



Directional

**NOBLE ENERGY INC WELD
COUNTY CO**

SEC.24-T5N-R67W

Phillips 24-2-20 (Dir) Pad Sec.24-T5N-R67W

Phillips 24-2-20 (Dir)

Wellbore #1

Plan: Noble Phillips 24-2-20 (Dir) Plan #1 (05-08-10)

Standard Planning Report

12 May, 2010



Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips 24-2-20 (Dir) Pad Sec.24-T5N-R67W
Well: Phillips 24-2-20 (Dir)
Wellbore: Wellbore #1
Design: Noble Phillips 24-2-20 (Dir) Plan #1 (05-08-10)

Local Co-ordinate Reference: Well Phillips 24-2-20 (Dir)
TVD Reference: WELL @ 5000.0ft (Original Well Elev)
MD Reference: WELL @ 5000.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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 24-2-20 (Dir) Pad Sec.24-T5N-R67W				
Site Position:		Northing:	1,384,804.98 ft	Latitude:	40° 23' 16.332 N
From:	Lat/Long	Easting:	3,181,048.57 ft	Longitude:	104° 51' 0.180 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.42 °

Well	Phillips 24-2-20 (Dir)					
Well Position	+N/-S	0.0 ft	Northing:	1,384,804.97 ft	Latitude:	40° 23' 16.332 N
	+E/-W	0.0 ft	Easting:	3,181,048.57 ft	Longitude:	104° 51' 0.180 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,987.0 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/8/2010	9.06	67.06	53,231

Design: Noble Phillips 24-2-20 (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	189.89

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	
650.0	0.00	0.00	650.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,360.2	14.20	189.89	1,353.0	-86.3	-15.0	2.00	2.00	0.00	189.89	
4,603.4	14.20	189.89	4,497.0	-870.3	-151.7	0.00	0.00	0.00	0.00	
5,313.7	0.00	0.00	5,200.0	-956.6	-166.7	2.00	-2.00	0.00	180.00	TARGET BHL 2533
7,753.7	0.00	0.00	7,640.0	-956.6	-166.7	0.00	0.00	0.00	0.00	

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips 24-2-20 (Dir) Pad Sec.24-T5N-R67W
Well: Phillips 24-2-20 (Dir)
Wellbore: Wellbore #1
Design: Noble Phillips 24-2-20 (Dir) Plan #1 (05-08-10)

Local Co-ordinate Reference: Well Phillips 24-2-20 (Dir)
TVD Reference: WELL @ 5000.0ft (Original Well Elev)
MD Reference: WELL @ 5000.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.60	189.89	680.0	-0.2	0.0	0.2	2.00	2.00	0.00
720.0	1.40	189.89	720.0	-0.8	-0.1	0.9	2.00	2.00	0.00
760.0	2.20	189.89	760.0	-2.1	-0.4	2.1	2.00	2.00	0.00
800.0	3.00	189.89	799.9	-3.9	-0.7	3.9	2.00	2.00	0.00
840.0	3.80	189.89	839.9	-6.2	-1.1	6.3	2.00	2.00	0.00
880.0	4.60	189.89	879.8	-9.1	-1.6	9.2	2.00	2.00	0.00
920.0	5.40	189.89	919.6	-12.5	-2.2	12.7	2.00	2.00	0.00
960.0	6.20	189.89	959.4	-16.5	-2.9	16.8	2.00	2.00	0.00
1,000.0	7.00	189.89	999.1	-21.0	-3.7	21.4	2.00	2.00	0.00
1,040.0	7.80	189.89	1,038.8	-26.1	-4.6	26.5	2.00	2.00	0.00
1,080.0	8.60	189.89	1,078.4	-31.7	-5.5	32.2	2.00	2.00	0.00
1,120.0	9.40	189.89	1,117.9	-37.9	-6.6	38.5	2.00	2.00	0.00
1,160.0	10.20	189.89	1,157.3	-44.6	-7.8	45.3	2.00	2.00	0.00
1,200.0	11.00	189.89	1,196.6	-51.9	-9.0	52.6	2.00	2.00	0.00
1,240.0	11.80	189.89	1,235.8	-59.6	-10.4	60.5	2.00	2.00	0.00
1,280.0	12.60	189.89	1,274.9	-68.0	-11.8	69.0	2.00	2.00	0.00
1,320.0	13.40	189.89	1,313.9	-76.8	-13.4	78.0	2.00	2.00	0.00
1,360.0	14.20	189.89	1,352.8	-86.2	-15.0	87.5	2.00	2.00	0.00
1,360.2	14.20	189.89	1,353.0	-86.3	-15.0	87.6	2.00	2.00	0.00
1,400.0	14.20	189.89	1,391.5	-95.9	-16.7	97.3	0.00	0.00	0.00
1,440.0	14.20	189.89	1,430.3	-105.6	-18.4	107.2	0.00	0.00	0.00
1,480.0	14.20	189.89	1,469.1	-115.2	-20.1	117.0	0.00	0.00	0.00
1,520.0	14.20	189.89	1,507.9	-124.9	-21.8	126.8	0.00	0.00	0.00
1,560.0	14.20	189.89	1,546.6	-134.6	-23.5	136.6	0.00	0.00	0.00
1,600.0	14.20	189.89	1,585.4	-144.2	-25.1	146.4	0.00	0.00	0.00
1,640.0	14.20	189.89	1,624.2	-153.9	-26.8	156.2	0.00	0.00	0.00
1,680.0	14.20	189.89	1,663.0	-163.6	-28.5	166.1	0.00	0.00	0.00
1,720.0	14.20	189.89	1,701.7	-173.3	-30.2	175.9	0.00	0.00	0.00
1,760.0	14.20	189.89	1,740.5	-182.9	-31.9	185.7	0.00	0.00	0.00
1,800.0	14.20	189.89	1,779.3	-192.6	-33.6	195.5	0.00	0.00	0.00
1,840.0	14.20	189.89	1,818.1	-202.3	-35.3	205.3	0.00	0.00	0.00
1,880.0	14.20	189.89	1,856.9	-211.9	-36.9	215.1	0.00	0.00	0.00
1,920.0	14.20	189.89	1,895.6	-221.6	-38.6	224.9	0.00	0.00	0.00
1,960.0	14.20	189.89	1,934.4	-231.3	-40.3	234.8	0.00	0.00	0.00

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips 24-2-20 (Dir) Pad Sec.24-T5N-R67W
Well: Phillips 24-2-20 (Dir)
Wellbore: Wellbore #1
Design: Noble Phillips 24-2-20 (Dir) Plan #1 (05-08-10)

Local Co-ordinate Reference: Well Phillips 24-2-20 (Dir)
TVD Reference: WELL @ 5000.0ft (Original Well Elev)
MD Reference: WELL @ 5000.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	14.20	189.89	1,973.2	-240.9	-42.0	244.6	0.00	0.00	0.00
2,040.0	14.20	189.89	2,012.0	-250.6	-43.7	254.4	0.00	0.00	0.00
2,080.0	14.20	189.89	2,050.7	-260.3	-45.4	264.2	0.00	0.00	0.00
2,120.0	14.20	189.89	2,089.5	-270.0	-47.0	274.0	0.00	0.00	0.00
2,160.0	14.20	189.89	2,128.3	-279.6	-48.7	283.8	0.00	0.00	0.00
2,200.0	14.20	189.89	2,167.1	-289.3	-50.4	293.7	0.00	0.00	0.00
2,240.0	14.20	189.89	2,205.8	-299.0	-52.1	303.5	0.00	0.00	0.00
2,280.0	14.20	189.89	2,244.6	-308.6	-53.8	313.3	0.00	0.00	0.00
2,320.0	14.20	189.89	2,283.4	-318.3	-55.5	323.1	0.00	0.00	0.00
2,360.0	14.20	189.89	2,322.2	-328.0	-57.2	332.9	0.00	0.00	0.00
2,400.0	14.20	189.89	2,361.0	-337.6	-58.8	342.7	0.00	0.00	0.00
2,440.0	14.20	189.89	2,399.7	-347.3	-60.5	352.5	0.00	0.00	0.00
2,480.0	14.20	189.89	2,438.5	-357.0	-62.2	362.4	0.00	0.00	0.00
2,520.0	14.20	189.89	2,477.3	-366.6	-63.9	372.2	0.00	0.00	0.00
2,560.0	14.20	189.89	2,516.1	-376.3	-65.6	382.0	0.00	0.00	0.00
2,600.0	14.20	189.89	2,554.8	-386.0	-67.3	391.8	0.00	0.00	0.00
2,640.0	14.20	189.89	2,593.6	-395.7	-69.0	401.6	0.00	0.00	0.00
2,680.0	14.20	189.89	2,632.4	-405.3	-70.6	411.4	0.00	0.00	0.00
2,720.0	14.20	189.89	2,671.2	-415.0	-72.3	421.2	0.00	0.00	0.00
2,760.0	14.20	189.89	2,710.0	-424.7	-74.0	431.1	0.00	0.00	0.00
2,800.0	14.20	189.89	2,748.7	-434.3	-75.7	440.9	0.00	0.00	0.00
2,840.0	14.20	189.89	2,787.5	-444.0	-77.4	450.7	0.00	0.00	0.00
2,880.0	14.20	189.89	2,826.3	-453.7	-79.1	460.5	0.00	0.00	0.00
2,920.0	14.20	189.89	2,865.1	-463.3	-80.7	470.3	0.00	0.00	0.00
2,960.0	14.20	189.89	2,903.8	-473.0	-82.4	480.1	0.00	0.00	0.00
3,000.0	14.20	189.89	2,942.6	-482.7	-84.1	490.0	0.00	0.00	0.00
3,040.0	14.20	189.89	2,981.4	-492.4	-85.8	499.8	0.00	0.00	0.00
3,080.0	14.20	189.89	3,020.2	-502.0	-87.5	509.6	0.00	0.00	0.00
3,120.0	14.20	189.89	3,058.9	-511.7	-89.2	519.4	0.00	0.00	0.00
3,160.0	14.20	189.89	3,097.7	-521.4	-90.9	529.2	0.00	0.00	0.00
3,200.0	14.20	189.89	3,136.5	-531.0	-92.5	539.0	0.00	0.00	0.00
3,240.0	14.20	189.89	3,175.3	-540.7	-94.2	548.8	0.00	0.00	0.00
3,280.0	14.20	189.89	3,214.1	-550.4	-95.9	558.7	0.00	0.00	0.00
3,320.0	14.20	189.89	3,252.8	-560.0	-97.6	568.5	0.00	0.00	0.00
3,360.0	14.20	189.89	3,291.6	-569.7	-99.3	578.3	0.00	0.00	0.00
3,400.0	14.20	189.89	3,330.4	-579.4	-101.0	588.1	0.00	0.00	0.00
3,440.0	14.20	189.89	3,369.2	-589.0	-102.7	597.9	0.00	0.00	0.00
3,480.0	14.20	189.89	3,407.9	-598.7	-104.3	607.7	0.00	0.00	0.00
3,520.0	14.20	189.89	3,446.7	-608.4	-106.0	617.6	0.00	0.00	0.00
3,560.0	14.20	189.89	3,485.5	-618.1	-107.7	627.4	0.00	0.00	0.00
3,600.0	14.20	189.89	3,524.3	-627.7	-109.4	637.2	0.00	0.00	0.00
3,640.0	14.20	189.89	3,563.0	-637.4	-111.1	647.0	0.00	0.00	0.00
3,680.0	14.20	189.89	3,601.8	-647.1	-112.8	656.8	0.00	0.00	0.00
3,720.0	14.20	189.89	3,640.6	-656.7	-114.5	666.6	0.00	0.00	0.00
3,760.0	14.20	189.89	3,679.4	-666.4	-116.1	676.4	0.00	0.00	0.00
3,800.0	14.20	189.89	3,718.2	-676.1	-117.8	686.3	0.00	0.00	0.00
3,840.0	14.20	189.89	3,756.9	-685.7	-119.5	696.1	0.00	0.00	0.00
3,880.0	14.20	189.89	3,795.7	-695.4	-121.2	705.9	0.00	0.00	0.00
3,920.0	14.20	189.89	3,834.5	-705.1	-122.9	715.7	0.00	0.00	0.00
3,960.0	14.20	189.89	3,873.3	-714.7	-124.6	725.5	0.00	0.00	0.00
4,000.0	14.20	189.89	3,912.0	-724.4	-126.2	735.3	0.00	0.00	0.00
4,040.0	14.20	189.89	3,950.8	-734.1	-127.9	745.2	0.00	0.00	0.00
4,080.0	14.20	189.89	3,989.6	-743.8	-129.6	755.0	0.00	0.00	0.00
4,120.0	14.20	189.89	4,028.4	-753.4	-131.3	764.8	0.00	0.00	0.00

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips 24-2-20 (Dir) Pad Sec.24-T5N-R67W
Well: Phillips 24-2-20 (Dir)
Wellbore: Wellbore #1
Design: Noble Phillips 24-2-20 (Dir) Plan #1 (05-08-10)

Local Co-ordinate Reference: Well Phillips 24-2-20 (Dir)
TVD Reference: WELL @ 5000.0ft (Original Well Elev)
MD Reference: WELL @ 5000.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,160.0	14.20	189.89	4,067.1	-763.1	-133.0	774.6	0.00	0.00	0.00
4,200.0	14.20	189.89	4,105.9	-772.8	-134.7	784.4	0.00	0.00	0.00
4,240.0	14.20	189.89	4,144.7	-782.4	-136.4	794.2	0.00	0.00	0.00
4,280.0	14.20	189.89	4,183.5	-792.1	-138.0	804.0	0.00	0.00	0.00
4,320.0	14.20	189.89	4,222.3	-801.8	-139.7	813.9	0.00	0.00	0.00
4,360.0	14.20	189.89	4,261.0	-811.4	-141.4	823.7	0.00	0.00	0.00
4,400.0	14.20	189.89	4,299.8	-821.1	-143.1	833.5	0.00	0.00	0.00
4,440.0	14.20	189.89	4,338.6	-830.8	-144.8	843.3	0.00	0.00	0.00
4,480.0	14.20	189.89	4,377.4	-840.5	-146.5	853.1	0.00	0.00	0.00
4,520.0	14.20	189.89	4,416.1	-850.1	-148.2	862.9	0.00	0.00	0.00
4,560.0	14.20	189.89	4,454.9	-859.8	-149.8	872.7	0.00	0.00	0.00
4,600.0	14.20	189.89	4,493.7	-869.5	-151.5	882.6	0.00	0.00	0.00
4,603.4	14.20	189.89	4,497.0	-870.3	-151.7	883.4	0.00	0.00	0.00
4,640.0	13.47	189.89	4,532.5	-878.9	-153.2	892.2	2.00	-2.00	0.00
4,680.0	12.67	189.89	4,571.5	-887.8	-154.7	901.2	2.00	-2.00	0.00
4,720.0	11.87	189.89	4,610.6	-896.2	-156.2	909.7	2.00	-2.00	0.00
4,760.0	11.07	189.89	4,649.8	-904.0	-157.6	917.7	2.00	-2.00	0.00
4,800.0	10.27	189.89	4,689.1	-911.3	-158.8	925.1	2.00	-2.00	0.00
4,840.0	9.47	189.89	4,728.5	-918.1	-160.0	931.9	2.00	-2.00	0.00
4,880.0	8.67	189.89	4,768.0	-924.3	-161.1	938.2	2.00	-2.00	0.00
4,920.0	7.87	189.89	4,807.6	-930.0	-162.1	944.0	2.00	-2.00	0.00
4,960.0	7.07	189.89	4,847.2	-935.1	-163.0	949.2	2.00	-2.00	0.00
5,000.0	6.27	189.89	4,887.0	-939.7	-163.8	953.8	2.00	-2.00	0.00
5,040.0	5.47	189.89	4,926.8	-943.7	-164.5	957.9	2.00	-2.00	0.00
5,080.0	4.67	189.89	4,966.6	-947.2	-165.1	961.5	2.00	-2.00	0.00
5,120.0	3.87	189.89	5,006.5	-950.1	-165.6	964.5	2.00	-2.00	0.00
5,160.0	3.07	189.89	5,046.4	-952.5	-166.0	966.9	2.00	-2.00	0.00
5,200.0	2.27	189.89	5,086.4	-954.4	-166.3	968.7	2.00	-2.00	0.00
5,240.0	1.47	189.89	5,126.3	-955.6	-166.5	970.0	2.00	-2.00	0.00
5,280.0	0.67	189.89	5,166.3	-956.4	-166.7	970.8	2.00	-2.00	0.00
5,313.7	0.00	0.00	5,200.0	-956.6	-166.7	971.0	2.00	-2.00	0.00
TARGET BHL 2533'FNL, 75'FWL									
5,320.0	0.00	0.00	5,206.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,246.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,286.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,326.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,366.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,406.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,446.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,486.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,526.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,566.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,606.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,646.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,686.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,840.0	0.00	0.00	5,726.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,766.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,806.3	-956.6	-166.7	971.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,846.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,886.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,926.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,966.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,120.0	0.00	0.00	6,006.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,046.3	-956.6	-166.7	971.0	0.00	0.00	0.00

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips 24-2-20 (Dir) Pad Sec.24-T5N-R67W
Well: Phillips 24-2-20 (Dir)
Wellbore: Wellbore #1
Design: Noble Phillips 24-2-20 (Dir) Plan #1 (05-08-10)

Local Co-ordinate Reference: Well Phillips 24-2-20 (Dir)
TVD Reference: WELL @ 5000.0ft (Original Well Elev)
MD Reference: WELL @ 5000.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,200.0	0.00	0.00	6,086.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,126.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,166.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,206.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,246.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,286.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,326.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,366.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,406.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,446.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,486.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,526.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,566.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,606.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,646.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,686.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,726.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,766.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,806.3	-956.6	-166.7	971.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,846.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,886.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,926.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,966.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,120.0	0.00	0.00	7,006.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,160.0	0.00	0.00	7,046.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,086.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,126.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,253.7	0.00	0.00	7,140.0	-956.6	-166.7	971.0	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 2533'FNL, 75'FWL									
7,280.0	0.00	0.00	7,166.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,320.0	0.00	0.00	7,206.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,360.0	0.00	0.00	7,246.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,286.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,440.0	0.00	0.00	7,326.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,480.0	0.00	0.00	7,366.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,520.0	0.00	0.00	7,406.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,446.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,486.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,603.7	0.00	0.00	7,490.0	-956.6	-166.7	971.0	0.00	0.00	0.00
CODELL									
7,640.0	0.00	0.00	7,526.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,566.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,720.0	0.00	0.00	7,606.3	-956.6	-166.7	971.0	0.00	0.00	0.00
7,753.7	0.00	0.00	7,640.0	-956.6	-166.7	971.0	0.00	0.00	0.00
HARDLINE 75'S & W OF BHL									

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips 24-2-20 (Dir) Pad Sec.24-T5N-R67W
Well: Phillips 24-2-20 (Dir)
Wellbore: Wellbore #1
Design: Noble Phillips 24-2-20 (Dir) Plan #1 (05-08-10)

Local Co-ordinate Reference: Well Phillips 24-2-20 (Dir)
TVD Reference: WELL @ 5000.0ft (Original Well Elev)
MD Reference: WELL @ 5000.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HARDLINE 75'S & W	0.00	0.00	7,640.0	-1,031.6	-241.7	1,383,771.68	3,180,814.45	40° 23' 6.138 N	104° 51' 3.303 W
- plan misses target center by 106.1ft at 7753.7ft MD (7640.0 TVD, -956.6 N, -166.7 E)									
- Polygon									
Point 1			7,640.0	0.0	0.0	1,383,771.68	3,180,814.45		
Point 2			7,640.0	0.0	200.0	1,383,773.14	3,181,014.44		
Point 3			7,640.0	0.0	0.0	1,383,771.68	3,180,814.45		
Point 4			7,640.0	200.0	0.0	1,383,971.66	3,180,812.99		
TARGET BHL 2533'F	0.00	0.00	5,200.0	-956.6	-166.7	1,383,847.24	3,180,888.89	40° 23' 6.879 N	104° 51' 2.334 W
- plan hits target center									
- Point									
TARGET CIRCLE 253	0.00	0.00	7,140.0	-956.6	-166.7	1,383,847.22	3,180,888.90	40° 23' 6.879 N	104° 51' 2.334 W
- plan hits target center									
- Circle (radius 75.0)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
500.0	500.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,253.7	7,140.0	NIOBRARA		0.00	
7,603.7	7,490.0	CODELL		0.00	