 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							Warning	
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			
5,100.0	5,069.6	5,088.6	5,069.6	13.6	12.2	0.00	233.1	200.0	629.8	605.1	24.74	25.460			
5,200.0	5,169.6	5,188.6	5,169.6	13.7	12.4	0.00	233.1	200.0	629.8	604.7	25.11	25.086			
5,300.0	5,269.6	5,288.6	5,269.6	13.9	12.6	0.00	233.1	200.0	629.8	604.4	25.48	24.720			
5,400.0	5,369.6	5,388.6	5,369.6	14.1	12.8	0.00	233.1	200.0	629.8	604.0	25.85	24.362			
5,500.0	5,469.6	5,488.6	5,469.6	14.2	13.0	0.00	233.1	200.0	629.8	603.6	26.23	24.012			
5,600.0	5,569.6	5,588.6	5,569.6	14.4	13.2	0.00	233.1	200.0	629.8	603.2	26.61	23.671			
5,700.0	5,669.6	5,688.6	5,669.6	14.5	13.4	0.00	233.1	200.0	629.8	602.9	26.99	23.337			
5,800.0	5,769.6	5,788.6	5,769.6	14.7	13.6	0.00	233.1	200.0	629.8	602.5	27.37	23.011			
5,900.0	5,869.6	5,888.6	5,869.6	14.9	13.8	0.00	233.1	200.0	629.8	602.1	27.76	22.692			
6,000.0	5,969.6	5,988.6	5,969.6	15.1	14.0	0.00	233.1	200.0	629.8	601.7	28.14	22.381			
6,100.0	6,069.6	6,088.6	6,069.6	15.2	14.2	0.00	233.1	200.0	629.8	601.3	28.53	22.077			
6,200.0	6,169.6	6,188.6	6,169.6	15.4	14.4	0.00	233.1	200.0	629.8	600.9	28.92	21.779			
6,222.3	6,191.9	6,210.9	6,191.9	15.4	14.5	90.00	233.1	200.0	629.8	602.0	27.84	22.624			
6,300.0	6,269.6	6,288.3	6,269.1	15.6	14.6	89.59	233.1	195.2	629.9	601.7	28.12	22.400			
6,400.0	6,369.1	6,386.8	6,366.0	15.7	14.7	88.83	233.1	178.0	630.0	601.6	28.39	22.191			
6,500.0	6,466.6	6,484.3	6,459.0	15.8	14.8	88.09	233.2	148.8	630.2	601.6	28.60	22.035			
6,600.0	6,560.3	6,580.9	6,546.6	15.9	14.9	87.39	233.2	108.4	630.5	601.7	28.81	21.885			
6,700.0	6,648.7	6,676.5	6,627.8	15.9	15.0	86.74	233.2	57.9	630.9	601.8	29.11	21.672			
6,800.0	6,730.3	6,771.4	6,701.4	16.0	15.1	86.14	233.2	-1.9	631.3	601.7	29.62	21.314			
6,900.0	6,803.6	6,865.6	6,766.6	16.0	15.6	85.61	233.2	-69.8	631.7	601.3	30.47	20.732			
7,000.0	6,867.4	6,959.2	6,822.6	16.1	16.3	85.14	233.2	-144.7	632.2	600.4	31.79	19.883			
7,100.0	6,920.7	7,052.3	6,868.8	16.7	17.3	84.76	233.2	-225.5	632.5	598.9	33.68	18.783			
7,200.0	6,962.5	7,145.0	6,904.8	18.0	18.5	84.46	233.2	-310.9	632.8	596.7	36.15	17.504			
7,300.0	6,992.0	7,237.5	6,930.1	19.5	20.0	84.25	233.2	-399.7	633.1	593.9	39.18	16.158			
7,400.0	7,008.9	7,329.7	6,944.4	21.4	21.7	84.13	233.2	-490.8	633.2	590.6	42.66	14.843			
7,500.0	7,012.8	7,422.7	6,947.7	23.4	23.6	84.10	233.2	-583.6	633.3	586.8	46.49	13.623			
7,600.0	7,011.8	7,522.7	6,946.5	25.5	25.7	84.08	233.2	-683.6	633.3	582.6	50.74	12.480			
7,700.0	7,010.7	7,622.7	6,945.2	27.8	27.9	84.06	233.2	-783.6	633.3	578.1	55.23	11.467			
7,800.0	7,009.7	7,722.7	6,943.9	30.2	30.3	84.04	233.2	-883.6	633.4	573.5	59.90	10.573			
7,900.0	7,008.6	7,822.7	6,942.6	32.6	32.7	84.02	233.3	-983.6	633.4	568.7	64.72	9.787			
8,000.0	7,007.6	7,922.7	6,941.4	35.1	35.2	84.00	233.3	-1,083.6	633.4	563.8	69.65	9.095			
8,100.0	7,006.6	8,022.7	6,940.1	37.6	37.7	83.98	233.3	-1,183.6	633.5	558.8	74.67	8.484			
8,200.0	7,005.5	8,122.7	6,938.8	40.1	40.2	83.96	233.3	-1,283.6	633.5	553.7	79.77	7.942			
8,300.0	7,004.5	8,222.6	6,937.5	42.7	42.8	83.94	233.3	-1,383.5	633.5	548.6	84.92	7.460			
8,400.0	7,003.4	8,322.6	6,936.3	45.4	45.4	83.92	233.3	-1,483.5	633.6	543.4	90.13	7.030			
8,500.0	7,002.4	8,422.6	6,935.0	48.0	48.1	83.90	233.3	-1,583.5	633.6	538.2	95.38	6.643			
8,600.0	7,001.3	8,522.6	6,933.7	50.6	50.7	83.87	233.3	-1,683.5	633.6	533.0	100.66	6.295			
8,700.0	7,000.3	8,622.6	6,932.4	53.3	53.4	83.85	233.3	-1,783.5	633.7	527.7	105.97	5.979			
8,800.0	6,999.2	8,722.6	6,931.2	56.0	56.1	83.83	233.3	-1,883.5	633.7	522.4	111.31	5.693			
8,900.0	6,998.2	8,822.6	6,929.9	58.7	58.8	83.81	233.3	-1,983.5	633.7	517.0	116.67	5.432			
9,000.0	6,997.1	8,922.6	6,928.6	61.4	61.5	83.79	233.4	-2,083.5	633.7	511.7	122.05	5.192			
9,100.0	6,996.1	9,022.6	6,927.3	64.1	64.2	83.77	233.4	-2,183.5	633.8	506.3	127.45	4.973			
9,200.0	6,995.0	9,122.6	6,926.1	66.8	66.9	83.75	233.4	-2,283.5	633.8	501.0	132.86	4.771			
9,300.0	6,994.0	9,222.6	6,924.8	69.6	69.6	83.73	233.4	-2,383.5	633.8	495.6	138.28	4.584			
9,400.0	6,992.9	9,322.6	6,923.5	72.3	72.4	83.71	233.4	-2,483.5	633.9	490.2	143.72	4.411			
9,500.0	6,991.9	9,422.6	6,922.2	75.0	75.1	83.69	233.4	-2,583.4	633.9	484.7	149.17	4.250			
9,600.0	6,990.8	9,522.6	6,921.0	77.8	77.8	83.67	233.4	-2,683.4	633.9	479.3	154.62	4.100			
9,700.0	6,989.8	9,622.6	6,919.7	80.5	80.6	83.65	233.4	-2,783.4	634.0	473.9	160.08	3.960			
9,800.0	6,988.7	9,722.6	6,918.4	83.3	83.3	83.63	233.4	-2,883.4	634.0	468.5	165.55	3.830			
9,900.0	6,987.7	9,822.6	6,917.2	86.0	86.1	83.61	233.4	-2,983.4	634.0	463.0	171.03	3.707			

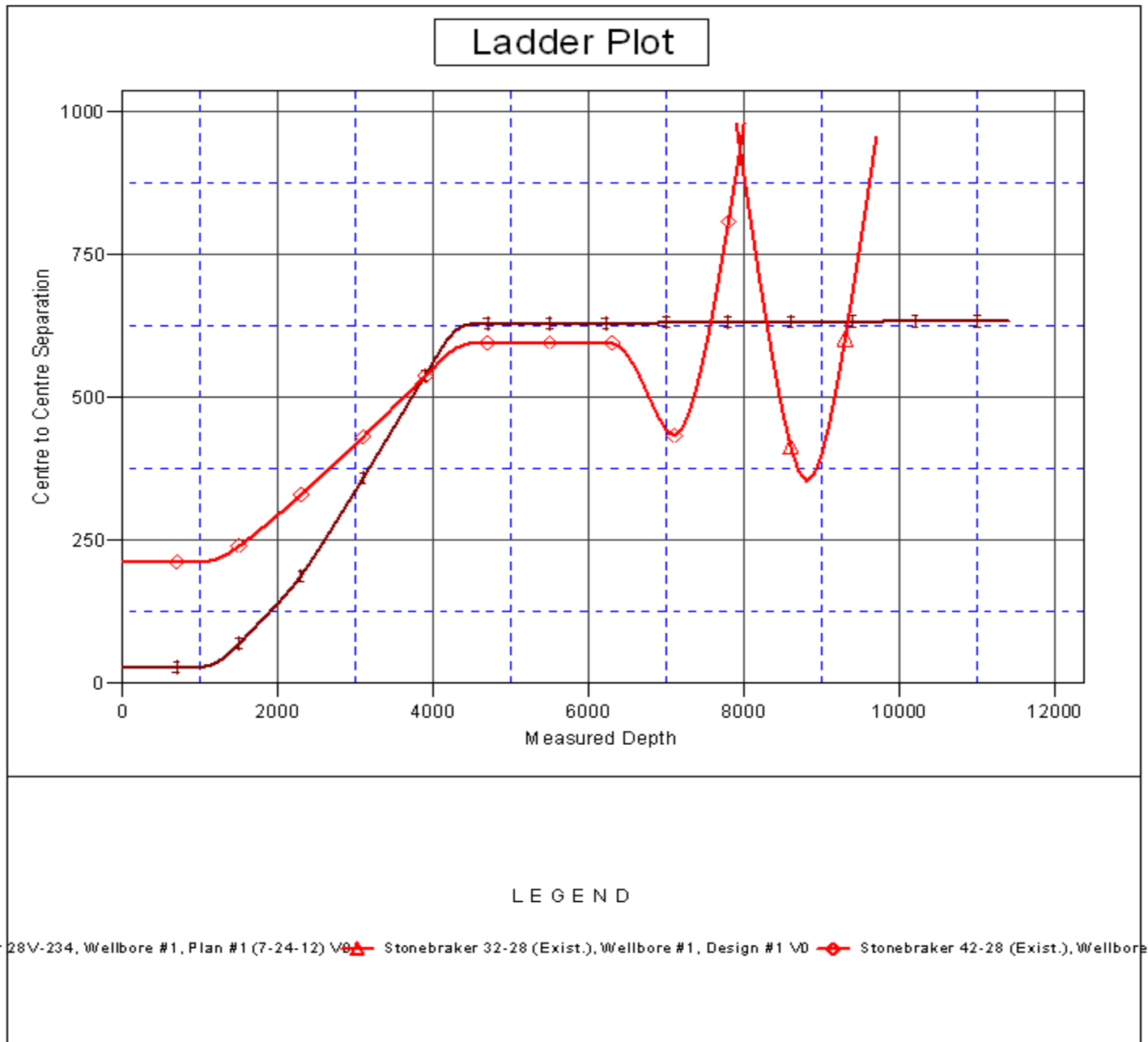
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stonebraker 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Offset Design												Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W - Stonebraker 28V-234 - 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							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
10,000.0	6,986.7	9,922.6	6,915.9	88.8	88.8	83.59	233.4	-3,083.4	634.1	457.6	176.51	3.592					
10,100.0	6,985.6	10,022.6	6,914.6	91.6	91.6	83.57	233.4	-3,183.4	634.1	452.1	181.99	3.484					
10,200.0	6,984.6	10,122.6	6,913.3	94.3	94.4	83.55	233.5	-3,283.4	634.1	446.7	187.48	3.382					
10,300.0	6,983.5	10,222.6	6,912.1	97.1	97.1	83.53	233.5	-3,383.4	634.2	441.2	192.98	3.286					
10,400.0	6,982.5	10,322.6	6,910.8	99.9	99.9	83.51	233.5	-3,483.4	634.2	435.7	198.48	3.195					
10,500.0	6,981.4	10,422.6	6,909.5	102.6	102.7	83.49	233.5	-3,583.4	634.2	430.3	203.98	3.109					
10,600.0	6,980.4	10,522.6	6,908.2	105.4	105.4	83.47	233.5	-3,683.4	634.3	424.8	209.49	3.028					
10,700.0	6,979.3	10,622.6	6,907.0	108.2	108.2	83.45	233.5	-3,783.3	634.3	419.3	215.00	2.950					
10,800.0	6,978.3	10,722.6	6,905.7	110.9	111.0	83.43	233.5	-3,883.3	634.4	413.8	220.51	2.877					
10,900.0	6,977.2	10,822.6	6,904.4	113.7	113.8	83.41	233.5	-3,983.3	634.4	408.4	226.02	2.807					
11,000.0	6,976.2	10,922.6	6,903.1	116.5	116.5	83.39	233.5	-4,083.3	634.4	402.9	231.54	2.740					
11,100.0	6,975.1	11,022.6	6,901.9	119.3	119.3	83.37	233.5	-4,183.3	634.5	397.4	237.05	2.676					
11,200.0	6,974.1	11,122.6	6,900.6	122.1	122.1	83.35	233.5	-4,283.3	634.5	391.9	242.57	2.616					
11,300.0	6,973.0	11,222.6	6,899.3	124.8	124.9	83.33	233.6	-4,383.3	634.5	386.4	248.10	2.558					
11,399.5	6,972.0	11,322.2	6,898.0	127.6	127.4	83.31	233.6	-4,482.8	634.6	381.2	253.37	2.504 SF					

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Reference Site:	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	MD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stonebraker 28W-304	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 #2 (7-25-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4973.0ft (RKB Ensign 32 - 1 Coordinates are relative to: Stonebraker 28W-304
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 28W-304
Project:	SEC.28-T2N-R64W	TVD Reference:	WELL @ 4973.0ft (RKB Ensign 32 - 15')
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