

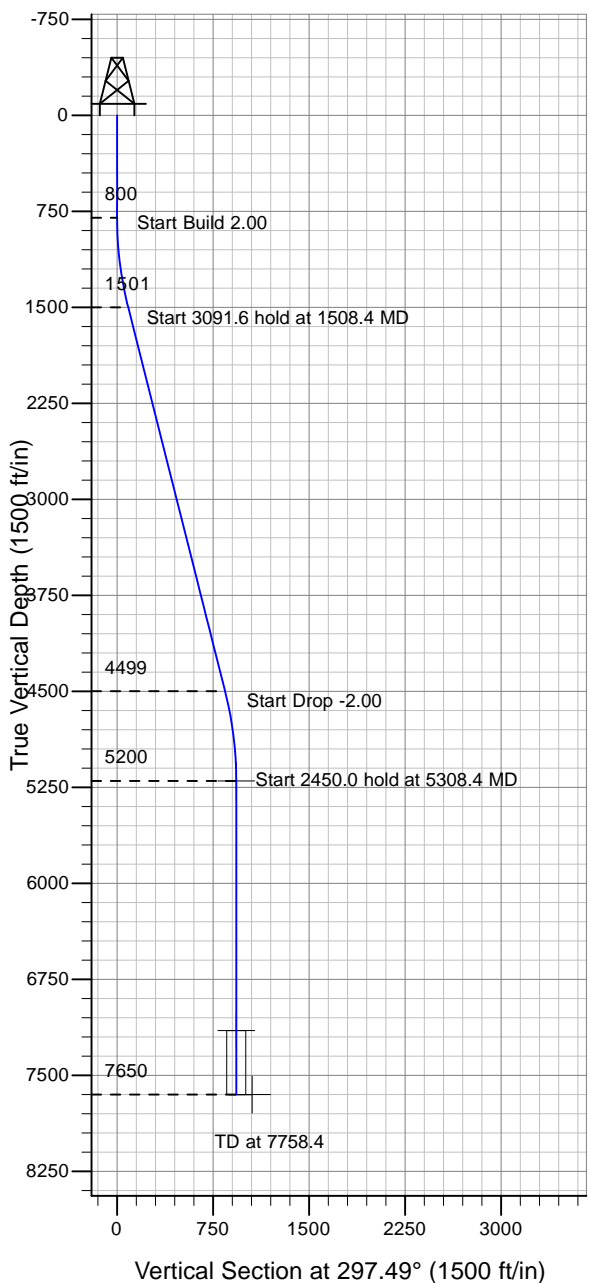
ENSIGN

Directional

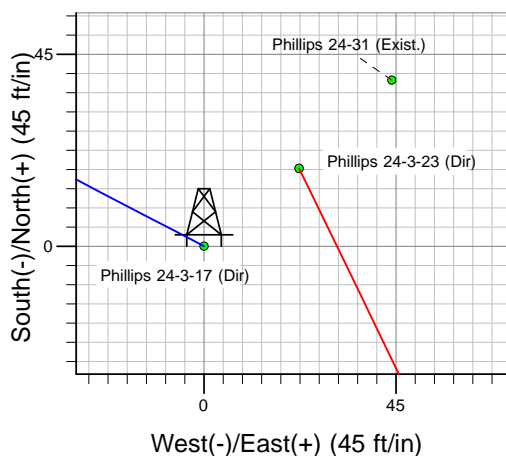
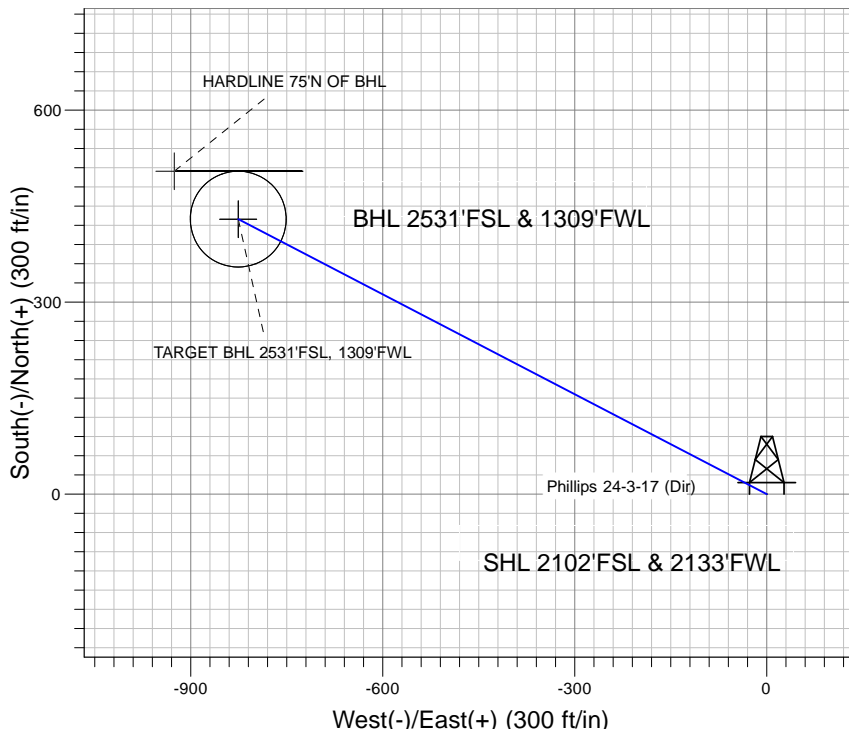
Well Name: Phillips 24-3-17 (Dir)

Surface Location: Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4997.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1383266.98 3182943.08 40° 23' 0.996 N 104° 50' 35.844 W
 Original Well Elev WELL @ 5010.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W
 Phillips 24-3-17 (Dir)
 Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)
 17:52, May 12 2010



Azimuths to True North
 Magnetic North: 9.05°
 Magnetic Field
 Strength: 53229.3nT
 Dip Angle: 67.06°
 Date: 5/8/2010
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2531'FSL, 1309'FWL	5200.0	429.7	-825.9	40° 23' 5.242 N	104° 50' 46.517 W	Point
TARGET CIRCLE 2531'FSL, 1309'FWL	7150.0	429.7	-825.9	40° 23' 5.242 N	104° 50' 46.517 W	Circle (Radius: 75.0)
HARDLINE 75'N OF BHL	7650.0	504.7	-925.9	40° 23' 5.983 N	104° 50' 47.809 W	Polygon

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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1508.4	14.17	297.49	1501.2	40.2	-77.3	2.00	297.49	87.1	
4	4600.0	14.17	297.49	4498.8	389.5	-748.6	0.00	0.00	843.9	
5	5308.4	0.00	0.00	5200.0	429.7	-825.9	2.00	180.00	931.0	TARGET BHL 2531'FSL, 1309'FWL
6	7758.4	0.00	0.00	7650.0	429.7	-825.9	0.00	0.00	931.0	



NOBLE ENERGY INC WELD COUNTY CO

SEC.24-T5N-R67W

Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W

Phillips 24-3-17 (Dir)

Wellbore #1

Plan: Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)

Standard Planning Report

12 May, 2010



Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Project:	SEC.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	North Reference:	True
Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)		

Project	SEC.24-T5N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W					
Site Position:		Northing:	1,383,285.38 ft	Latitude:	40° 23' 1.176 N
From:	Lat/Long	Easting:	3,182,965.23 ft	Longitude:	104° 50' 35.556 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.42 °

Well	Phillips 24-3-17 (Dir)					
Well Position	+N-S	-18.2 ft	Northing:	1,383,266.98 ft	Latitude:	40° 23' 0.996 N
	+E-W	-22.3 ft	Easting:	3,182,943.08 ft	Longitude:	104° 50' 35.844 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,997.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/8/2010	9.05	67.06	53,229

Design	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)			
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	297.49

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,508.4	14.17	297.49	1,501.2	40.2	-77.3	2.00	2.00	0.00	297.49	
4,600.0	14.17	297.49	4,498.8	389.5	-748.6	0.00	0.00	0.00	0.00	
5,308.4	0.00	0.00	5,200.0	429.7	-825.9	2.00	-2.00	0.00	180.00	TARGET BHL 2531
7,758.4	0.00	0.00	7,650.0	429.7	-825.9	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Project:	SEC.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	North Reference:	True
Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)		

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	0.80	297.49	840.0	0.1	-0.2	0.3	2.00	2.00	0.00
880.0	1.60	297.49	880.0	0.5	-1.0	1.1	2.00	2.00	0.00
920.0	2.40	297.49	920.0	1.2	-2.2	2.5	2.00	2.00	0.00
960.0	3.20	297.49	959.9	2.1	-4.0	4.5	2.00	2.00	0.00
1,000.0	4.00	297.49	999.8	3.2	-6.2	7.0	2.00	2.00	0.00
1,040.0	4.80	297.49	1,039.7	4.6	-8.9	10.0	2.00	2.00	0.00
1,080.0	5.60	297.49	1,079.6	6.3	-12.1	13.7	2.00	2.00	0.00
1,120.0	6.40	297.49	1,119.3	8.2	-15.8	17.9	2.00	2.00	0.00
1,160.0	7.20	297.49	1,159.1	10.4	-20.0	22.6	2.00	2.00	0.00
1,200.0	8.00	297.49	1,198.7	12.9	-24.7	27.9	2.00	2.00	0.00
1,240.0	8.80	297.49	1,238.3	15.6	-29.9	33.7	2.00	2.00	0.00
1,280.0	9.60	297.49	1,277.8	18.5	-35.6	40.1	2.00	2.00	0.00
1,320.0	10.40	297.49	1,317.1	21.7	-41.8	47.1	2.00	2.00	0.00
1,360.0	11.20	297.49	1,356.4	25.2	-48.4	54.6	2.00	2.00	0.00
1,400.0	12.00	297.49	1,395.6	28.9	-55.5	62.6	2.00	2.00	0.00
1,440.0	12.80	297.49	1,434.7	32.9	-63.2	71.2	2.00	2.00	0.00
1,480.0	13.60	297.49	1,473.6	37.1	-71.3	80.3	2.00	2.00	0.00
1,508.4	14.17	297.49	1,501.2	40.2	-77.3	87.1	2.00	2.00	0.00
1,520.0	14.17	297.49	1,512.4	41.5	-79.8	90.0	0.00	0.00	0.00
1,560.0	14.17	297.49	1,551.2	46.0	-88.5	99.8	0.00	0.00	0.00
1,600.0	14.17	297.49	1,590.0	50.6	-97.2	109.6	0.00	0.00	0.00
1,640.0	14.17	297.49	1,628.8	55.1	-105.9	119.4	0.00	0.00	0.00
1,680.0	14.17	297.49	1,667.6	59.6	-114.6	129.1	0.00	0.00	0.00
1,720.0	14.17	297.49	1,706.4	64.1	-123.2	138.9	0.00	0.00	0.00
1,760.0	14.17	297.49	1,745.1	68.6	-131.9	148.7	0.00	0.00	0.00
1,800.0	14.17	297.49	1,783.9	73.2	-140.6	158.5	0.00	0.00	0.00
1,840.0	14.17	297.49	1,822.7	77.7	-149.3	168.3	0.00	0.00	0.00
1,880.0	14.17	297.49	1,861.5	82.2	-158.0	178.1	0.00	0.00	0.00
1,920.0	14.17	297.49	1,900.3	86.7	-166.7	187.9	0.00	0.00	0.00
1,960.0	14.17	297.49	1,939.1	91.2	-175.4	197.7	0.00	0.00	0.00
2,000.0	14.17	297.49	1,977.8	95.8	-184.0	207.5	0.00	0.00	0.00
2,040.0	14.17	297.49	2,016.6	100.3	-192.7	217.3	0.00	0.00	0.00
2,080.0	14.17	297.49	2,055.4	104.8	-201.4	227.0	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Project:	SEC.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	North Reference:	True
Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)		

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)
2,120.0	14.17	297.49	2,094.2	109.3	-210.1	236.8	0.00	0.00	0.00
2,160.0	14.17	297.49	2,133.0	113.8	-218.8	246.6	0.00	0.00	0.00
2,200.0	14.17	297.49	2,171.8	118.3	-227.5	256.4	0.00	0.00	0.00
2,240.0	14.17	297.49	2,210.5	122.9	-236.2	266.2	0.00	0.00	0.00
2,280.0	14.17	297.49	2,249.3	127.4	-244.8	276.0	0.00	0.00	0.00
2,320.0	14.17	297.49	2,288.1	131.9	-253.5	285.8	0.00	0.00	0.00
2,360.0	14.17	297.49	2,326.9	136.4	-262.2	295.6	0.00	0.00	0.00
2,400.0	14.17	297.49	2,365.7	140.9	-270.9	305.4	0.00	0.00	0.00
2,440.0	14.17	297.49	2,404.5	145.5	-279.6	315.2	0.00	0.00	0.00
2,480.0	14.17	297.49	2,443.2	150.0	-288.3	325.0	0.00	0.00	0.00
2,520.0	14.17	297.49	2,482.0	154.5	-297.0	334.7	0.00	0.00	0.00
2,560.0	14.17	297.49	2,520.8	159.0	-305.6	344.5	0.00	0.00	0.00
2,600.0	14.17	297.49	2,559.6	163.5	-314.3	354.3	0.00	0.00	0.00
2,640.0	14.17	297.49	2,598.4	168.1	-323.0	364.1	0.00	0.00	0.00
2,680.0	14.17	297.49	2,637.2	172.6	-331.7	373.9	0.00	0.00	0.00
2,720.0	14.17	297.49	2,675.9	177.1	-340.4	383.7	0.00	0.00	0.00
2,760.0	14.17	297.49	2,714.7	181.6	-349.1	393.5	0.00	0.00	0.00
2,800.0	14.17	297.49	2,753.5	186.1	-357.8	403.3	0.00	0.00	0.00
2,840.0	14.17	297.49	2,792.3	190.6	-366.4	413.1	0.00	0.00	0.00
2,880.0	14.17	297.49	2,831.1	195.2	-375.1	422.9	0.00	0.00	0.00
2,920.0	14.17	297.49	2,869.9	199.7	-383.8	432.7	0.00	0.00	0.00
2,960.0	14.17	297.49	2,908.6	204.2	-392.5	442.4	0.00	0.00	0.00
3,000.0	14.17	297.49	2,947.4	208.7	-401.2	452.2	0.00	0.00	0.00
3,040.0	14.17	297.49	2,986.2	213.2	-409.9	462.0	0.00	0.00	0.00
3,080.0	14.17	297.49	3,025.0	217.8	-418.6	471.8	0.00	0.00	0.00
3,120.0	14.17	297.49	3,063.8	222.3	-427.2	481.6	0.00	0.00	0.00
3,160.0	14.17	297.49	3,102.6	226.8	-435.9	491.4	0.00	0.00	0.00
3,200.0	14.17	297.49	3,141.3	231.3	-444.6	501.2	0.00	0.00	0.00
3,240.0	14.17	297.49	3,180.1	235.8	-453.3	511.0	0.00	0.00	0.00
3,280.0	14.17	297.49	3,218.9	240.4	-462.0	520.8	0.00	0.00	0.00
3,320.0	14.17	297.49	3,257.7	244.9	-470.7	530.6	0.00	0.00	0.00
3,360.0	14.17	297.49	3,296.5	249.4	-479.4	540.3	0.00	0.00	0.00
3,400.0	14.17	297.49	3,335.3	253.9	-488.0	550.1	0.00	0.00	0.00
3,440.0	14.17	297.49	3,374.0	258.4	-496.7	559.9	0.00	0.00	0.00
3,480.0	14.17	297.49	3,412.8	262.9	-505.4	569.7	0.00	0.00	0.00
3,520.0	14.17	297.49	3,451.6	267.5	-514.1	579.5	0.00	0.00	0.00
3,560.0	14.17	297.49	3,490.4	272.0	-522.8	589.3	0.00	0.00	0.00
3,600.0	14.17	297.49	3,529.2	276.5	-531.5	599.1	0.00	0.00	0.00
3,640.0	14.17	297.49	3,568.0	281.0	-540.2	608.9	0.00	0.00	0.00
3,680.0	14.17	297.49	3,606.7	285.5	-548.8	618.7	0.00	0.00	0.00
3,720.0	14.17	297.49	3,645.5	290.1	-557.5	628.5	0.00	0.00	0.00
3,760.0	14.17	297.49	3,684.3	294.6	-566.2	638.3	0.00	0.00	0.00
3,800.0	14.17	297.49	3,723.1	299.1	-574.9	648.0	0.00	0.00	0.00
3,840.0	14.17	297.49	3,761.9	303.6	-583.6	657.8	0.00	0.00	0.00
3,880.0	14.17	297.49	3,800.7	308.1	-592.3	667.6	0.00	0.00	0.00
3,920.0	14.17	297.49	3,839.4	312.7	-600.9	677.4	0.00	0.00	0.00
3,960.0	14.17	297.49	3,878.2	317.2	-609.6	687.2	0.00	0.00	0.00
4,000.0	14.17	297.49	3,917.0	321.7	-618.3	697.0	0.00	0.00	0.00
4,040.0	14.17	297.49	3,955.8	326.2	-627.0	706.8	0.00	0.00	0.00
4,080.0	14.17	297.49	3,994.6	330.7	-635.7	716.6	0.00	0.00	0.00
4,120.0	14.17	297.49	4,033.4	335.2	-644.4	726.4	0.00	0.00	0.00
4,160.0	14.17	297.49	4,072.1	339.8	-653.1	736.2	0.00	0.00	0.00
4,200.0	14.17	297.49	4,110.9	344.3	-661.7	746.0	0.00	0.00	0.00
4,240.0	14.17	297.49	4,149.7	348.8	-670.4	755.7	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Project:	SEC.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	North Reference:	True
Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)		

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)
4,280.0	14.17	297.49	4,188.5	353.3	-679.1	765.5	0.00	0.00	0.00
4,320.0	14.17	297.49	4,227.3	357.8	-687.8	775.3	0.00	0.00	0.00
4,360.0	14.17	297.49	4,266.1	362.4	-696.5	785.1	0.00	0.00	0.00
4,400.0	14.17	297.49	4,304.8	366.9	-705.2	794.9	0.00	0.00	0.00
4,440.0	14.17	297.49	4,343.6	371.4	-713.9	804.7	0.00	0.00	0.00
4,480.0	14.17	297.49	4,382.4	375.9	-722.5	814.5	0.00	0.00	0.00
4,520.0	14.17	297.49	4,421.2	380.4	-731.2	824.3	0.00	0.00	0.00
4,560.0	14.17	297.49	4,460.0	385.0	-739.9	834.1	0.00	0.00	0.00
4,600.0	14.17	297.49	4,498.8	389.5	-748.6	843.9	0.00	0.00	0.00
4,640.0	13.37	297.49	4,537.6	393.9	-757.0	853.4	2.00	-2.00	0.00
4,680.0	12.57	297.49	4,576.6	398.0	-765.0	862.4	2.00	-2.00	0.00
4,720.0	11.77	297.49	4,615.7	401.9	-772.5	870.8	2.00	-2.00	0.00
4,760.0	10.97	297.49	4,654.9	405.5	-779.5	878.7	2.00	-2.00	0.00
4,800.0	10.17	297.49	4,694.2	408.9	-786.0	886.0	2.00	-2.00	0.00
4,840.0	9.37	297.49	4,733.6	412.1	-792.0	892.8	2.00	-2.00	0.00
4,880.0	8.57	297.49	4,773.2	414.9	-797.5	899.0	2.00	-2.00	0.00
4,920.0	7.77	297.49	4,812.8	417.6	-802.6	904.7	2.00	-2.00	0.00
4,960.0	6.97	297.49	4,852.4	419.9	-807.1	909.8	2.00	-2.00	0.00
5,000.0	6.17	297.49	4,892.2	422.0	-811.2	914.4	2.00	-2.00	0.00
5,040.0	5.37	297.49	4,932.0	423.9	-814.8	918.4	2.00	-2.00	0.00
5,080.0	4.57	297.49	4,971.8	425.5	-817.8	921.9	2.00	-2.00	0.00
5,120.0	3.77	297.49	5,011.7	426.8	-820.4	924.8	2.00	-2.00	0.00
5,160.0	2.97	297.49	5,051.6	427.9	-822.5	927.2	2.00	-2.00	0.00
5,200.0	2.17	297.49	5,091.6	428.7	-824.1	929.0	2.00	-2.00	0.00
5,240.0	1.37	297.49	5,131.6	429.3	-825.2	930.2	2.00	-2.00	0.00
5,280.0	0.57	297.49	5,171.6	429.6	-825.8	930.9	2.00	-2.00	0.00
5,308.4	0.00	0.00	5,200.0	429.7	-825.9	931.0	2.00	-2.00	219.85
TARGET BHL 2531'FSL, 1309'FWL									
5,320.0	0.00	0.00	5,211.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,251.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,291.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,331.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,371.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,411.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,451.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,491.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,531.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,571.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,611.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,651.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,691.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,840.0	0.00	0.00	5,731.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,771.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,811.6	429.7	-825.9	931.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,851.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,891.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,931.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,971.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,120.0	0.00	0.00	6,011.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,051.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,091.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,131.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,171.6	429.7	-825.9	931.0	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Project:	SEC.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	North Reference:	True
Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)		

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)
6,320.0	0.00	0.00	6,211.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,251.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,291.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,331.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,371.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,411.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,451.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,491.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,531.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,571.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,611.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,651.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,691.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,731.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,771.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,811.6	429.7	-825.9	931.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,851.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,891.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,931.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,971.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,120.0	0.00	0.00	7,011.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,160.0	0.00	0.00	7,051.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,091.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,131.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,258.4	0.00	0.00	7,150.0	429.7	-825.9	931.0	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 2531'FSL, 1309'FWL									
7,280.0	0.00	0.00	7,171.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,320.0	0.00	0.00	7,211.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,360.0	0.00	0.00	7,251.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,291.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,440.0	0.00	0.00	7,331.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,480.0	0.00	0.00	7,371.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,520.0	0.00	0.00	7,411.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,451.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,491.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,608.4	0.00	0.00	7,500.0	429.7	-825.9	931.0	0.00	0.00	0.00
CODELL									
7,640.0	0.00	0.00	7,531.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,571.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,720.0	0.00	0.00	7,611.6	429.7	-825.9	931.0	0.00	0.00	0.00
7,758.4	0.00	0.00	7,650.0	429.7	-825.9	931.0	0.00	0.00	0.00
HARDLINE 75'N OF BHL									

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Project:	SEC.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	North Reference:	True
Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)		

Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
HARDLINE 75'N OF E	0.00	0.00	7,650.0	504.7	-925.9	1,383,764.80	3,182,013.51	40° 23' 5.983 N	104° 50' 47.809 W
- plan misses target center by 125.0ft at 7758.4ft MD (7650.0 TVD, 429.7 N, -825.9 E)									
- Polygon									
Point 1			7,650.0	0.0	0.0	1,383,764.80	3,182,013.51		
Point 2			7,650.0	0.0	200.0	1,383,766.28	3,182,213.50		
TARGET CIRCLE 25'	0.00	0.00	7,150.0	429.7	-825.9	1,383,690.55	3,182,114.06	40° 23' 5.242 N	104° 50' 46.517 W
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 2531'F	0.00	0.00	5,200.0	429.7	-825.9	1,383,690.53	3,182,114.05	40° 23' 5.242 N	104° 50' 46.517 W
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
7,258.4	7,150.0	NIOBRARA		0.00		
7,608.4	7,500.0	CODELL		0.00		



NOBLE ENERGY INC WELD COUNTY CO

SEC.24-T5N-R67W

Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W

Phillips 24-3-17 (Dir)

Wellbore #1

Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)

Anticollision Report

12 May, 2010



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Project:	SEC.24-T5N-R67W	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Reference Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)	Offset TVD Reference:	Offset Datum

Reference	Noble Phillips 24-3-17 (Dir) Plan #1		
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 2,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 5/12/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,758.4	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08	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						
Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W						
Phillips 24-31 (Exist.) - Wellbore #1 - Design #1	800.0	799.0	58.7	55.4	17.582	CC, ES
Phillips 24-31 (Exist.) - Wellbore #1 - Design #1	1,100.0	1,098.5	66.0	61.3	14.140	SF
Phillips 24-3-23 (Dir) - Wellbore #1 - Noble Phillips 24-3-2	796.4	795.5	28.0	24.7	8.584	CC
Phillips 24-3-23 (Dir) - Wellbore #1 - Noble Phillips 24-3-2	800.0	799.1	28.0	24.7	8.545	ES
Phillips 24-3-23 (Dir) - Wellbore #1 - Noble Phillips 24-3-2	900.0	898.4	30.8	27.1	8.326	SF

Offset Design Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W - Phillips 24-31 (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
0.0	0.0	0.0	0.0	0.0	0.0	48.49	38.9	44.0	58.8			
100.0	100.0	99.0	99.0	0.1	0.1	48.49	38.9	44.0	58.7	58.5	0.20	300.203
200.0	200.0	199.0	199.0	0.3	0.3	48.49	38.9	44.0	58.7	58.1	0.64	91.224
300.0	300.0	299.0	299.0	0.5	0.5	48.49	38.9	44.0	58.7	57.7	1.09	53.722
400.0	400.0	399.0	399.0	0.8	0.8	48.49	38.9	44.0	58.7	57.2	1.54	38.071
500.0	500.0	499.0	499.0	1.0	1.0	48.49	38.9	44.0	58.7	56.8	1.99	29.482
600.0	600.0	599.0	599.0	1.2	1.2	48.49	38.9	44.0	58.7	56.3	2.44	24.055
700.0	700.0	699.0	699.0	1.4	1.4	48.49	38.9	44.0	58.7	55.9	2.89	20.315
800.0	800.0	799.0	799.0	1.7	1.7	48.49	38.9	44.0	58.7	55.4	3.34	17.582 CC, ES
900.0	900.0	899.0	899.0	1.9	1.9	112.56	38.9	44.0	59.4	55.6	3.78	15.697
1,000.0	999.8	998.8	998.8	2.1	2.1	117.01	38.9	44.0	61.6	57.4	4.22	14.584
1,100.0	1,099.5	1,098.5	1,098.5	2.3	2.3	123.68	38.9	44.0	66.0	61.3	4.67	14.140 SF
1,200.0	1,198.7	1,197.7	1,197.7	2.6	2.6	131.46	38.9	44.0	73.5	68.4	5.12	14.360
1,300.0	1,297.5	1,296.5	1,296.5	2.9	2.8	139.23	38.9	44.0	84.7	79.2	5.57	15.217
1,400.0	1,395.6	1,394.6	1,394.6	3.2	3.0	146.17	38.9	44.0	100.0	94.0	6.01	16.640
1,500.0	1,493.1	1,492.1	1,492.1	3.6	3.2	151.97	38.9	44.0	119.5	113.0	6.45	18.526
1,600.0	1,590.0	1,589.0	1,589.0	4.0	3.4	156.58	38.9	44.0	141.7	134.8	6.90	20.522
1,700.0	1,687.0	1,686.0	1,686.0	4.5	3.7	159.96	38.9	44.0	164.5	157.1	7.36	22.342
1,800.0	1,783.9	1,782.9	1,782.9	4.9	3.9	162.52	38.9	44.0	187.8	179.9	7.83	23.991
1,900.0	1,880.9	1,879.9	1,879.9	5.4	4.1	164.51	38.9	44.0	211.3	203.0	8.29	25.479
2,000.0	1,977.8	1,976.8	1,976.8	5.9	4.3	166.10	38.9	44.0	235.0	226.2	8.76	26.822
2,100.0	2,074.8	2,073.8	2,073.8	6.4	4.5	167.40	38.9	44.0	258.9	249.6	9.23	28.035

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

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Project:	SEC.24-T5N-R67W	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Reference Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)	Offset TVD Reference:	Offset Datum

Offset Design Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W - Phillips 24-31 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0ft
Survey Program: 0-MWDD													Offset Well Error:	0.0ft
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		
2,200.0	2,171.8	2,170.8	2,170.8	6.9	4.8	168.48	38.9	44.0	282.8	273.1	9.71	29.134		
2,300.0	2,268.7	2,267.7	2,267.7	7.4	5.0	169.39	38.9	44.0	306.9	296.7	10.18	30.133		
2,400.0	2,365.7	2,364.7	2,364.7	7.9	5.2	170.17	38.9	44.0	331.0	320.3	10.66	31.043		
2,500.0	2,462.6	2,461.6	2,461.6	8.4	5.4	170.84	38.9	44.0	355.2	344.0	11.14	31.875		
2,600.0	2,559.6	2,558.6	2,558.6	8.9	5.6	171.43	38.9	44.0	379.4	367.7	11.62	32.637		
2,700.0	2,656.6	2,655.6	2,655.6	9.4	5.8	171.95	38.9	44.0	403.6	391.5	12.11	33.338		
2,800.0	2,753.5	2,752.5	2,752.5	9.9	6.1	172.41	38.9	44.0	427.9	415.3	12.59	33.985		
2,900.0	2,850.5	2,849.5	2,849.5	10.4	6.3	172.82	38.9	44.0	452.1	439.1	13.07	34.582		
3,000.0	2,947.4	2,946.4	2,946.4	10.9	6.5	173.18	38.9	44.0	476.5	462.9	13.56	35.137		
3,100.0	3,044.4	3,043.4	3,043.4	11.4	6.7	173.52	38.9	44.0	500.8	486.7	14.05	35.651		
3,200.0	3,141.3	3,140.3	3,140.3	12.0	6.9	173.82	38.9	44.0	525.1	510.6	14.53	36.131		
3,300.0	3,238.3	3,237.3	3,237.3	12.5	7.2	174.09	38.9	44.0	549.5	534.4	15.02	36.579		
3,400.0	3,335.3	3,334.3	3,334.3	13.0	7.4	174.34	38.9	44.0	573.8	558.3	15.51	36.997		
3,500.0	3,432.2	3,431.2	3,431.2	13.5	7.6	174.58	38.9	44.0	598.2	582.2	16.00	37.390		
3,600.0	3,529.2	3,528.2	3,528.2	14.0	7.8	174.79	38.9	44.0	622.6	606.1	16.49	37.758		
3,700.0	3,626.1	3,625.1	3,625.1	14.6	8.0	174.99	38.9	44.0	646.9	630.0	16.98	38.105		
3,800.0	3,723.1	3,722.1	3,722.1	15.1	8.2	175.17	38.9	44.0	671.3	653.9	17.47	38.431		
3,900.0	3,820.1	3,819.1	3,819.1	15.6	8.5	175.34	38.9	44.0	695.7	677.8	17.96	38.739		
4,000.0	3,917.0	3,916.0	3,916.0	16.1	8.7	175.50	38.9	44.0	720.1	701.7	18.45	39.030		
4,100.0	4,014.0	4,013.0	4,013.0	16.6	8.9	175.64	38.9	44.0	744.5	725.6	18.94	39.306		
4,200.0	4,110.9	4,109.9	4,109.9	17.2	9.1	175.78	38.9	44.0	769.0	749.5	19.43	39.567		
4,300.0	4,207.9	4,206.9	4,206.9	17.7	9.3	175.91	38.9	44.0	793.4	773.4	19.93	39.815		
4,400.0	4,304.8	4,303.8	4,303.8	18.2	9.5	176.03	38.9	44.0	817.8	797.4	20.42	40.050		
4,500.0	4,401.8	4,400.8	4,400.8	18.7	9.8	176.15	38.9	44.0	842.2	821.3	20.91	40.274		
4,600.0	4,498.8	4,497.8	4,497.8	19.3	10.0	176.26	38.9	44.0	866.7	845.2	21.41	40.488		
4,700.0	4,596.1	4,595.1	4,595.1	19.7	10.2	176.38	38.9	44.0	889.4	867.4	21.95	40.521		
4,800.0	4,694.2	4,693.2	4,693.2	20.0	10.4	176.48	38.9	44.0	908.7	886.3	22.44	40.492		
4,900.0	4,792.9	4,791.9	4,791.9	20.3	10.6	176.56	38.9	44.0	924.6	901.7	22.90	40.371		
5,000.0	4,892.2	4,891.2	4,891.2	20.6	10.9	176.63	38.9	44.0	937.1	913.7	23.33	40.163		
5,100.0	4,991.7	4,990.7	4,990.7	20.8	11.1	176.67	38.9	44.0	946.1	922.3	23.73	39.874		
5,200.0	5,091.6	5,090.6	5,090.6	20.9	11.3	176.69	38.9	44.0	951.6	927.5	24.09	39.508		
5,300.0	5,191.6	5,190.6	5,190.6	21.1	11.5	176.70	38.9	44.0	953.6	929.2	24.41	39.063		
5,400.0	5,291.6	5,290.6	5,290.6	21.2	11.8	114.19	38.9	44.0	953.6	928.8	24.80	38.450		
5,500.0	5,391.6	5,390.6	5,390.6	21.3	12.0	114.19	38.9	44.0	953.6	928.4	25.21	37.827		
5,600.0	5,491.6	5,490.6	5,490.6	21.4	12.2	114.19	38.9	44.0	953.6	928.0	25.62	37.222		
5,700.0	5,591.6	5,590.6	5,590.6	21.5	12.4	114.19	38.9	44.0	953.6	927.6	26.03	36.634		
5,800.0	5,691.6	5,690.6	5,690.6	21.7	12.7	114.19	38.9	44.0	953.6	927.2	26.44	36.063		
5,900.0	5,791.6	5,790.6	5,790.6	21.8	12.9	114.19	38.9	44.0	953.6	926.8	26.86	35.508		
6,000.0	5,891.6	5,890.6	5,890.6	21.9	13.1	114.19	38.9	44.0	953.6	926.4	27.27	34.969		
6,100.0	5,991.6	5,990.6	5,990.6	22.0	13.3	114.19	38.9	44.0	953.6	925.9	27.69	34.444		
6,200.0	6,091.6	6,090.6	6,090.6	22.2	13.6	114.19	38.9	44.0	953.6	925.5	28.10	33.934		
6,300.0	6,191.6	6,190.6	6,190.6	22.3	13.8	114.19	38.9	44.0	953.6	925.1	28.52	33.437		
6,400.0	6,291.6	6,290.6	6,290.6	22.4	14.0	114.19	38.9	44.0	953.6	924.7	28.94	32.954		
6,500.0	6,391.6	6,390.6	6,390.6	22.6	14.2	114.19	38.9	44.0	953.6	924.3	29.36	32.484		
6,600.0	6,491.6	6,490.6	6,490.6	22.7	14.5	114.19	38.9	44.0	953.6	923.9	29.78	32.026		
6,700.0	6,591.6	6,590.6	6,590.6	22.8	14.7	114.19	38.9	44.0	953.6	923.4	30.20	31.580		
6,800.0	6,691.6	6,690.6	6,690.6	23.0	14.9	114.19	38.9	44.0	953.6	923.0	30.62	31.145		
6,900.0	6,791.6	6,790.6	6,790.6	23.1	15.1	114.19	38.9	44.0	953.6	922.6	31.04	30.722		
7,000.0	6,891.6	6,890.6	6,890.6	23.3	15.4	114.19	38.9	44.0	953.6	922.2	31.46	30.309		
7,100.0	6,991.6	6,990.6	6,990.6	23.4	15.6	114.19	38.9	44.0	953.6	921.7	31.89	29.906		
7,200.0	7,091.6	7,090.6	7,090.6	23.6	15.8	114.19	38.9	44.0	953.6	921.3	32.31	29.514		
7,300.0	7,191.6	7,190.6	7,190.6	23.7	16.0	114.19	38.9	44.0	953.6	920.9	32.74	29.130		

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

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Project:	SEC.24-T5N-R67W	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Reference Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)	Offset TVD Reference:	Offset Datum

Offset Design Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W - Phillips 24-31 (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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,400.0	7,291.6	7,290.6	7,290.6	23.9	16.3	114.19	38.9	44.0	953.6	920.5	33.16	28.757	
7,500.0	7,391.6	7,390.6	7,390.6	24.0	16.5	114.19	38.9	44.0	953.6	920.0	33.59	28.392	
7,600.0	7,491.6	7,490.6	7,490.6	24.2	16.7	114.19	38.9	44.0	953.6	919.6	34.01	28.036	
7,700.0	7,591.6	7,590.6	7,590.6	24.3	16.9	114.19	38.9	44.0	953.6	919.2	34.44	27.688	
7,737.1	7,628.7	7,627.7	7,627.7	24.4	17.0	114.19	38.9	44.0	953.6	919.0	34.60	27.561	
7,758.4	7,650.0	7,644.0	7,644.0	24.4	17.1	114.19	38.9	44.0	953.6	919.0	34.68	27.498	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Project:	SEC.24-T5N-R67W	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Reference Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)	Offset TVD Reference:	Offset Datum

Offset Design Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W - Phillips 24-3-23 (Dir) - Wellbore #1 - Noble Phillips 24-3-2													Offset Site Error:	0.0ft
Survey Program: 0-MWWD													Offset Well Error:	0.0ft
Reference	Offset	Semi Major Axis		Distance										Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	50.73	18.2	22.3	28.8					
100.0	100.0	99.0	99.0	0.1	0.1	50.73	18.2	22.3	28.8	28.6	0.19	147.951		
200.0	200.0	199.0	199.0	0.3	0.3	50.73	18.2	22.3	28.8	28.1	0.64	44.781		
300.0	300.0	299.0	299.0	0.5	0.5	50.73	18.2	22.3	28.8	27.7	1.09	26.353		
400.0	400.0	399.0	399.0	0.8	0.8	50.73	18.2	22.3	28.8	27.2	1.54	18.670		
500.0	500.0	499.0	499.0	1.0	1.0	50.73	18.2	22.3	28.8	26.8	1.99	14.455		
600.0	600.0	599.0	599.0	1.2	1.2	50.73	18.2	22.3	28.8	26.3	2.44	11.793		
700.0	700.0	699.2	699.2	1.4	1.4	54.10	16.7	23.0	28.4	25.6	2.87	9.926		
796.4	796.4	795.5	795.4	1.7	1.6	64.13	12.2	25.2	28.0	24.7	3.26	8.584 CC		
800.0	800.0	799.1	799.0	1.7	1.6	64.64	12.0	25.3	28.0	24.7	3.28	8.545 ES		
900.0	900.0	898.4	897.9	1.9	1.8	146.05	4.2	29.1	30.8	27.1	3.70	8.326 SF		
1,000.0	999.8	996.4	995.2	2.1	2.1	165.81	-6.4	34.2	41.7	37.6	4.14	10.066		
1,100.0	1,099.5	1,092.5	1,090.1	2.3	2.3	178.81	-19.8	40.7	61.5	56.9	4.59	13.391		
1,200.0	1,198.7	1,186.1	1,182.0	2.6	2.6	-173.75	-35.5	48.4	89.1	84.0	5.05	17.649		
1,300.0	1,297.5	1,276.8	1,270.5	2.9	3.0	-169.40	-53.4	57.0	123.3	117.8	5.50	22.432		
1,400.0	1,395.6	1,367.9	1,359.0	3.2	3.4	-166.75	-72.9	66.5	162.9	156.9	5.95	27.354		
1,500.0	1,493.1	1,458.2	1,446.6	3.6	3.8	-165.26	-92.4	75.9	205.7	199.3	6.40	32.128		
1,600.0	1,590.0	1,547.6	1,533.5	4.0	4.2	-164.55	-111.6	85.2	250.3	243.4	6.88	36.387		
1,700.0	1,687.0	1,637.1	1,620.4	4.5	4.6	-164.07	-130.8	94.6	295.0	287.6	7.38	39.952		
1,800.0	1,783.9	1,726.5	1,707.2	4.9	5.1	-163.72	-150.1	103.9	339.6	331.7	7.89	43.052		
1,900.0	1,880.9	1,816.0	1,794.1	5.4	5.5	-163.45	-169.3	113.2	384.3	375.9	8.41	45.721		
2,000.0	1,977.8	1,905.4	1,881.0	5.9	5.9	-163.24	-188.5	122.6	429.0	420.0	8.93	48.040		
2,100.0	2,074.8	1,994.9	1,967.8	6.4	6.4	-163.06	-207.8	131.9	473.7	464.2	9.46	50.067		
2,200.0	2,171.8	2,084.4	2,054.7	6.9	6.8	-162.92	-227.0	141.2	518.3	508.3	10.00	51.851		
2,300.0	2,268.7	2,173.8	2,141.5	7.4	7.3	-162.80	-246.3	150.5	563.0	552.5	10.54	53.432		
2,400.0	2,365.7	2,263.3	2,228.4	7.9	7.7	-162.69	-265.5	159.9	607.7	596.6	11.08	54.840		
2,500.0	2,462.6	2,352.7	2,315.3	8.4	8.2	-162.60	-284.7	169.2	652.4	640.8	11.63	56.101		
2,600.0	2,559.6	2,442.2	2,402.1	8.9	8.6	-162.53	-304.0	178.5	697.1	684.9	12.18	57.235		
2,700.0	2,656.6	2,531.6	2,489.0	9.4	9.1	-162.46	-323.2	187.9	741.8	729.1	12.73	58.260		
2,800.0	2,753.5	2,621.1	2,575.9	9.9	9.5	-162.40	-342.4	197.2	786.5	773.2	13.29	59.189		
2,900.0	2,850.5	2,710.5	2,662.7	10.4	10.0	-162.34	-361.7	206.5	831.2	817.3	13.84	60.036		
3,000.0	2,947.4	2,800.0	2,749.6	10.9	10.4	-162.29	-380.9	215.8	875.9	861.5	14.40	60.810		
3,100.0	3,044.4	2,889.4	2,836.4	11.4	10.9	-162.25	-400.1	225.2	920.6	905.6	14.96	61.520		
3,200.0	3,141.3	2,978.9	2,923.3	12.0	11.4	-162.21	-419.4	234.5	965.3	949.7	15.53	62.172		
3,300.0	3,238.3	3,068.4	3,010.2	12.5	11.8	-162.17	-438.6	243.8	1,009.9	993.9	16.09	62.774		
3,400.0	3,335.3	3,157.8	3,097.0	13.0	12.3	-162.14	-457.9	253.2	1,054.6	1,038.0	16.65	63.332		
3,500.0	3,432.2	3,247.3	3,183.9	13.5	12.7	-162.11	-477.1	262.5	1,099.3	1,082.1	17.22	63.849		
3,600.0	3,529.2	3,336.7	3,270.8	14.0	13.2	-162.08	-496.3	271.8	1,144.0	1,126.2	17.78	64.329		
3,700.0	3,626.1	3,426.2	3,357.6	14.6	13.7	-162.06	-515.6	281.1	1,188.7	1,170.4	18.35	64.777		
3,800.0	3,723.1	3,515.6	3,444.5	15.1	14.1	-162.03	-534.8	290.5	1,233.4	1,214.5	18.92	65.195		
3,900.0	3,820.1	3,605.1	3,531.3	15.6	14.6	-162.01	-554.0	299.8	1,278.1	1,258.6	19.49	65.587		
4,000.0	3,917.0	3,694.5	3,618.2	16.1	15.0	-161.99	-573.3	309.1	1,322.8	1,302.8	20.06	65.954		
4,100.0	4,014.0	3,784.0	3,705.1	16.6	15.5	-161.97	-592.5	318.5	1,367.5	1,346.9	20.63	66.298		
4,200.0	4,110.9	3,873.4	3,791.9	17.2	16.0	-161.95	-611.8	327.8	1,412.2	1,391.0	21.20	66.622		
4,300.0	4,207.9	3,962.9	3,878.8	17.7	16.4	-161.93	-631.0	337.1	1,456.9	1,435.1	21.77	66.927		
4,400.0	4,304.8	4,052.4	3,965.6	18.2	16.9	-161.92	-650.2	346.4	1,501.6	1,479.3	22.34	67.215		
4,500.0	4,401.8	4,141.8	4,052.5	18.7	17.3	-161.90	-669.5	355.8	1,546.3	1,523.4	22.91	67.487		
4,600.0	4,498.8	4,231.3	4,139.4	19.3	17.8	-161.89	-688.7	365.1	1,591.0	1,567.5	23.49	67.745		
4,700.0	4,596.1	4,321.4	4,226.9	19.7	18.3	-162.15	-708.1	374.5	1,634.2	1,610.0	24.17	67.620		
4,800.0	4,694.2	4,413.6	4,316.5	20.0	18.7	-162.34	-727.9	384.1	1,674.4	1,649.6	24.79	67.535		
4,900.0	4,792.9	4,506.0	4,404.4	20.3	19.5	-162.41	-746.6	393.9	1,718.2	1,692.6	25.41	67.445		
5,000.0	4,892.2	4,601.1	4,500.0	20.6	20.0	-162.52	-766.0	403.8	1,762.0	1,735.7	26.04	67.355		

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

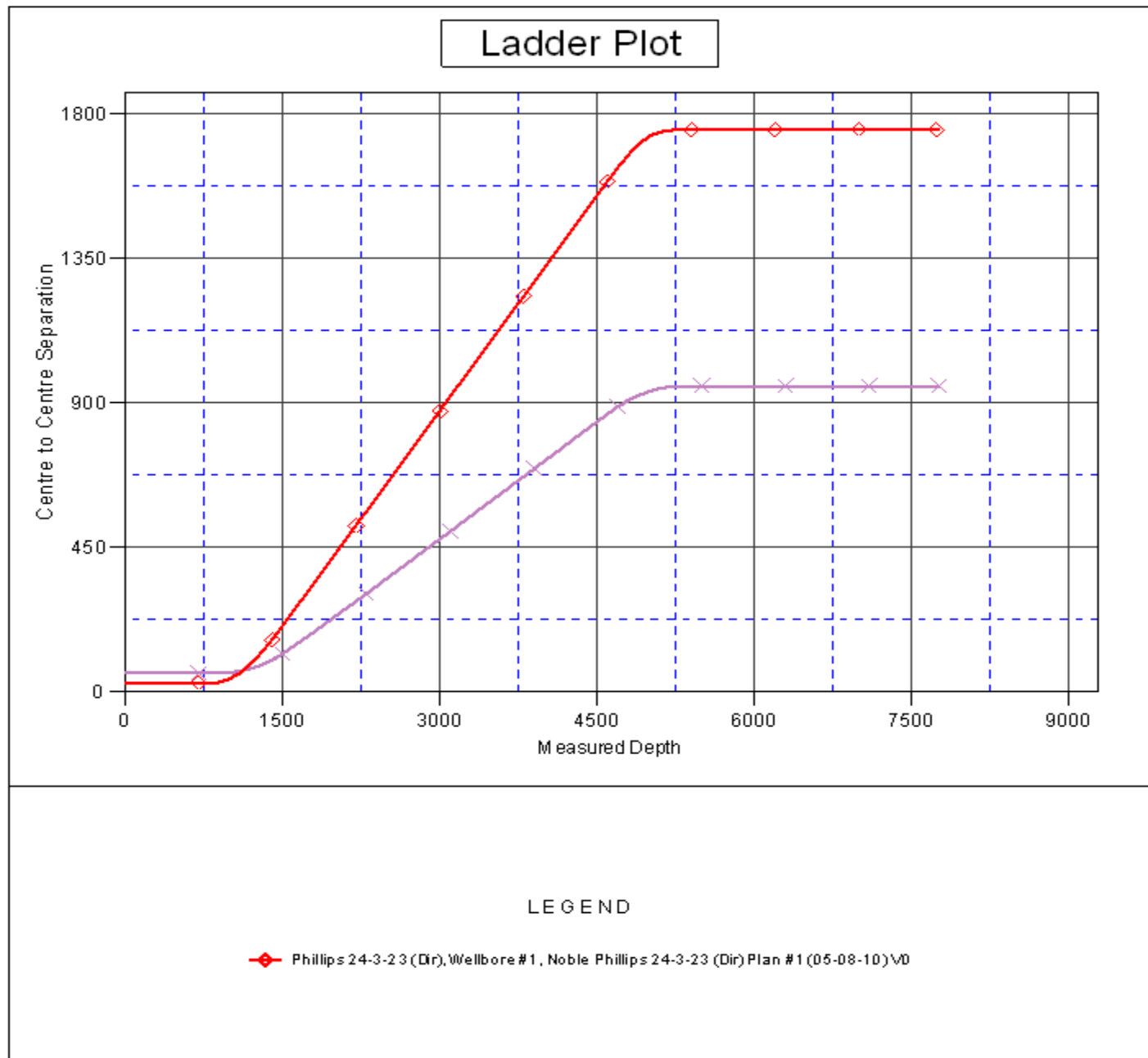
Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Project:	SEC.24-T5N-R67W	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Reference Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)	Offset TVD Reference:	Offset Datum

Offset Design Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W - Phillips 24-3-23 (Dir) - Wellbore #1 - Noble Phillips 24-3-2												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
5,100.0	4,991.7	5,082.1	4,978.3	20.8	20.4	-162.69	-802.3	420.2	1,745.1	1,718.1	26.98	64.693	
5,200.0	5,091.6	5,194.4	5,090.6	20.9	20.5	-162.78	-802.4	420.2	1,750.4	1,723.1	27.36	63.980	
5,300.0	5,191.6	5,294.4	5,190.6	21.1	20.6	-162.81	-802.4	420.2	1,752.4	1,724.7	27.67	63.330	
5,400.0	5,291.6	5,394.4	5,290.6	21.2	20.7	134.67	-802.4	420.2	1,752.4	1,724.4	27.98	62.634	
5,500.0	5,391.6	5,494.4	5,390.6	21.3	20.8	134.67	-802.4	420.2	1,752.4	1,724.1	28.30	61.917	
5,600.0	5,491.6	5,594.4	5,490.6	21.4	20.9	134.67	-802.4	420.2	1,752.4	1,723.8	28.63	61.209	
5,700.0	5,591.6	5,694.4	5,590.6	21.5	21.0	134.67	-802.4	420.2	1,752.4	1,723.4	28.96	60.510	
5,800.0	5,691.6	5,794.4	5,690.6	21.7	21.1	134.67	-802.4	420.2	1,752.4	1,723.1	29.29	59.821	
5,900.0	5,791.6	5,894.4	5,790.6	21.8	21.2	134.67	-802.4	420.2	1,752.4	1,722.8	29.63	59.140	
6,000.0	5,891.6	5,994.4	5,890.6	21.9	21.4	134.67	-802.4	420.2	1,752.4	1,722.4	29.97	58.470	
6,100.0	5,991.6	6,094.4	5,990.6	22.0	21.5	134.67	-802.4	420.2	1,752.4	1,722.1	30.31	57.809	
6,200.0	6,091.6	6,194.4	6,090.6	22.2	21.6	134.67	-802.4	420.2	1,752.4	1,721.7	30.66	57.158	
6,300.0	6,191.6	6,294.4	6,190.6	22.3	21.7	134.67	-802.4	420.2	1,752.4	1,721.4	31.01	56.516	
6,400.0	6,291.6	6,394.4	6,290.6	22.4	21.8	134.67	-802.4	420.2	1,752.4	1,721.0	31.36	55.884	
6,500.0	6,391.6	6,494.4	6,390.6	22.6	21.9	134.67	-802.4	420.2	1,752.4	1,720.7	31.71	55.262	
6,600.0	6,491.6	6,594.4	6,490.6	22.7	22.1	134.67	-802.4	420.2	1,752.4	1,720.3	32.07	54.649	
6,700.0	6,591.6	6,694.4	6,590.6	22.8	22.2	134.67	-802.4	420.2	1,752.4	1,720.0	32.42	54.046	
6,800.0	6,691.6	6,794.4	6,690.6	23.0	22.3	134.67	-802.4	420.2	1,752.4	1,719.6	32.78	53.452	
6,900.0	6,791.6	6,894.4	6,790.6	23.1	22.4	134.67	-802.4	420.2	1,752.4	1,719.2	33.15	52.868	
7,000.0	6,891.6	6,994.4	6,890.6	23.3	22.6	134.67	-802.4	420.2	1,752.4	1,718.9	33.51	52.293	
7,100.0	6,991.6	7,094.4	6,990.6	23.4	22.7	134.67	-802.4	420.2	1,752.4	1,718.5	33.88	51.728	
7,200.0	7,091.6	7,194.4	7,090.6	23.6	22.8	134.67	-802.4	420.2	1,752.4	1,718.1	34.25	51.171	
7,300.0	7,191.6	7,294.4	7,190.6	23.7	23.0	134.67	-802.4	420.2	1,752.4	1,717.8	34.62	50.624	
7,400.0	7,291.6	7,394.4	7,290.6	23.9	23.1	134.67	-802.4	420.2	1,752.4	1,717.4	34.99	50.085	
7,500.0	7,391.6	7,494.4	7,390.6	24.0	23.2	134.67	-802.4	420.2	1,752.4	1,717.0	35.36	49.555	
7,600.0	7,491.6	7,594.4	7,490.6	24.2	23.4	134.67	-802.4	420.2	1,752.4	1,716.6	35.74	49.034	
7,700.0	7,591.6	7,694.4	7,590.6	24.3	23.5	134.67	-802.4	420.2	1,752.4	1,716.3	36.12	48.522	
7,737.1	7,628.7	7,731.5	7,627.7	24.4	23.6	134.67	-802.4	420.2	1,752.4	1,716.1	36.26	48.334	
7,758.4	7,650.0	7,747.8	7,644.0	24.4	23.6	134.67	-802.4	420.2	1,752.4	1,716.1	36.33	48.239	

Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Reference Site: Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W
Site Error: 0.0ft
Reference Well: Phillips 24-3-17 (Dir)
Well Error: 0.0ft
Reference Wellbore: Wellbore #1
Reference Design: Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)

Local Co-ordinate Reference: Well Phillips 24-3-17 (Dir)
TVD Reference: WELL @ 5010.0ft (Original Well Elev)
MD Reference: WELL @ 5010.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM den0-adp01 Server Data
Offset TVD Reference: Offset Datum

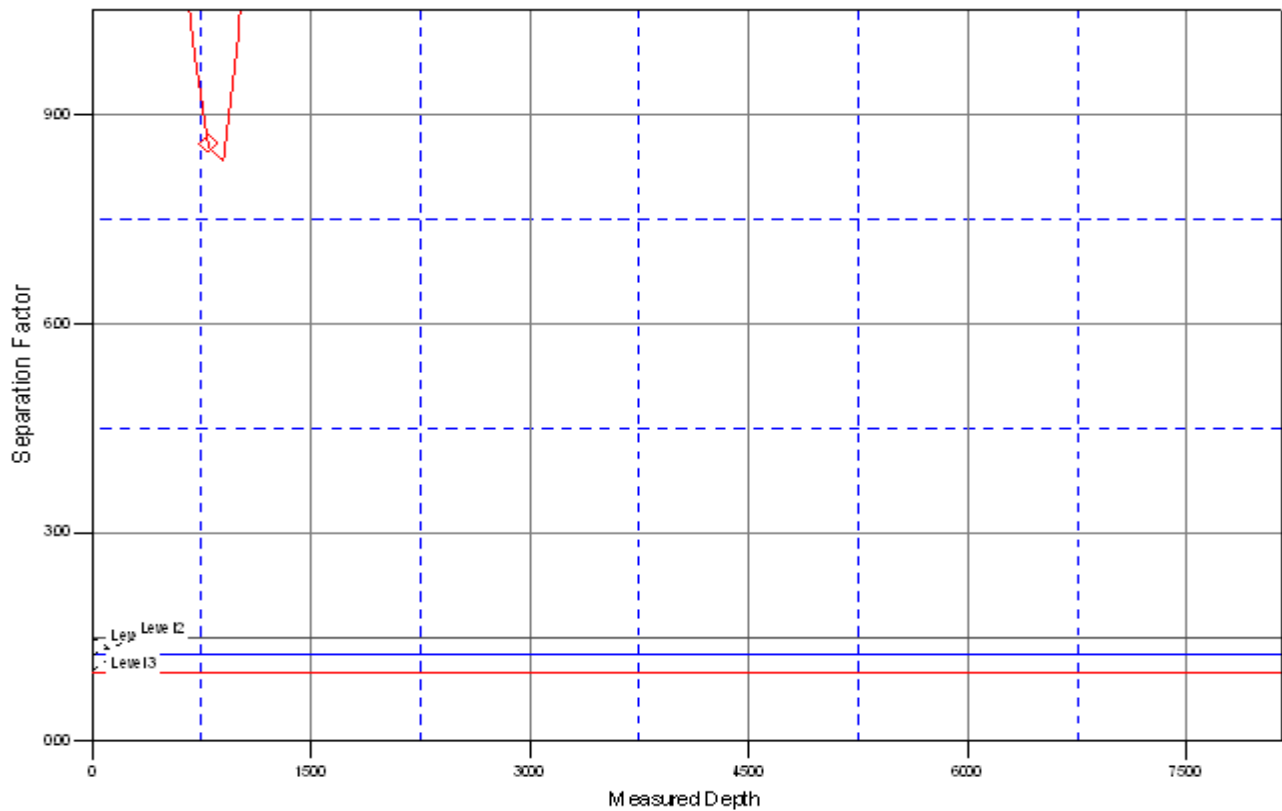
Reference Depths are relative to WELL @ 5010.0ft (Original Well Elev) Coordinates are relative to: Phillips 24-3-17 (Dir)
 Offset Depths are relative to Offset Datum
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is 105° 30' 0.000 W °
 Grid Convergence at Surface is: 0.42°



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-17 (Dir)
Project:	SEC.24-T5N-R67W	TVD Reference:	WELL @ 5010.0ft (Original Well Elev)
Reference Site:	Phillips 24-3-23 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5010.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Phillips 24-3-17 (Dir)	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Phillips 24-3-17 (Dir) Plan #1 (05-08-10)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5010.0ft (Original Well Elev) Coordinates are relative to: Phillips 24-3-17 (Dir)
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.42°

Separation Factor Plot



LEGEND

◆ Phillips 24-3-23 (Dir), Wellbore #1, Noble Phillips 24-3-23 (Dir) Plan #1 (05-08-10) \VD