

ENSIGN

Directional

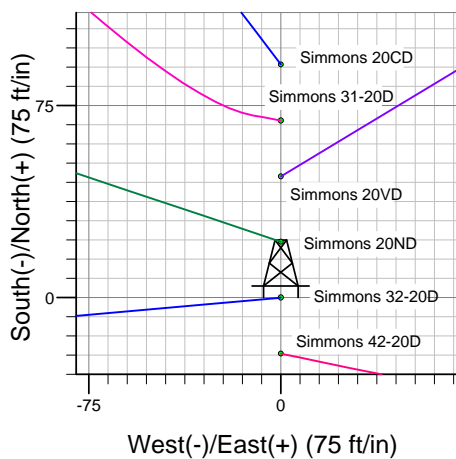
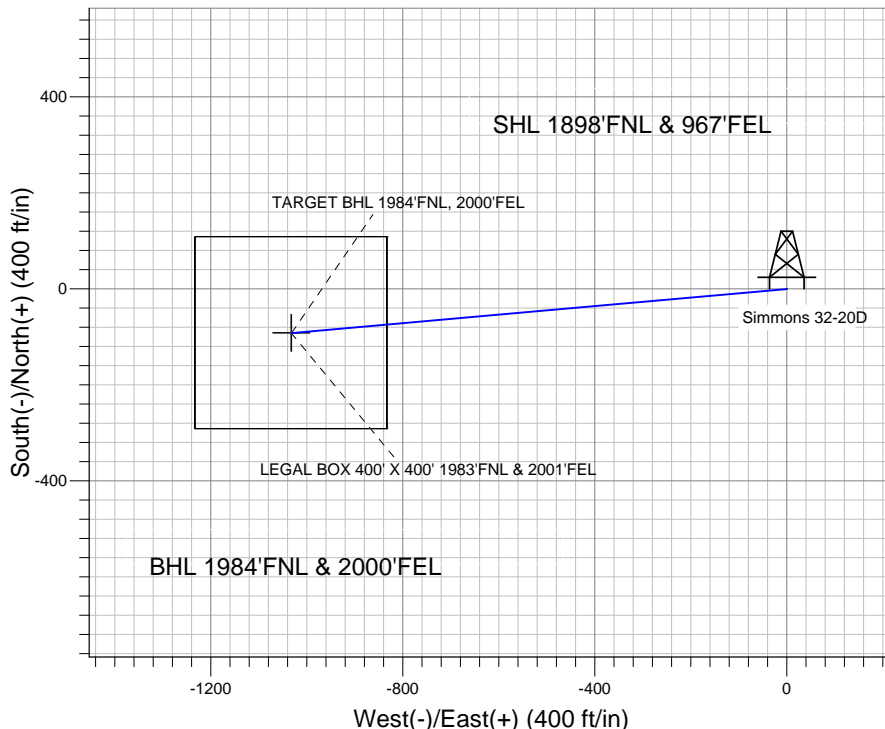
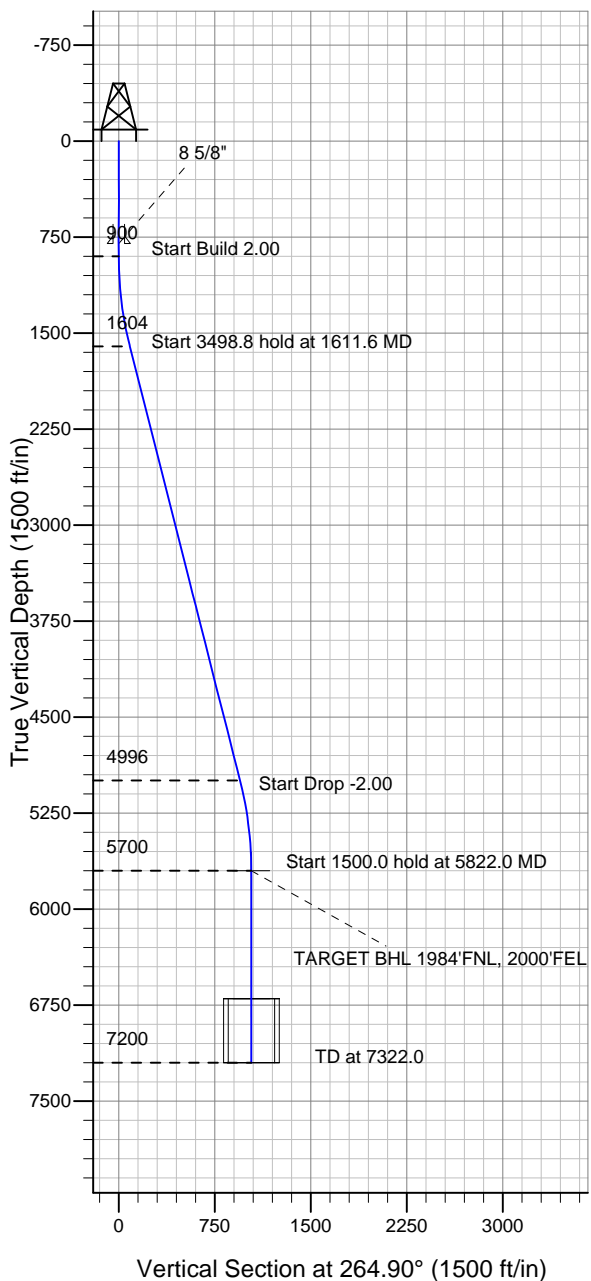
Well Name: Simmons 32-20D

Surface Location: Simmons 42-20D Pad Sec.20-T6N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4760.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1416709.77 3259268.65 40° 28' 24.708 N 104° 34' 5.016 W
Original Well Elev WELL @ 4773.0ft (Original Well Elev)

PETROLEUM DEVELOPMENT CORP Weld County CO



Simmons 42-20D Pad Sec.20-T6N-R64W
Simmons 32-20D
Plan #1 (1-06-11)
8:12, January 18 2011



Azimuths to True North
Magnetic North: 8.82°

Magnetic Field
Strength: 53234.5snT
Dip Angle: 67.16°
Date: 1/18/2011
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1984'FNL, 2000'FEL	5700.0	-92.1	-1031.9	40° 28' 23.798 N	104° 34' 18.368 W	Point
LEGAL BOX 400' X 400' 1983'FNL & 2001'FEL	6700.0	-91.1	-1032.9	40° 28' 23.807 N	104° 34' 18.381 W	Rectangle (Sides: L400.0 W400.0)

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	900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.0	
3	1611.6	14.23	264.90	1604.3	-7.8	-87.6	2.00	264.90	87.9	
4	5110.4	14.23	264.90	4995.7	-84.3	-944.3	0.00	0.00	948.1	
5	5822.0	0.00	0.00	5700.0	-92.1	-1031.9	2.00	180.00	1036.0	TARGET BHL 1984'FNL, 2000'FEL
6	7322.0	0.00	0.00	7200.0	-92.1	-1031.9	0.00	0.00	1036.0	



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.20-T6N-R64W

Simmons 42-20D Pad Sec.20-T6N-R64W

Simmons 32-20D

Wellbore #1

Plan: Plan #1 (1-06-11)

Standard Planning Report

18 January, 2011

Database:	Landmark	Local Co-ordinate Reference:	Well Simmons 32-20D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	SEC.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	North Reference:	True
Well:	Simmons 32-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-06-11)		

Project	SEC.20-T6N-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 Simmons 42-20D Pad Sec.20-T6N-R64W					
Site Position:		Northing:	1,416,687.92 ft	Latitude:	40° 28' 24.492 N
From:	Lat/Long	Easting:	3,259,268.88 ft	Longitude:	104° 34' 5.016 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.60 °

Well	Simmons 32-20D					
Well Position	+N-S	21.9 ft	Northing:	1,416,709.77 ft	Latitude:	40° 28' 24.708 N
	+E-W	0.0 ft	Easting:	3,259,268.65 ft	Longitude:	104° 34' 5.016 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,760.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/18/2011	8.82	67.16	53,235

Design	Plan #1 (1-06-11)			
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	264.90

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	
900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,611.6	14.23	264.90	1,604.3	-7.8	-87.6	2.00	2.00	0.00	264.90	
5,110.4	14.23	264.90	4,995.7	-84.3	-944.3	0.00	0.00	0.00	0.00	
5,822.0	0.00	0.00	5,700.0	-92.1	-1,031.9	2.00	-2.00	0.00	180.00	TARGET BHL 1984
7,322.0	0.00	0.00	7,200.0	-92.1	-1,031.9	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Simmons 32-20D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	SEC.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	North Reference:	True
Well:	Simmons 32-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-06-11)		

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
8 5/8"									
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
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.40	264.90	920.0	0.0	-0.1	0.1	2.00	2.00	0.00
960.0	1.20	264.90	960.0	-0.1	-0.6	0.6	2.00	2.00	0.00
1,000.0	2.00	264.90	1,000.0	-0.2	-1.7	1.7	2.00	2.00	0.00
1,040.0	2.80	264.90	1,039.9	-0.3	-3.4	3.4	2.00	2.00	0.00
1,080.0	3.60	264.90	1,079.9	-0.5	-5.6	5.7	2.00	2.00	0.00
1,120.0	4.40	264.90	1,119.8	-0.8	-8.4	8.4	2.00	2.00	0.00
1,160.0	5.20	264.90	1,159.6	-1.0	-11.7	11.8	2.00	2.00	0.00
1,200.0	6.00	264.90	1,199.5	-1.4	-15.6	15.7	2.00	2.00	0.00
1,240.0	6.80	264.90	1,239.2	-1.8	-20.1	20.2	2.00	2.00	0.00
1,280.0	7.60	264.90	1,278.9	-2.2	-25.1	25.2	2.00	2.00	0.00
1,320.0	8.40	264.90	1,318.5	-2.7	-30.6	30.7	2.00	2.00	0.00
1,360.0	9.20	264.90	1,358.0	-3.3	-36.7	36.9	2.00	2.00	0.00
1,400.0	10.00	264.90	1,397.5	-3.9	-43.4	43.5	2.00	2.00	0.00
1,440.0	10.80	264.90	1,436.8	-4.5	-50.5	50.7	2.00	2.00	0.00
1,480.0	11.60	264.90	1,476.0	-5.2	-58.3	58.5	2.00	2.00	0.00
1,520.0	12.40	264.90	1,515.2	-5.9	-66.6	66.8	2.00	2.00	0.00
1,560.0	13.20	264.90	1,554.2	-6.7	-75.4	75.7	2.00	2.00	0.00
1,600.0	14.00	264.90	1,593.1	-7.6	-84.8	85.1	2.00	2.00	0.00
1,611.6	14.23	264.90	1,604.3	-7.8	-87.6	87.9	2.00	2.00	0.00
1,640.0	14.23	264.90	1,631.8	-8.4	-94.5	94.9	0.00	0.00	0.00
1,680.0	14.23	264.90	1,670.6	-9.3	-104.3	104.7	0.00	0.00	0.00
1,720.0	14.23	264.90	1,709.4	-10.2	-114.1	114.6	0.00	0.00	0.00
1,760.0	14.23	264.90	1,748.2	-11.1	-123.9	124.4	0.00	0.00	0.00
1,800.0	14.23	264.90	1,786.9	-11.9	-133.7	134.2	0.00	0.00	0.00
1,840.0	14.23	264.90	1,825.7	-12.8	-143.5	144.1	0.00	0.00	0.00
1,880.0	14.23	264.90	1,864.5	-13.7	-153.3	153.9	0.00	0.00	0.00
1,920.0	14.23	264.90	1,903.2	-14.6	-163.1	163.7	0.00	0.00	0.00
1,960.0	14.23	264.90	1,942.0	-15.4	-172.9	173.6	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	SEC.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	North Reference:	True
Well:	Simmons 32-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-06-11)		

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)
2,000.0	14.23	264.90	1,980.8	-16.3	-182.7	183.4	0.00	0.00	0.00
2,040.0	14.23	264.90	2,019.6	-17.2	-192.5	193.2	0.00	0.00	0.00
2,080.0	14.23	264.90	2,058.3	-18.1	-202.3	203.1	0.00	0.00	0.00
2,120.0	14.23	264.90	2,097.1	-18.9	-212.1	212.9	0.00	0.00	0.00
2,160.0	14.23	264.90	2,135.9	-19.8	-221.9	222.7	0.00	0.00	0.00
2,200.0	14.23	264.90	2,174.6	-20.7	-231.7	232.6	0.00	0.00	0.00
2,240.0	14.23	264.90	2,213.4	-21.5	-241.5	242.4	0.00	0.00	0.00
2,280.0	14.23	264.90	2,252.2	-22.4	-251.2	252.2	0.00	0.00	0.00
2,320.0	14.23	264.90	2,291.0	-23.3	-261.0	262.1	0.00	0.00	0.00
2,360.0	14.23	264.90	2,329.7	-24.2	-270.8	271.9	0.00	0.00	0.00
2,400.0	14.23	264.90	2,368.5	-25.0	-280.6	281.7	0.00	0.00	0.00
2,440.0	14.23	264.90	2,407.3	-25.9	-290.4	291.6	0.00	0.00	0.00
2,480.0	14.23	264.90	2,446.1	-26.8	-300.2	301.4	0.00	0.00	0.00
2,520.0	14.23	264.90	2,484.8	-27.7	-310.0	311.2	0.00	0.00	0.00
2,560.0	14.23	264.90	2,523.6	-28.5	-319.8	321.1	0.00	0.00	0.00
2,600.0	14.23	264.90	2,562.4	-29.4	-329.6	330.9	0.00	0.00	0.00
2,640.0	14.23	264.90	2,601.1	-30.3	-339.4	340.8	0.00	0.00	0.00
2,680.0	14.23	264.90	2,639.9	-31.2	-349.2	350.6	0.00	0.00	0.00
2,720.0	14.23	264.90	2,678.7	-32.0	-359.0	360.4	0.00	0.00	0.00
2,760.0	14.23	264.90	2,717.5	-32.9	-368.8	370.3	0.00	0.00	0.00
2,800.0	14.23	264.90	2,756.2	-33.8	-378.6	380.1	0.00	0.00	0.00
2,840.0	14.23	264.90	2,795.0	-34.7	-388.4	389.9	0.00	0.00	0.00
2,880.0	14.23	264.90	2,833.8	-35.5	-398.2	399.8	0.00	0.00	0.00
2,920.0	14.23	264.90	2,872.5	-36.4	-408.0	409.6	0.00	0.00	0.00
2,960.0	14.23	264.90	2,911.3	-37.3	-417.8	419.4	0.00	0.00	0.00
3,000.0	14.23	264.90	2,950.1	-38.2	-427.6	429.3	0.00	0.00	0.00
3,040.0	14.23	264.90	2,988.9	-39.0	-437.3	439.1	0.00	0.00	0.00
3,080.0	14.23	264.90	3,027.6	-39.9	-447.1	448.9	0.00	0.00	0.00
3,120.0	14.23	264.90	3,066.4	-40.8	-456.9	458.8	0.00	0.00	0.00
3,160.0	14.23	264.90	3,105.2	-41.7	-466.7	468.6	0.00	0.00	0.00
3,200.0	14.23	264.90	3,144.0	-42.5	-476.5	478.4	0.00	0.00	0.00
3,240.0	14.23	264.90	3,182.7	-43.4	-486.3	488.3	0.00	0.00	0.00
3,280.0	14.23	264.90	3,221.5	-44.3	-496.1	498.1	0.00	0.00	0.00
3,320.0	14.23	264.90	3,260.3	-45.1	-505.9	507.9	0.00	0.00	0.00
3,360.0	14.23	264.90	3,299.0	-46.0	-515.7	517.8	0.00	0.00	0.00
3,400.0	14.23	264.90	3,337.8	-46.9	-525.5	527.6	0.00	0.00	0.00
3,440.0	14.23	264.90	3,376.6	-47.8	-535.3	537.4	0.00	0.00	0.00
3,480.0	14.23	264.90	3,415.4	-48.6	-545.1	547.3	0.00	0.00	0.00
3,520.0	14.23	264.90	3,454.1	-49.5	-554.9	557.1	0.00	0.00	0.00
3,560.0	14.23	264.90	3,492.9	-50.4	-564.7	566.9	0.00	0.00	0.00
3,600.0	14.23	264.90	3,531.7	-51.3	-574.5	576.8	0.00	0.00	0.00
3,640.0	14.23	264.90	3,570.5	-52.1	-584.3	586.6	0.00	0.00	0.00
3,680.0	14.23	264.90	3,609.2	-53.0	-594.1	596.4	0.00	0.00	0.00
3,720.0	14.23	264.90	3,648.0	-53.9	-603.9	606.3	0.00	0.00	0.00
3,760.0	14.23	264.90	3,686.8	-54.8	-613.7	616.1	0.00	0.00	0.00
3,800.0	14.23	264.90	3,725.5	-55.6	-623.5	625.9	0.00	0.00	0.00
3,840.0	14.23	264.90	3,764.3	-56.5	-633.2	635.8	0.00	0.00	0.00
3,880.0	14.23	264.90	3,803.1	-57.4	-643.0	645.6	0.00	0.00	0.00
3,920.0	14.23	264.90	3,841.9	-58.3	-652.8	655.4	0.00	0.00	0.00
3,960.0	14.23	264.90	3,880.6	-59.1	-662.6	665.3	0.00	0.00	0.00
4,000.0	14.23	264.90	3,919.4	-60.0	-672.4	675.1	0.00	0.00	0.00
4,040.0	14.23	264.90	3,958.2	-60.9	-682.2	684.9	0.00	0.00	0.00
4,080.0	14.23	264.90	3,996.9	-61.8	-692.0	694.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Simmons 32-20D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	SEC.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	North Reference:	True
Well:	Simmons 32-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-06-11)		

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)
4,120.0	14.23	264.90	4,035.7	-62.6	-701.8	704.6	0.00	0.00	0.00
4,160.0	14.23	264.90	4,074.5	-63.5	-711.6	714.4	0.00	0.00	0.00
4,200.0	14.23	264.90	4,113.3	-64.4	-721.4	724.3	0.00	0.00	0.00
4,240.0	14.23	264.90	4,152.0	-65.3	-731.2	734.1	0.00	0.00	0.00
4,280.0	14.23	264.90	4,190.8	-66.1	-741.0	743.9	0.00	0.00	0.00
4,320.0	14.23	264.90	4,229.6	-67.0	-750.8	753.8	0.00	0.00	0.00
4,360.0	14.23	264.90	4,268.4	-67.9	-760.6	763.6	0.00	0.00	0.00
4,400.0	14.23	264.90	4,307.1	-68.8	-770.4	773.4	0.00	0.00	0.00
4,440.0	14.23	264.90	4,345.9	-69.6	-780.2	783.3	0.00	0.00	0.00
4,480.0	14.23	264.90	4,384.7	-70.5	-790.0	793.1	0.00	0.00	0.00
4,520.0	14.23	264.90	4,423.4	-71.4	-799.8	802.9	0.00	0.00	0.00
4,560.0	14.23	264.90	4,462.2	-72.2	-809.6	812.8	0.00	0.00	0.00
4,600.0	14.23	264.90	4,501.0	-73.1	-819.3	822.6	0.00	0.00	0.00
4,640.0	14.23	264.90	4,539.8	-74.0	-829.1	832.4	0.00	0.00	0.00
4,680.0	14.23	264.90	4,578.5	-74.9	-838.9	842.3	0.00	0.00	0.00
4,720.0	14.23	264.90	4,617.3	-75.7	-848.7	852.1	0.00	0.00	0.00
4,760.0	14.23	264.90	4,656.1	-76.6	-858.5	861.9	0.00	0.00	0.00
4,800.0	14.23	264.90	4,694.9	-77.5	-868.3	871.8	0.00	0.00	0.00
4,840.0	14.23	264.90	4,733.6	-78.4	-878.1	881.6	0.00	0.00	0.00
4,880.0	14.23	264.90	4,772.4	-79.2	-887.9	891.4	0.00	0.00	0.00
4,920.0	14.23	264.90	4,811.2	-80.1	-897.7	901.3	0.00	0.00	0.00
4,960.0	14.23	264.90	4,849.9	-81.0	-907.5	911.1	0.00	0.00	0.00
5,000.0	14.23	264.90	4,888.7	-81.9	-917.3	920.9	0.00	0.00	0.00
5,040.0	14.23	264.90	4,927.5	-82.7	-927.1	930.8	0.00	0.00	0.00
5,080.0	14.23	264.90	4,966.3	-83.6	-936.9	940.6	0.00	0.00	0.00
5,110.4	14.23	264.90	4,995.7	-84.3	-944.3	948.1	0.00	0.00	0.00
5,120.0	14.04	264.90	5,005.0	-84.5	-946.7	950.4	2.00	-2.00	0.00
5,160.0	13.24	264.90	5,043.9	-85.3	-956.1	959.9	2.00	-2.00	0.00
5,200.0	12.44	264.90	5,082.9	-86.1	-964.9	968.7	2.00	-2.00	0.00
5,240.0	11.64	264.90	5,122.0	-86.9	-973.2	977.1	2.00	-2.00	0.00
5,280.0	10.84	264.90	5,161.3	-87.5	-981.0	984.9	2.00	-2.00	0.00
5,320.0	10.04	264.90	5,200.6	-88.2	-988.2	992.1	2.00	-2.00	0.00
5,360.0	9.24	264.90	5,240.0	-88.8	-994.9	998.8	2.00	-2.00	0.00
5,400.0	8.44	264.90	5,279.6	-89.3	-1,001.0	1,005.0	2.00	-2.00	0.00
5,440.0	7.64	264.90	5,319.2	-89.8	-1,006.6	1,010.6	2.00	-2.00	0.00
5,480.0	6.84	264.90	5,358.8	-90.3	-1,011.6	1,015.6	2.00	-2.00	0.00
5,520.0	6.04	264.90	5,398.6	-90.7	-1,016.1	1,020.1	2.00	-2.00	0.00
5,560.0	5.24	264.90	5,438.4	-91.0	-1,020.0	1,024.0	2.00	-2.00	0.00
5,600.0	4.44	264.90	5,478.3	-91.3	-1,023.3	1,027.4	2.00	-2.00	0.00
5,640.0	3.64	264.90	5,518.2	-91.6	-1,026.1	1,030.2	2.00	-2.00	0.00
5,680.0	2.84	264.90	5,558.1	-91.8	-1,028.4	1,032.5	2.00	-2.00	0.00
5,720.0	2.04	264.90	5,598.1	-91.9	-1,030.1	1,034.2	2.00	-2.00	0.00
5,760.0	1.24	264.90	5,638.0	-92.0	-1,031.2	1,035.3	2.00	-2.00	0.00
5,800.0	0.44	264.90	5,678.0	-92.1	-1,031.8	1,035.9	2.00	-2.00	0.00
5,822.0	0.00	0.00	5,700.0	-92.1	-1,031.9	1,036.0	2.00	-2.00	0.00
TARGET BHL 1984'FNL, 2000'FEL									
5,840.0	0.00	0.00	5,718.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,758.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,798.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,838.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,878.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,918.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,958.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Simmons 32-20D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	SEC.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	North Reference:	True
Well:	Simmons 32-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-06-11)		

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)
6,120.0	0.00	0.00	5,998.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,038.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,078.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,118.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,158.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,198.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,238.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,278.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,318.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,358.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,398.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,438.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,478.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,518.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,558.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,598.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,638.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,678.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,822.0	0.00	0.00	6,700.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
LEGAL BOX 400' X 400' 1983'FNL & 2001'FEL									
6,840.0	0.00	0.00	6,718.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,758.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,798.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,838.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,878.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,918.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,958.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,120.0	0.00	0.00	6,998.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,160.0	0.00	0.00	7,038.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,078.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,118.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,280.0	0.00	0.00	7,158.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,320.0	0.00	0.00	7,198.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00
7,322.0	0.00	0.00	7,200.0	-92.1	-1,031.9	1,036.0	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
TARGET BHL 1984'F	0.00	0.00	5,700.0	-92.1	-1,031.9	1,416,606.85	3,258,237.81	40° 28' 23.798 N	104° 34' 18.368 W
- plan hits target center									
- Point									
LEGAL BOX 400' X 400'	0.00	0.00	6,700.0	-91.1	-1,032.9	1,416,607.83	3,258,236.80	40° 28' 23.807 N	104° 34' 18.381 W
- plan misses target center by 1.4ft at 6822.0ft MD (6700.0 TVD, -92.1 N, -1031.9 E)									
- Rectangle (sides W400.0 H400.0 D500.0)									

Database:	Landmark	Local Co-ordinate Reference:	Well Simmons 32-20D
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Project:	SEC.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	North Reference:	True
Well:	Simmons 32-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-06-11)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
800.0	800.0	8 5/8"	8-5/8	12-1/4	



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.20-T6N-R64W

Simmons 42-20D Pad Sec.20-T6N-R64W

Simmons 32-20D

Wellbore #1

Plan #1 (1-06-11)

Anticollision Report

18 January, 2011



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simmons 32-20D
Project:	SEC.20-T6N-R64W	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simmons 32-20D	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 (1-06-11)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (1-06-11)		
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 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 1/18/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,322.0	Plan #1 (1-06-11) (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						
Simmons 42-20D Pad Sec.20-T6N-R64W						
Simmons 20ND - Wellbore #1 - Plan #1 (1-06-11)	200.0	200.0	21.9	21.2	32.411	CC, ES
Simmons 20ND - Wellbore #1 - Plan #1 (1-06-11)	500.0	498.2	30.6	28.6	15.092	SF
Simmons 42-20D - Wellbore #1 - Plan #1 (1-06-11)	1,005.5	1,005.5	21.8	17.5	5.087	CC, ES
Simmons 42-20D - Wellbore #1 - Plan #1 (1-06-11)	1,100.0	1,099.8	22.3	17.7	4.770	SF

Offset Design		Simmons 42-20D Pad Sec.20-T6N-R64W - Simmons 20ND - Wellbore #1 - Plan #1 (1-06-11)										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	0.00	21.9	0.0	21.9							
100.0	100.0	100.0	100.0	0.1	0.1	0.00	21.9	0.0	21.9	21.6	0.22	97.234	CC, ES			
200.0	200.0	200.0	200.0	0.3	0.3	0.00	21.9	0.0	21.9	21.2	0.67	32.411				
300.0	300.0	299.7	299.7	0.6	0.6	-4.20	22.4	-1.6	22.5	21.3	1.12	20.102				
400.0	400.0	399.2	399.0	0.8	0.8	-15.27	24.0	-6.6	24.9	23.4	1.57	15.916				
500.0	500.0	498.2	497.7	1.0	1.0	-28.78	26.8	-14.7	30.6	28.6	2.03	15.092				
600.0	600.0	596.5	595.2	1.2	1.3	-40.39	30.5	-26.0	40.4	37.9	2.52	16.013	SF			
700.0	700.0	693.8	691.4	1.5	1.6	-48.75	35.3	-40.3	54.2	51.2	3.06	17.741				
800.0	800.0	790.1	785.9	1.7	2.0	-54.44	41.0	-57.4	72.0	68.3	3.64	19.757				
900.0	900.0	885.0	878.4	1.9	2.4	-58.33	47.7	-77.3	93.3	89.1	4.28	21.806				
1,000.0	1,000.0	978.7	969.2	2.1	2.9	34.26	55.2	-99.8	116.7	112.3	4.39	26.581				
1,100.0	1,099.8	1,071.7	1,058.3	2.3	3.4	33.06	63.6	-124.8	140.5	135.6	4.85	28.976				
1,200.0	1,199.5	1,164.0	1,145.9	2.5	4.0	32.61	72.8	-152.4	164.5	159.2	5.33	30.886				
1,300.0	1,298.7	1,260.2	1,236.5	2.8	4.6	32.68	83.0	-183.0	187.8	181.9	5.84	32.144				
1,400.0	1,397.5	1,358.0	1,328.7	3.1	5.3	33.25	93.4	-214.2	208.3	201.9	6.38	32.652				
1,500.0	1,495.6	1,456.4	1,421.3	3.4	6.0	34.21	103.9	-245.5	225.9	218.9	6.97	32.409				
1,600.0	1,593.1	1,555.1	1,514.3	3.8	6.7	35.50	114.4	-276.9	240.9	233.2	7.62	31.619				
1,611.6	1,604.3	1,566.5	1,525.1	3.8	6.8	35.67	115.6	-280.6	242.4	234.7	7.70	31.495				
1,700.0	1,690.0	1,653.9	1,607.4	4.2	7.4	37.07	124.9	-308.4	254.2	245.9	8.34	30.498				
1,800.0	1,786.9	1,752.8	1,700.5	4.6	8.1	38.50	135.5	-339.9	267.8	258.7	9.09	29.444				
1,900.0	1,883.9	1,851.7	1,793.6	5.1	8.8	39.79	146.0	-371.4	281.5	271.6	9.89	28.475				
2,000.0	1,980.8	1,950.5	1,886.8	5.6	9.5	40.96	156.5	-402.9	295.3	284.6	10.70	27.589				

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 Simmons 32-20D
Project:	SEC.20-T6N-R64W	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simmons 32-20D	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 (1-06-11)	Offset TVD Reference:	Offset Datum

Offset Design Simmons 42-20D Pad Sec.20-T6N-R64W - Simmons 20ND - Wellbore #1 - Plan #1 (1-06-11)													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		
2,100.0	2,077.7	2,049.4	1,979.9	6.1	10.2	42.03	167.0	-434.4	309.2	297.7	11.55	26.784		
2,200.0	2,174.6	2,148.3	2,073.0	6.6	10.9	43.00	177.6	-465.9	323.3	310.9	12.41	26.052		
2,300.0	2,271.6	2,247.1	2,166.1	7.1	11.6	43.89	188.1	-497.4	337.4	324.1	13.29	25.389		
2,400.0	2,368.5	2,346.0	2,259.2	7.6	12.3	44.72	198.6	-528.9	351.6	337.4	14.18	24.787		
2,500.0	2,465.4	2,444.9	2,352.4	8.1	13.0	45.47	209.1	-560.4	365.8	350.7	15.09	24.240		
2,600.0	2,562.4	2,543.7	2,445.5	8.6	13.7	46.18	219.7	-591.9	380.1	364.1	16.01	23.741		
2,700.0	2,659.3	2,642.6	2,538.6	9.1	14.4	46.83	230.2	-623.4	394.5	377.6	16.94	23.286		
2,800.0	2,756.2	2,741.5	2,631.7	9.6	15.1	47.43	240.7	-654.9	408.9	391.0	17.88	22.870		
2,900.0	2,853.2	2,840.3	2,724.9	10.1	15.8	47.99	251.3	-686.4	423.4	404.5	18.83	22.489		
3,000.0	2,950.1	2,939.2	2,818.0	10.7	16.5	48.52	261.8	-717.9	437.9	418.1	19.78	22.138		
3,100.0	3,047.0	3,038.1	2,911.1	11.2	17.2	49.01	272.3	-749.4	452.4	431.6	20.74	21.815		
3,200.0	3,144.0	3,136.9	3,004.2	11.7	17.9	49.47	282.8	-780.9	466.9	445.2	21.70	21.516		
3,300.0	3,240.9	3,235.8	3,097.4	12.2	18.6	49.91	293.4	-812.4	481.5	458.8	22.67	21.240		
3,400.0	3,337.8	3,334.7	3,190.5	12.8	19.3	50.32	303.9	-843.9	496.1	472.5	23.64	20.984		
3,500.0	3,434.7	3,433.5	3,283.6	13.3	20.0	50.70	314.4	-875.4	510.7	486.1	24.62	20.745		
3,600.0	3,531.7	3,532.4	3,376.7	13.8	20.8	51.07	324.9	-906.9	525.4	499.8	25.60	20.523		
3,700.0	3,628.6	3,631.3	3,469.8	14.3	21.5	51.41	335.5	-938.4	540.1	513.5	26.58	20.316		
3,800.0	3,725.5	3,730.1	3,563.0	14.9	22.2	51.74	346.0	-969.9	554.8	527.2	27.57	20.122		
3,900.0	3,822.5	3,829.0	3,656.1	15.4	22.9	52.04	356.5	-1,001.4	569.5	540.9	28.56	19.940		
4,000.0	3,919.4	3,927.9	3,749.2	15.9	23.6	52.34	367.1	-1,032.9	584.2	554.6	29.55	19.770		
4,100.0	4,016.3	4,026.7	3,842.3	16.5	24.3	52.62	377.6	-1,064.4	598.9	568.4	30.54	19.609		
4,200.0	4,113.3	4,125.6	3,935.5	17.0	25.0	52.88	388.1	-1,095.9	613.7	582.1	31.54	19.458		
4,300.0	4,210.2	4,224.5	4,028.6	17.5	25.7	53.14	398.6	-1,127.4	628.4	595.9	32.54	19.315		
4,400.0	4,307.1	4,323.3	4,121.7	18.1	26.4	53.38	409.2	-1,158.9	643.2	609.7	33.53	19.181		
4,500.0	4,404.1	4,422.2	4,214.8	18.6	27.1	53.61	419.7	-1,190.4	658.0	623.5	34.53	19.053		
4,600.0	4,501.0	4,521.1	4,307.9	19.1	27.8	53.83	430.2	-1,221.9	672.8	637.2	35.54	18.932		
4,700.0	4,597.9	4,619.9	4,401.1	19.6	28.5	54.04	440.7	-1,253.4	687.6	651.0	36.54	18.818		
4,800.0	4,694.9	4,718.8	4,494.2	20.2	29.3	54.24	451.3	-1,284.9	702.4	664.8	37.54	18.709		
4,900.0	4,791.8	4,817.7	4,587.3	20.7	30.0	54.44	461.8	-1,316.4	717.2	678.7	38.55	18.606		
5,000.0	4,888.7	4,916.6	4,680.4	21.2	30.7	54.62	472.3	-1,347.9	732.0	692.5	39.55	18.507		
5,100.0	4,985.6	5,015.4	4,773.6	21.8	31.4	54.80	482.8	-1,379.3	746.9	706.3	40.56	18.413		
5,110.4	4,995.7	5,025.7	4,783.2	21.8	31.5	54.82	483.9	-1,382.6	748.4	707.7	40.67	18.404		
5,200.0	5,082.9	5,114.2	4,866.6	22.2	32.1	55.12	493.4	-1,410.8	762.5	721.0	41.51	18.371		
5,300.0	5,180.9	5,212.6	4,959.3	22.6	32.8	55.28	503.8	-1,442.2	780.1	737.8	42.27	18.453		
5,400.0	5,279.6	5,315.1	5,055.9	22.9	33.5	55.26	514.7	-1,474.8	799.6	756.7	42.92	18.629		
5,500.0	5,378.7	5,444.1	5,178.6	23.1	34.2	55.03	527.3	-1,512.5	818.7	775.3	43.43	18.853		
5,600.0	5,478.3	5,574.6	5,304.4	23.3	34.8	54.75	538.3	-1,545.3	836.1	792.3	43.82	19.079		
5,700.0	5,578.1	5,706.6	5,433.1	23.5	35.3	54.41	547.5	-1,572.8	851.6	807.5	44.10	19.310		
5,800.0	5,678.0	5,839.8	5,564.3	23.6	35.7	54.02	554.9	-1,595.0	865.3	821.0	44.26	19.548		
5,822.0	5,700.0	5,869.3	5,593.4	23.6	35.7	-41.18	556.3	-1,599.1	868.0	823.7	44.29	19.600		
5,900.0	5,778.0	5,974.5	5,697.8	23.7	36.0	-41.61	560.4	-1,611.4	876.4	832.0	44.37	19.751		
6,000.0	5,878.0	6,110.4	5,833.3	23.8	36.2	-41.97	563.9	-1,622.0	883.5	838.9	44.54	19.838		
6,100.0	5,978.0	6,247.2	5,969.9	23.9	36.4	-42.12	565.4	-1,626.4	886.5	841.7	44.75	19.808		
6,200.0	6,078.0	6,355.3	6,078.0	24.1	36.5	-42.12	565.5	-1,626.6	886.6	841.6	45.00	19.702		
6,300.0	6,178.0	6,455.3	6,178.0	24.2	36.5	-42.12	565.5	-1,626.6	886.6	841.3	45.24	19.595		
6,400.0	6,278.0	6,555.3	6,278.0	24.3	36.6	-42.12	565.5	-1,626.6	886.6	841.1	45.49	19.488		
6,500.0	6,378.0	6,655.3	6,378.0	24.4	36.7	-42.12	565.5	-1,626.6	886.6	840.8	45.74	19.381		
6,600.0	6,478.0	6,755.3	6,478.0	24.5	36.8	-42.12	565.5	-1,626.6	886.6	840.6	46.00	19.274		
6,700.0	6,578.0	6,855.3	6,578.0	24.7	36.9	-42.12	565.5	-1,626.6	886.6	840.3	46.26	19.167		
6,800.0	6,678.0	6,955.3	6,678.0	24.8	37.0	-42.12	565.5	-1,626.6	886.6	840.1	46.52	19.059		
6,900.0	6,778.0	7,055.3	6,778.0	24.9	37.1	-42.12	565.5	-1,626.6	886.6	839.8	46.78	18.952		

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 Simmons 32-20D
Project:	SEC.20-T6N-R64W	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simmons 32-20D	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 (1-06-11)	Offset TVD Reference:	Offset Datum

Offset Design Simmons 42-20D Pad Sec.20-T6N-R64W - Simmons 20ND - Wellbore #1 - Plan #1 (1-06-11)												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	
7,000.0	6,878.0	7,155.3	6,878.0	25.0	37.1	-42.12	565.5	-1,626.6	886.6	839.5	47.05	18.845	
7,100.0	6,978.0	7,255.3	6,978.0	25.2	37.2	-42.12	565.5	-1,626.6	886.6	839.3	47.32	18.738	
7,200.0	7,078.0	7,355.3	7,078.0	25.3	37.3	-42.12	565.5	-1,626.6	886.6	839.0	47.59	18.631	
7,300.0	7,178.0	7,455.3	7,178.0	25.4	37.4	-42.12	565.5	-1,626.6	886.6	838.7	47.86	18.524	
7,322.0	7,200.0	7,477.2	7,200.0	25.5	37.4	-42.12	565.5	-1,626.6	886.6	838.7	47.92	18.501	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simmons 32-20D
Project:	SEC.20-T6N-R64W	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simmons 32-20D	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 (1-06-11)	Offset TVD Reference:	Offset Datum

Offset Design Simmons 42-20D Pad Sec.20-T6N-R64W - Simmons 42-20D - Wellbore #1 - Plan #1 (1-06-11)													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
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-180.00	-21.9	0.0	21.9				
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-180.00	-21.9	0.0	21.9	21.6	0.22	97.252	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-180.00	-21.9	0.0	21.9	21.2	0.67	32.417	
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-180.00	-21.9	0.0	21.9	20.7	1.12	19.450	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-180.00	-21.9	0.0	21.9	20.3	1.57	13.893	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-180.00	-21.9	0.0	21.9	19.8	2.02	10.806	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-180.00	-21.9	0.0	21.9	19.4	2.47	8.841	
700.0	700.0	700.0	700.0	1.5	1.5	-180.00	-180.00	-21.9	0.0	21.9	18.9	2.92	7.481	
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-180.00	-21.9	0.0	21.9	18.5	3.37	6.483	
900.0	900.0	900.0	900.0	1.9	1.9	-180.00	-180.00	-21.9	0.0	21.9	18.0	3.82	5.721	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.48	-89.48	-21.9	0.0	21.8	17.5	4.26	5.115	
1,005.5	1,005.5	1,005.5	1,005.5	2.1	2.1	-90.00	-90.00	-21.9	0.0	21.8	17.5	4.28	5.087 CC, ES	
1,100.0	1,099.8	1,099.8	1,099.8	2.3	2.4	-102.99	-102.99	-21.9	0.0	22.3	17.7	4.68	4.770 SF	
1,200.0	1,199.5	1,199.5	1,199.5	2.5	2.6	-122.13	-122.13	-21.9	0.0	25.8	20.6	5.12	5.029	
1,300.0	1,298.7	1,298.7	1,298.7	2.8	2.8	-139.71	-139.71	-21.9	0.0	33.9	28.3	5.55	6.101	
1,400.0	1,397.5	1,397.5	1,397.5	3.1	3.0	-152.00	-152.00	-21.9	0.0	46.9	41.0	5.97	7.859	
1,500.0	1,495.6	1,495.6	1,495.6	3.4	3.2	-159.85	-159.85	-21.9	0.0	64.4	58.1	6.39	10.090	
1,600.0	1,593.1	1,593.1	1,593.1	3.8	3.5	-164.90	-164.90	-21.9	0.0	86.0	79.2	6.80	12.641	
1,611.6	1,604.3	1,604.3	1,604.3	3.8	3.5	-165.36	-165.36	-21.9	0.0	88.7	81.8	6.85	12.953	
1,700.0	1,690.0	1,690.0	1,690.0	4.2	3.7	-168.22	-168.22	-21.9	0.0	109.9	102.7	7.24	15.173	
1,800.0	1,786.9	1,786.9	1,786.9	4.6	3.9	-170.36	-170.36	-21.9	0.0	134.1	126.4	7.70	17.421	
1,900.0	1,883.9	1,883.9	1,883.9	5.1	4.1	-171.85	-171.85	-21.9	0.0	158.4	150.2	8.16	19.419	
2,000.0	1,980.8	1,980.8	1,980.8	5.6	4.3	-172.94	-172.94	-21.9	0.0	182.8	174.1	8.62	21.201	
2,100.0	2,077.7	2,077.7	2,077.7	6.1	4.6	-173.78	-173.78	-21.9	0.0	207.2	198.1	9.09	22.797	
2,200.0	2,174.6	2,174.6	2,174.6	6.6	4.8	-174.44	-174.44	-21.9	0.0	231.7	222.1	9.56	24.231	
2,300.0	2,271.6	2,271.6	2,271.6	7.1	5.0	-174.97	-174.97	-21.9	0.0	256.1	246.1	10.03	25.526	
2,400.0	2,368.5	2,368.5	2,368.5	7.6	5.2	-175.41	-175.41	-21.9	0.0	280.7	270.1	10.51	26.700	
2,500.0	2,465.4	2,465.4	2,465.4	8.1	5.4	-175.78	-175.78	-21.9	0.0	305.2	294.2	10.99	27.769	
2,600.0	2,562.4	2,562.4	2,562.4	8.6	5.6	-176.09	-176.09	-21.9	0.0	329.7	318.2	11.47	28.744	
2,700.0	2,659.3	2,659.3	2,659.3	9.1	5.9	-176.36	-176.36	-21.9	0.0	354.2	342.3	11.95	29.639	
2,800.0	2,756.2	2,756.2	2,756.2	9.6	6.1	-176.60	-176.60	-21.9	0.0	378.8	366.3	12.43	30.461	
2,900.0	2,853.2	2,846.8	2,846.8	10.1	6.3	-176.78	-176.78	-21.9	0.4	403.7	390.8	12.90	31.303	
3,000.0	2,950.1	2,931.0	2,931.0	10.7	6.5	-176.86	-176.86	-22.5	2.9	431.2	417.9	13.34	32.320	
3,100.0	3,047.0	3,013.8	3,013.6	11.2	6.6	-176.85	-176.85	-23.5	7.8	461.4	447.6	13.78	33.488	
3,200.0	3,144.0	3,100.0	3,099.5	11.7	6.8	-176.76	-176.76	-25.1	15.4	494.2	480.0	14.22	34.751	
3,300.0	3,240.9	3,174.8	3,173.7	12.2	6.9	-176.64	-176.64	-26.9	24.0	529.6	514.9	14.65	36.157	
3,400.0	3,337.8	3,252.8	3,250.9	12.8	7.1	-176.47	-176.47	-29.1	35.0	567.4	552.4	15.08	37.630	
3,500.0	3,434.7	3,331.5	3,328.5	13.3	7.3	-176.27	-176.27	-31.9	48.1	607.7	592.2	15.52	39.158	
3,600.0	3,531.7	3,422.6	3,418.1	13.8	7.5	-176.05	-176.05	-35.2	64.1	648.8	632.8	15.98	40.613	
3,700.0	3,628.6	3,513.8	3,507.8	14.3	7.8	-175.85	-175.85	-38.6	80.1	689.9	673.5	16.44	41.976	
3,800.0	3,725.5	3,604.9	3,597.4	14.9	8.0	-175.67	-175.67	-41.9	96.2	731.1	714.2	16.90	43.260	
3,900.0	3,822.5	3,696.0	3,687.1	15.4	8.3	-175.51	-175.51	-45.3	112.2	772.2	754.8	17.37	44.467	
4,000.0	3,919.4	3,787.1	3,776.7	15.9	8.6	-175.37	-175.37	-48.6	128.2	813.3	795.5	17.84	45.604	
4,100.0	4,016.3	3,878.3	3,866.3	16.5	8.9	-175.25	-175.25	-51.9	144.3	854.5	836.2	18.31	46.676	
4,200.0	4,113.3	3,969.4	3,956.0	17.0	9.1	-175.13	-175.13	-55.3	160.3	895.6	876.9	18.78	47.689	
4,300.0	4,210.2	4,060.5	4,045.6	17.5	9.4	-175.02	-175.02	-58.6	176.3	936.8	917.5	19.26	48.646	
4,400.0	4,307.1	4,151.7	4,135.3	18.1	9.7	-174.93	-174.93	-62.0	192.3	977.9	958.2	19.74	49.552	
4,500.0	4,404.1	4,242.8	4,224.9	18.6	10.0	-174.84	-174.84	-65.3	208.4	1,019.1	998.9	20.22	50.410	
4,600.0	4,501.0	4,333.9	4,314.6	19.1	10.3	-174.76	-174.76	-68.6	224.4	1,060.3	1,039.6	20.70	51.223	
4,700.0	4,597.9	4,425.0	4,404.2	19.6	10.7	-174.68	-174.68	-72.0	240.4	1,101.4	1,080.2	21.18	51.996	
4,800.0	4,694.9	4,521.7	4,499.3	20.2	11.0	-174.61	-174.61	-75.5	257.4	1,142.5	1,120.9	21.68	52.704	

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 Simmons 32-20D
Project:	SEC.20-T6N-R64W	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simmons 32-20D	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 (1-06-11)	Offset TVD Reference:	Offset Datum

Offset Design Simmons 42-20D Pad Sec.20-T6N-R64W - Simmons 42-20D - Wellbore #1 - Plan #1 (1-06-11)													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	4,791.8	4,674.9	4,650.8	20.7	11.4	-174.55	-80.2	279.6	1,180.9	1,158.6	22.27	53.017		
5,000.0	4,888.7	4,834.6	4,809.8	21.2	11.8	-174.58	-83.2	294.3	1,214.2	1,191.3	22.87	53.099		
5,100.0	4,985.6	5,000.0	4,975.1	21.8	12.1	-174.71	-84.5	300.4	1,242.3	1,218.8	23.46	52.944		
5,110.4	4,995.7	5,017.5	4,992.5	21.8	12.2	-174.72	-84.5	300.5	1,244.9	1,221.3	23.52	52.920		
5,200.0	5,082.9	5,107.9	5,082.9	22.2	12.3	-174.85	-84.5	300.5	1,265.4	1,241.4	24.02	52.692		
5,300.0	5,180.9	5,205.9	5,180.9	22.6	12.5	-174.97	-84.5	300.5	1,285.2	1,260.7	24.52	52.408		
5,400.0	5,279.6	5,304.5	5,279.6	22.9	12.7	-175.06	-84.5	300.5	1,301.5	1,276.5	25.00	52.067		
5,500.0	5,378.7	5,403.7	5,378.7	23.1	12.9	-175.13	-84.5	300.5	1,314.4	1,289.0	25.44	51.672		
5,600.0	5,478.3	5,503.2	5,478.3	23.3	13.1	-175.18	-84.5	300.5	1,323.9	1,298.0	25.84	51.227		
5,700.0	5,578.1	5,603.0	5,578.1	23.5	13.3	-175.21	-84.5	300.5	1,329.9	1,303.7	26.21	50.734		
5,800.0	5,678.0	5,703.0	5,678.0	23.6	13.5	-175.22	-84.5	300.5	1,332.4	1,305.8	26.54	50.193		
5,822.0	5,700.0	5,725.0	5,700.0	23.6	13.5	89.67	-84.5	300.5	1,332.5	1,305.8	26.61	50.065		
5,900.0	5,778.0	5,803.0	5,778.0	23.7	13.7	89.67	-84.5	300.5	1,332.5	1,305.5	26.92	49.503		
6,000.0	5,878.0	5,903.0	5,878.0	23.8	13.9	89.67	-84.5	300.5	1,332.5	1,305.1	27.31	48.794		
6,100.0	5,978.0	6,003.0	5,978.0	23.9	14.1	89.67	-84.5	300.5	1,332.5	1,304.8	27.70	48.102		
6,200.0	6,078.0	6,103.0	6,078.0	24.1	14.3	89.67	-84.5	300.5	1,332.5	1,304.4	28.10	47.427		
6,300.0	6,178.0	6,203.0	6,178.0	24.2	14.5	89.67	-84.5	300.5	1,332.5	1,304.0	28.49	46.768		
6,400.0	6,278.0	6,303.0	6,278.0	24.3	14.7	89.67	-84.5	300.5	1,332.5	1,303.6	28.89	46.124		
6,500.0	6,378.0	6,403.0	6,378.0	24.4	14.9	89.67	-84.5	300.5	1,332.5	1,303.2	29.29	45.496		
6,600.0	6,478.0	6,503.0	6,478.0	24.5	15.1	89.67	-84.5	300.5	1,332.5	1,302.8	29.69	44.883		
6,700.0	6,578.0	6,603.0	6,578.0	24.7	15.3	89.67	-84.5	300.5	1,332.5	1,302.4	30.09	44.284		
6,800.0	6,678.0	6,703.0	6,678.0	24.8	15.5	89.67	-84.5	300.5	1,332.5	1,302.0	30.49	43.699		
6,900.0	6,778.0	6,803.0	6,778.0	24.9	15.7	89.67	-84.5	300.5	1,332.5	1,301.6	30.90	43.128		
7,000.0	6,878.0	6,903.0	6,878.0	25.0	16.0	89.67	-84.5	300.5	1,332.5	1,301.2	31.30	42.570		
7,100.0	6,978.0	7,003.0	6,978.0	25.2	16.2	89.67	-84.5	300.5	1,332.5	1,300.7	31.71	42.024		
7,200.0	7,078.0	7,103.0	7,078.0	25.3	16.4	89.67	-84.5	300.5	1,332.5	1,300.3	32.11	41.491		
7,300.0	7,178.0	7,203.0	7,178.0	25.4	16.6	89.67	-84.5	300.5	1,332.5	1,299.9	32.52	40.970		
7,322.0	7,200.0	7,225.0	7,200.0	25.5	16.6	89.67	-84.5	300.5	1,332.5	1,299.8	32.61	40.857		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Simmons 32-20D
Project:	SEC.20-T6N-R64W	TVD Reference:	WELL @ 4773.0ft (Original Well Elev)
Reference Site:	Simmons 42-20D Pad Sec.20-T6N-R64W	MD Reference:	WELL @ 4773.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Simmons 32-20D	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 (1-06-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4773.0ft (Original Well Elev) Coordinates are relative to: Simmons 32-20D
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.60°



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Site Error:	0.0ft	North Reference:	True
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Well Error:	0.0ft	Output errors are at	2.00 sigma
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