

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Schneider USX II31-12PD
Project:	SEC.31-T7N-R66W	TVD Reference:	WELL @ 4919.0ft (Original Well Elev)
Reference Site:	Schneider USX II31-12PD Pad SEC.31-T7N-R66W	MD Reference:	WELL @ 4919.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider USX II31-12PD	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Schneider USX II31-12PD	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Schneider USX II31-12D Plan #2 (03-17-10)	Offset TVD Reference:	Offset Datum

Reference	Noble Schneider USX II31-12D Plan		
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 3/22/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,846.0	Noble Schneider USX II31-12D Plan #2 (0 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						
Schneider USX II31-12D Pad SEC.31-T7N-R66W						
Schneider USX II31-14 (Exist.) - Wellbore #1 - Design #1	1,192.0	1,190.8	39.1	34.0	7.620 CC	
Schneider USX II31-14 (Exist.) - Wellbore #1 - Design #1	1,200.0	1,198.7	39.1	34.0	7.566 ES	
Schneider USX II31-14 (Exist.) - Wellbore #1 - Design #1	1,300.0	1,297.5	42.5	36.9	7.510 SF	
Schneider USX II31-25 (Vert.) - Wellbore #1 - Design #1	4,108.8	3,928.9	269.3	241.6	9.722 CC, ES, SF	

Offset Design Schneider USX II31-12D Pad SEC.31-T7N-R66W - Schneider USX II31-14 (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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-85.59	3.6	-47.3	47.4				
100.0	100.0	100.0	100.0	0.1	0.1	-85.59	3.6	-47.3	47.4	47.2	0.20	242.401	
200.0	200.0	200.0	200.0	0.3	0.3	-85.59	3.6	-47.3	47.4	46.8	0.65	73.480	
300.0	300.0	300.0	300.0	0.5	0.5	-85.59	3.6	-47.3	47.4	46.3	1.09	43.304	
400.0	400.0	400.0	400.0	0.8	0.8	-85.59	3.6	-47.3	47.4	45.9	1.54	30.697	
500.0	500.0	500.0	500.0	1.0	1.0	-85.59	3.6	-47.3	47.4	45.4	1.99	23.776	
600.0	600.0	600.0	600.0	1.2	1.2	-85.59	3.6	-47.3	47.4	45.0	2.44	19.401	
700.0	700.0	700.0	700.0	1.4	1.4	-85.59	3.6	-47.3	47.4	44.5	2.89	16.386	
800.0	800.0	800.0	800.0	1.7	1.7	-85.59	3.6	-47.3	47.4	44.1	3.34	14.182	
900.0	900.0	900.0	900.0	1.9	1.9	-57.38	3.6	-47.3	46.4	42.6	3.79	12.255	
1,000.0	999.8	999.8	999.8	2.1	2.1	-63.20	3.6	-47.3	43.8	39.6	4.24	10.350	
1,100.0	1,099.5	1,099.5	1,099.5	2.4	2.3	-74.25	3.6	-47.3	40.6	36.0	4.69	8.665	
1,192.0	1,190.8	1,190.8	1,190.8	2.6	2.5	-89.99	3.6	-47.3	39.1	34.0	5.13	7.620 CC	
1,200.0	1,198.7	1,198.7	1,198.7	2.6	2.6	-91.59	3.6	-47.3	39.1	34.0	5.17	7.566 ES	
1,300.0	1,297.5	1,297.5	1,297.5	2.9	2.8	-112.85	3.6	-47.3	42.5	36.9	5.66	7.510 SF	
1,400.0	1,395.6	1,395.6	1,395.6	3.2	3.0	-131.86	3.6	-47.3	53.0	46.9	6.13	8.650	
1,500.0	1,493.1	1,493.1	1,493.1	3.6	3.2	-145.35	3.6	-47.3	70.2	63.6	6.56	10.698	
1,600.0	1,589.6	1,589.6	1,589.6	4.0	3.4	-154.21	3.6	-47.3	92.8	85.9	6.98	13.299	
1,700.0	1,685.3	1,685.3	1,685.3	4.5	3.7	-160.07	3.6	-47.3	120.0	112.6	7.39	16.229	
1,800.0	1,779.8	1,779.8	1,779.8	5.0	3.9	-164.09	3.6	-47.3	151.1	143.3	7.80	19.364	
1,900.0	1,873.2	1,873.2	1,873.2	5.7	4.1	-166.97	3.6	-47.3	185.9	177.7	8.23	22.595	

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



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.31-T7N-R66W

Schneider USX II31-12D Pad SEC.31-T7N-R66W

Schneider USX II31-12D

Schneider USX II31-12D

Plan: Noble Schneider USX II31-12D Plan #2 (03-17-10)

Standard Planning Report

22 March, 2010



Database: EDM den0-adp01 Server Data
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.31-T7N-R66W
 Site: Schneider USX II31-12D Pad
 SEC.31-T7N-R66W
 Well: Schneider USX II31-12D
 Wellbore: Schneider USX II31-12D
 Design: Noble Schneider USX II31-12D Plan #2 (03-17)

Local Co-ordinate Reference: Well Schneider USX II31-12D
 TVD Reference: WELL @ 4919.0ft (Original Well Elev)
 MD Reference: WELL @ 4919.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Project	SEC.31-T7N-R66W, 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		Schneider USX II31-12D Pad SEC.31-T7N-R66W			
Site Position:		Northing:	1,435,110.38ft	Latitude:	40° 31' 32.952 N
From:	Lat/Long	Easting:	3,187,552.03ft	Longitude:	104° 49' 31.188 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.44 °

Well	Schneider USX II31-12D					
Well Position	+N/-S	0.0 ft	Northing:	1,435,110.37 ft	Latitude:	40° 31' 32.952 N
	+E/-W	0.0 ft	Easting:	3,187,552.03 ft	Longitude:	104° 49' 31.188 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,906.0 ft	

Wellbore	Schneider USX II31-12D				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/23/2008	9.21	67.23	53,468
	IGRF200510	12/31/2009	9.07	67.20	53,363

Design	Noble Schneider USX II31-12D Plan #2 (03-17-10)			
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	311.97

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	
1,879.5	21.59	330.00	1,854.1	174.1	-100.5	2.00	2.00	0.00	330.00	
3,434.5	21.59	330.00	3,300.0	669.6	-386.6	0.00	0.00	0.00	0.00	
3,909.2	21.58	294.73	3,743.3	782.2	-510.1	2.70	0.00	-7.43	-106.49	
5,710.3	21.58	294.73	5,418.1	1,059.4	-1,111.8	0.00	0.00	0.00	0.00	
6,511.0	0.00	0.00	6,200.0	1,121.8	-1,247.2	2.70	-2.70	0.00	180.00	Drill Target 1980'FS
7,846.0	0.00	0.00	7,535.0	1,121.8	-1,247.2	0.00	0.00	0.00	0.00	

Database: EDM den0-adp01 Server Data
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.31-T7N-R66W
 Site: Schneider USX II31-12DPad
 SEC.31-T7N-R66W
 Well: Schneider USX II31-12DP
 Wellbore: Schneider USX II31-12DP
 Design: Noble Schneider USX II31-12DP Plan #2 (03-17)

Local Co-ordinate Reference: Well Schneider USX II31-12DP
 TVD Reference: WELL @ 4919.0ft (Original Well Elev)
 MD Reference: WELL @ 4919.0ft (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
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	330.00	840.0	0.2	-0.1	0.3	2.00	2.00	0.00
880.0	1.60	330.00	880.0	1.0	-0.6	1.1	2.00	2.00	0.00
920.0	2.40	330.00	920.0	2.2	-1.3	2.4	2.00	2.00	0.00
960.0	3.20	330.00	959.9	3.9	-2.2	4.2	2.00	2.00	0.00
1,000.0	4.00	330.00	999.8	6.0	-3.5	6.6	2.00	2.00	0.00
1,040.0	4.80	330.00	1,039.7	8.7	-5.0	9.6	2.00	2.00	0.00
1,080.0	5.60	330.00	1,079.6	11.8	-6.8	13.0	2.00	2.00	0.00
1,120.0	6.40	330.00	1,119.3	15.5	-8.9	17.0	2.00	2.00	0.00
1,160.0	7.20	330.00	1,159.1	19.6	-11.3	21.5	2.00	2.00	0.00
1,200.0	8.00	330.00	1,198.7	24.1	-13.9	26.5	2.00	2.00	0.00
1,240.0	8.80	330.00	1,238.3	29.2	-16.9	32.1	2.00	2.00	0.00
1,280.0	9.60	330.00	1,277.8	34.7	-20.1	38.1	2.00	2.00	0.00
1,320.0	10.40	330.00	1,317.1	40.8	-23.5	44.8	2.00	2.00	0.00
1,360.0	11.20	330.00	1,356.4	47.2	-27.3	51.9	2.00	2.00	0.00
1,400.0	12.00	330.00	1,395.6	54.2	-31.3	59.5	2.00	2.00	0.00
1,440.0	12.80	330.00	1,434.7	61.7	-35.6	67.7	2.00	2.00	0.00
1,480.0	13.60	330.00	1,473.6	69.6	-40.2	76.4	2.00	2.00	0.00
1,520.0	14.40	330.00	1,512.4	77.9	-45.0	85.6	2.00	2.00	0.00
1,560.0	15.20	330.00	1,551.1	86.8	-50.1	95.3	2.00	2.00	0.00
1,600.0	16.00	330.00	1,589.6	96.1	-55.5	105.5	2.00	2.00	0.00
1,640.0	16.80	330.00	1,628.0	105.9	-61.1	116.3	2.00	2.00	0.00
1,680.0	17.60	330.00	1,666.2	116.1	-67.0	127.5	2.00	2.00	0.00
1,720.0	18.40	330.00	1,704.3	126.8	-73.2	139.3	2.00	2.00	0.00
1,760.0	19.20	330.00	1,742.1	138.0	-79.7	151.5	2.00	2.00	0.00
1,800.0	20.00	330.00	1,779.8	149.6	-86.4	164.3	2.00	2.00	0.00
1,840.0	20.80	330.00	1,817.3	161.7	-93.4	177.5	2.00	2.00	0.00
1,879.5	21.59	330.00	1,854.1	174.1	-100.5	191.1	2.00	2.00	0.00
1,880.0	21.59	330.00	1,854.6	174.2	-100.6	191.3	0.00	0.00	0.00
1,920.0	21.59	330.00	1,891.8	187.0	-107.9	205.3	0.00	0.00	0.00
1,960.0	21.59	330.00	1,929.0	199.7	-115.3	219.3	0.00	0.00	0.00
2,000.0	21.59	330.00	1,966.2	212.5	-122.7	233.3	0.00	0.00	0.00
2,040.0	21.59	330.00	2,003.4	225.2	-130.0	247.3	0.00	0.00	0.00

Database: EDM den0-adp01 Server Data
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.31-T7N-R66W
 Site: Schneider USX II31-12DPad
 SEC.31-T7N-R66W
 Well: Schneider USX II31-12DP
 Wellbore: Schneider USX II31-12DP
 Design: Noble Schneider USX II31-12DP Plan #2 (03-17)

Local Co-ordinate Reference: Well Schneider USX II31-1 2PD
 TVD Reference: WELL @ 4919.0ft (Original Well Elev)
 MD Reference: WELL @ 4919.0ft (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)
2,080.0	21.59	330.00	2,040.6	238.0	-137.4	261.3	0.00	0.00	0.00
2,120.0	21.59	330.00	2,077.8	250.7	-144.7	275.3	0.00	0.00	0.00
2,160.0	21.59	330.00	2,115.0	263.4	-152.1	289.3	0.00	0.00	0.00
2,200.0	21.59	330.00	2,152.1	276.2	-159.5	303.3	0.00	0.00	0.00
2,240.0	21.59	330.00	2,189.3	288.9	-166.8	317.3	0.00	0.00	0.00
2,280.0	21.59	330.00	2,226.5	301.7	-174.2	331.3	0.00	0.00	0.00
2,320.0	21.59	330.00	2,263.7	314.4	-181.5	345.2	0.00	0.00	0.00
2,360.0	21.59	330.00	2,300.9	327.2	-188.9	359.2	0.00	0.00	0.00
2,400.0	21.59	330.00	2,338.1	339.9	-196.3	373.2	0.00	0.00	0.00
2,440.0	21.59	330.00	2,375.3	352.7	-203.6	387.2	0.00	0.00	0.00
2,480.0	21.59	330.00	2,412.5	365.4	-211.0	401.2	0.00	0.00	0.00
2,520.0	21.59	330.00	2,449.7	378.2	-218.3	415.2	0.00	0.00	0.00
2,560.0	21.59	330.00	2,486.9	390.9	-225.7	429.2	0.00	0.00	0.00
2,600.0	21.59	330.00	2,524.1	403.7	-233.1	443.2	0.00	0.00	0.00
2,640.0	21.59	330.00	2,561.3	416.4	-240.4	457.2	0.00	0.00	0.00
2,680.0	21.59	330.00	2,598.5	429.2	-247.8	471.2	0.00	0.00	0.00
2,720.0	21.59	330.00	2,635.7	441.9	-255.1	485.2	0.00	0.00	0.00
2,760.0	21.59	330.00	2,672.9	454.6	-262.5	499.2	0.00	0.00	0.00
2,782.7	21.59	330.00	2,694.0	461.9	-266.7	507.2	0.00	0.00	0.00
Pierre Silt									
2,800.0	21.59	330.00	2,710.1	467.4	-269.9	513.2	0.00	0.00	0.00
2,840.0	21.59	330.00	2,747.2	480.1	-277.2	527.2	0.00	0.00	0.00
2,880.0	21.59	330.00	2,784.4	492.9	-284.6	541.2	0.00	0.00	0.00
2,920.0	21.59	330.00	2,821.6	505.6	-291.9	555.2	0.00	0.00	0.00
2,960.0	21.59	330.00	2,858.8	518.4	-299.3	569.2	0.00	0.00	0.00
3,000.0	21.59	330.00	2,896.0	531.1	-306.6	583.2	0.00	0.00	0.00
3,040.0	21.59	330.00	2,933.2	543.9	-314.0	597.2	0.00	0.00	0.00
3,080.0	21.59	330.00	2,970.4	556.6	-321.4	611.2	0.00	0.00	0.00
3,120.0	21.59	330.00	3,007.6	569.4	-328.7	625.2	0.00	0.00	0.00
3,160.0	21.59	330.00	3,044.8	582.1	-336.1	639.2	0.00	0.00	0.00
3,200.0	21.59	330.00	3,082.0	594.9	-343.4	653.2	0.00	0.00	0.00
3,240.0	21.59	330.00	3,119.2	607.6	-350.8	667.2	0.00	0.00	0.00
3,280.0	21.59	330.00	3,156.4	620.4	-358.2	681.1	0.00	0.00	0.00
3,320.0	21.59	330.00	3,193.6	633.1	-365.5	695.1	0.00	0.00	0.00
3,360.0	21.59	330.00	3,230.8	645.8	-372.9	709.1	0.00	0.00	0.00
3,400.0	21.59	330.00	3,268.0	658.6	-380.2	723.1	0.00	0.00	0.00
3,434.5	21.59	330.00	3,300.0	669.6	-386.6	735.2	0.00	0.00	0.00
3,440.0	21.55	329.61	3,305.2	671.3	-387.6	737.1	2.70	-0.76	-7.04
3,480.0	21.27	326.75	3,342.4	683.7	-395.3	751.1	2.70	-0.69	-7.14
3,520.0	21.05	323.83	3,379.7	695.6	-403.5	765.2	2.70	-0.57	-7.30
3,560.0	20.87	320.86	3,417.1	706.9	-412.3	779.3	2.70	-0.44	-7.44
3,600.0	20.75	317.84	3,454.4	717.7	-421.5	793.3	2.70	-0.31	-7.54
3,640.0	20.68	314.80	3,491.9	727.9	-431.3	807.5	2.70	-0.18	-7.61
3,680.0	20.66	311.75	3,529.3	737.6	-441.5	821.6	2.70	-0.04	-7.64
3,720.0	20.70	308.69	3,566.7	746.7	-452.3	835.7	2.70	0.09	-7.63
3,760.0	20.79	305.66	3,604.1	755.3	-463.6	849.8	2.70	0.23	-7.58
3,800.0	20.93	302.66	3,641.5	763.3	-475.4	863.9	2.70	0.36	-7.50
3,840.0	21.13	299.70	3,678.8	770.7	-487.7	878.0	2.70	0.49	-7.39
3,880.0	21.37	296.81	3,716.1	777.6	-500.4	892.1	2.70	0.61	-7.24
3,881.0	21.38	296.74	3,717.0	777.7	-500.8	892.4	2.70	0.68	-7.16
Parkman									
3,909.2	21.58	294.73	3,743.3	782.2	-510.1	902.3	2.70	0.72	-7.09
3,920.0	21.58	294.73	3,753.3	783.9	-513.7	906.1	0.00	0.00	0.00

Database: EDM den0-adp01 Server Data
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.31-T7N-R66W
 Site: Schneider USX II31-12PD Pad
 SEC.31-T7N-R66W
 Well: Schneider USX II31-12PD
 Wellbore: Schneider USX II31-12PD
 Design: Noble Schneider USX II31-12PD Plan #2 (03-17)

Local Co-ordinate Reference: Well Schneider USX II31-12PD
 TVD Reference: WELL @ 4919.0ft (Original Well Elev)
 MD Reference: WELL @ 4919.0ft (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)
3,960.0	21.58	294.73	3,790.5	790.0	-527.0	920.2	0.00	0.00	0.00
4,000.0	21.58	294.73	3,827.7	796.2	-540.4	934.2	0.00	0.00	0.00
4,040.0	21.58	294.73	3,864.9	802.4	-553.8	948.3	0.00	0.00	0.00
4,080.0	21.58	294.73	3,902.1	808.5	-567.1	962.3	0.00	0.00	0.00
4,120.0	21.58	294.73	3,939.3	814.7	-580.5	976.4	0.00	0.00	0.00
4,160.0	21.58	294.73	3,976.5	820.8	-593.9	990.5	0.00	0.00	0.00
4,200.0	21.58	294.73	4,013.7	827.0	-607.2	1,004.5	0.00	0.00	0.00
4,240.0	21.58	294.73	4,050.9	833.1	-620.6	1,018.6	0.00	0.00	0.00
4,280.0	21.58	294.73	4,088.1	839.3	-634.0	1,032.6	0.00	0.00	0.00
4,320.0	21.58	294.73	4,125.3	845.4	-647.3	1,046.7	0.00	0.00	0.00
4,360.0	21.58	294.73	4,162.5	851.6	-660.7	1,060.7	0.00	0.00	0.00
4,400.0	21.58	294.73	4,199.7	857.8	-674.0	1,074.8	0.00	0.00	0.00
4,440.0	21.58	294.73	4,236.9	863.9	-687.4	1,088.8	0.00	0.00	0.00
4,480.0	21.58	294.73	4,274.1	870.1	-700.8	1,102.9	0.00	0.00	0.00
4,520.0	21.58	294.73	4,311.3	876.2	-714.1	1,116.9	0.00	0.00	0.00
4,560.0	21.58	294.73	4,348.5	882.4	-727.5	1,131.0	0.00	0.00	0.00
4,600.0	21.58	294.73	4,385.7	888.5	-740.9	1,145.0	0.00	0.00	0.00
4,640.0	21.58	294.73	4,422.8	894.7	-754.2	1,159.1	0.00	0.00	0.00
4,680.0	21.58	294.73	4,460.0	900.9	-767.6	1,173.1	0.00	0.00	0.00
4,681.0	21.58	294.73	4,461.0	901.0	-767.9	1,173.5	0.00	0.00	0.00
Sussex									
4,720.0	21.58	294.73	4,497.2	907.0	-781.0	1,187.2	0.00	0.00	0.00
4,760.0	21.58	294.73	4,534.4	913.2	-794.3	1,201.3	0.00	0.00	0.00
4,800.0	21.58	294.73	4,571.6	919.3	-807.7	1,215.3	0.00	0.00	0.00
4,840.0	21.58	294.73	4,608.8	925.5	-821.1	1,229.4	0.00	0.00	0.00
4,880.0	21.58	294.73	4,646.0	931.6	-834.4	1,243.4	0.00	0.00	0.00
4,920.0	21.58	294.73	4,683.2	937.8	-847.8	1,257.5	0.00	0.00	0.00
4,960.0	21.58	294.73	4,720.4	944.0	-861.1	1,271.5	0.00	0.00	0.00
5,000.0	21.58	294.73	4,757.6	950.1	-874.5	1,285.6	0.00	0.00	0.00
5,040.0	21.58	294.73	4,794.8	956.3	-887.9	1,299.6	0.00	0.00	0.00
5,056.3	21.58	294.73	4,810.0	958.8	-893.3	1,305.4	0.00	0.00	0.00
Shannon									
5,080.0	21.58	294.73	4,832.0	962.4	-901.2	1,313.7	0.00	0.00	0.00
5,120.0	21.58	294.73	4,869.2	968.6	-914.6	1,327.7	0.00	0.00	0.00
5,160.0	21.58	294.73	4,906.4	974.7	-928.0	1,341.8	0.00	0.00	0.00
5,200.0	21.58	294.73	4,943.6	980.9	-941.3	1,355.8	0.00	0.00	0.00
5,240.0	21.58	294.73	4,980.8	987.1	-954.7	1,369.9	0.00	0.00	0.00
5,280.0	21.58	294.73	5,018.0	993.2	-968.1	1,383.9	0.00	0.00	0.00
5,320.0	21.58	294.73	5,055.2	999.4	-981.4	1,398.0	0.00	0.00	0.00
5,360.0	21.58	294.73	5,092.4	1,005.5	-994.8	1,412.1	0.00	0.00	0.00
5,400.0	21.58	294.73	5,129.6	1,011.7	-1,008.2	1,426.1	0.00	0.00	0.00
5,440.0	21.58	294.73	5,166.8	1,017.8	-1,021.5	1,440.2	0.00	0.00	0.00
5,480.0	21.58	294.73	5,203.9	1,024.0	-1,034.9	1,454.2	0.00	0.00	0.00
5,520.0	21.58	294.73	5,241.1	1,030.1	-1,048.2	1,468.3	0.00	0.00	0.00
5,560.0	21.58	294.73	5,278.3	1,036.3	-1,061.6	1,482.3	0.00	0.00	0.00
5,600.0	21.58	294.73	5,315.5	1,042.5	-1,075.0	1,496.4	0.00	0.00	0.00
5,640.0	21.58	294.73	5,352.7	1,048.6	-1,088.3	1,510.4	0.00	0.00	0.00
5,680.0	21.58	294.73	5,389.9	1,054.8	-1,101.7	1,524.5	0.00	0.00	0.00
5,710.3	21.58	294.73	5,418.1	1,059.4	-1,111.8	1,535.1	0.00	0.00	0.00
5,720.0	21.32	294.73	5,427.1	1,060.9	-1,115.0	1,538.5	2.70	-2.70	0.00
5,760.0	20.24	294.73	5,464.5	1,066.9	-1,127.9	1,552.1	2.70	-2.70	0.00
5,800.0	19.17	294.73	5,502.2	1,072.5	-1,140.2	1,565.0	2.70	-2.70	0.00
5,840.0	18.09	294.73	5,540.1	1,077.8	-1,151.8	1,577.2	2.70	-2.70	0.00

Database: EDM den0-adp01 Server Data
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.31-T7N-R66W
 Site: Schneider USX II31-12PD
 Well: Schneider USX II31-12PD
 Wellbore: Schneider USX II31-12PD
 Design: Noble Schneider USX II31-12PD Plan #2 (03-17)

Local Co-ordinate Reference: Well Schneider USX II31-12PD
 TVD Reference: WELL @ 4919.0ft (Original Well Elev)
 MD Reference: WELL @ 4919.0ft (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)
5,880.0	17.01	294.73	5,578.2	1,082.9	-1,162.7	1,588.7	2.70	-2.70	0.00
5,920.0	15.93	294.73	5,616.6	1,087.6	-1,173.0	1,599.5	2.70	-2.70	0.00
5,960.0	14.85	294.73	5,655.1	1,092.1	-1,182.7	1,609.6	2.70	-2.70	0.00
6,000.0	13.78	294.73	5,693.9	1,096.2	-1,191.7	1,619.1	2.70	-2.70	0.00
6,040.0	12.70	294.73	5,732.8	1,100.1	-1,200.0	1,627.8	2.70	-2.70	0.00
6,080.0	11.62	294.73	5,771.9	1,103.6	-1,207.6	1,635.9	2.70	-2.70	0.00
6,120.0	10.54	294.73	5,811.2	1,106.8	-1,214.6	1,643.2	2.70	-2.70	0.00
6,160.0	9.46	294.73	5,850.6	1,109.7	-1,220.9	1,649.9	2.70	-2.70	0.00
6,200.0	8.38	294.73	5,890.1	1,112.3	-1,226.6	1,655.8	2.70	-2.70	0.00
6,240.0	7.31	294.73	5,929.7	1,114.6	-1,231.5	1,661.0	2.70	-2.70	0.00
6,280.0	6.23	294.73	5,969.4	1,116.6	-1,235.8	1,665.5	2.70	-2.70	0.00
6,320.0	5.15	294.73	6,009.3	1,118.2	-1,239.4	1,669.3	2.70	-2.70	0.00
6,360.0	4.07	294.73	6,049.1	1,119.6	-1,242.3	1,672.4	2.70	-2.70	0.00
6,400.0	2.99	294.73	6,089.0	1,120.6	-1,244.6	1,674.7	2.70	-2.70	0.00
6,440.0	1.91	294.73	6,129.0	1,121.3	-1,246.1	1,676.3	2.70	-2.70	0.00
6,480.0	0.84	294.73	6,169.0	1,121.7	-1,247.0	1,677.3	2.70	-2.70	0.00
6,511.0	0.00	0.00	6,200.0	1,121.8	-1,247.2	1,677.5	2.70	-2.70	0.00
Drill Target 1980'FSL & 660'FWL									
6,520.0	0.00	0.00	6,209.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,249.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,289.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,329.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,369.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,720.0	0.00	0.00	6,409.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,760.0	0.00	0.00	6,449.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,489.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,840.0	0.00	0.00	6,529.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,569.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,609.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,649.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,689.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,040.0	0.00	0.00	6,729.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,080.0	0.00	0.00	6,769.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,120.0	0.00	0.00	6,809.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,160.0	0.00	0.00	6,849.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,200.0	0.00	0.00	6,889.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,240.0	0.00	0.00	6,929.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,280.0	0.00	0.00	6,969.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,320.0	0.00	0.00	7,009.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,333.0	0.00	0.00	7,022.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
Niobrara - Target Circle 1980'FSL, 660'FWL - Legal Box 400' X 400' 1987'FSL & 671'FWL									
7,360.0	0.00	0.00	7,049.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,400.0	0.00	0.00	7,089.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,440.0	0.00	0.00	7,129.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,480.0	0.00	0.00	7,169.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,520.0	0.00	0.00	7,209.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,560.0	0.00	0.00	7,249.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,600.0	0.00	0.00	7,289.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,640.0	0.00	0.00	7,329.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,680.0	0.00	0.00	7,369.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,696.0	0.00	0.00	7,385.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
Codell									
7,720.0	0.00	0.00	7,409.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00

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 Design: Noble Schneider USX II31-12PD Plan #2 (03-17)

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 MD Reference: WELL @ 4919.0ft (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)
7,760.0	0.00	0.00	7,449.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,800.0	0.00	0.00	7,489.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,840.0	0.00	0.00	7,529.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00
7,846.0	0.00	0.00	7,535.0	1,121.8	-1,247.2	1,677.5	0.00	0.00	0.00

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									
Target Circle 1980'FS	0.00	0.00	7,022.0	1,121.8	-1,247.2	1,436,222.61	3,186,296.38	40° 31' 44.037 N	104° 49' 47.339 W
- plan hits target center									
- Circle (radius 75.0)									
Legal Box 400' X 400'	0.00	0.00	7,022.0	1,128.8	-1,236.2	1,436,229.69	3,186,307.32	40° 31' 44.106 N	104° 49' 47.197 W
- plan misses target center by 13.0ft at 7333.0ft MD (7022.0 TVD, 1121.8 N, -1247.2 E)									
- Rectangle (sides W400.0 H400.0 D513.0)									
Drill Target 1980'FSL	0.00	0.00	6,200.0	1,121.8	-1,247.2	1,436,222.61	3,186,296.38	40° 31' 44.037 N	104° 49' 47.339 W
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,782.7	2,694.0	Pierre Silt		0.00	
3,881.0	3,717.0	Parkman		0.00	
4,681.0	4,461.0	Sussex		0.00	
5,056.3	4,810.0	Shannon		0.00	
7,333.0	7,022.0	Niobrara		0.00	
7,696.0	7,385.0	Codell		0.00	