

Well Name: **Ulrich PC G21-17D**

Surface Location: Ulrich PC G21-28D Pad Sec.21-T4N-R65W (Grid North)
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4859.0

+N/-S +E/-W
 0.0 0.0

Northing
 1353272.67

Easting
 3232652.64

Latitude
 40.300130

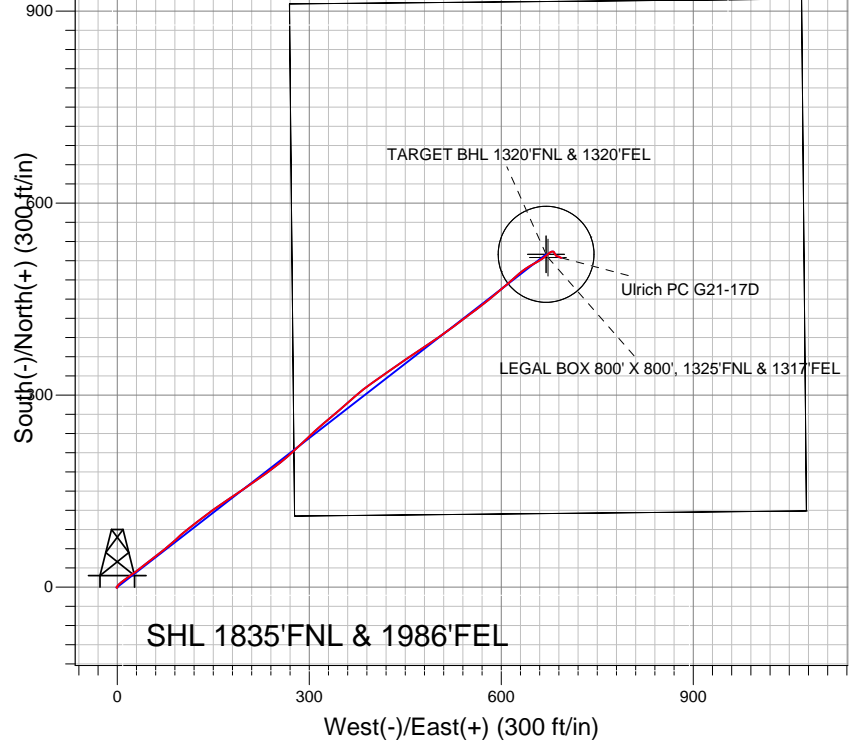
Longitude
 -104.665870

Slot

Original Well Elev WELL @ 4872.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO

Projected BHL 514'N & 694'E of
 surface 1326'FNL & 1296'FEL



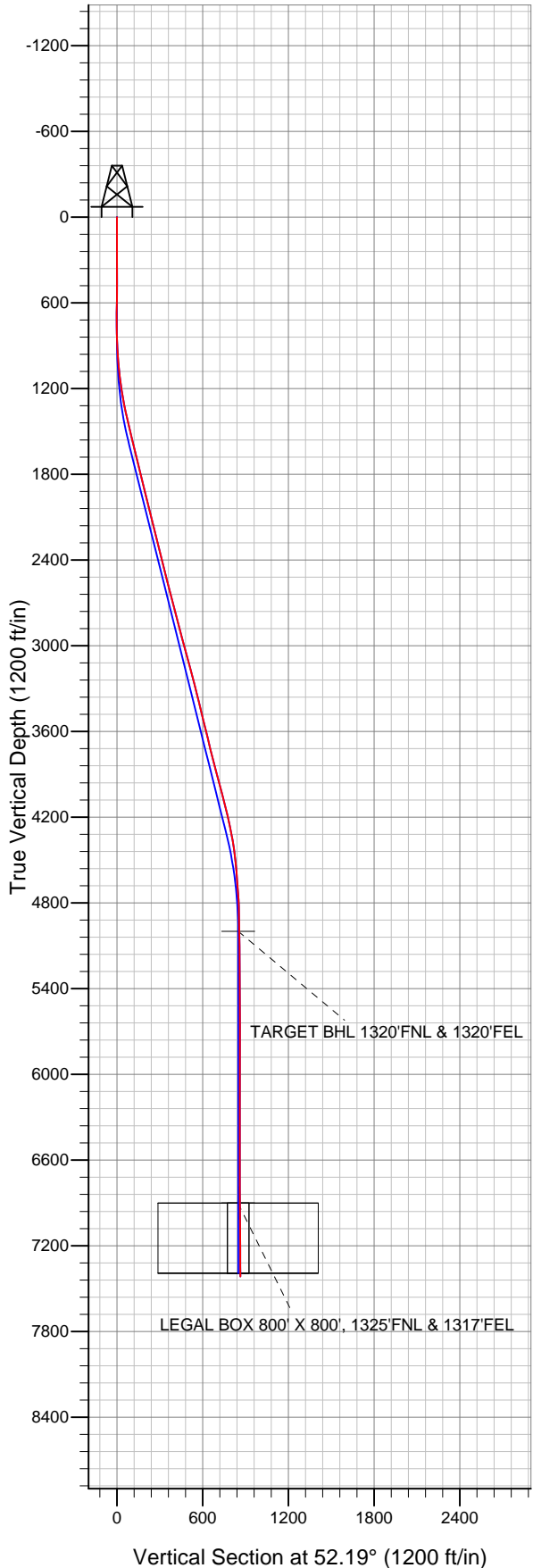
LEGEND

- ▲ Ulrich PC G21-17D, Wellbore #1, Noble Ulrich PC G21-17D Plan #1 (8-16-12) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 7515'MD & 7416'TVD @ 864'VS
 0.7 deg Inc 99.2 deg AZ

Project: SEC.21-T4N-R65W
 Site: Ulrich PC G21-28D Pad Sec.21-T4N-R65W (Grid North)
 Well: Ulrich PC G21-17D
 Plan: Wellbore #1





Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.21-T4N-R65W

Ulrich PC G21-28D Pad Sec.21-T4N-R65W (Grid North)

Ulrich PC G21-17D

Wellbore #1

Survey: Survey #1

Standard Survey Report

23 August, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Ulrich PC G21-17D
Project:	SEC.21-T4N-R65W	TVD Reference:	WELL @ 4872.0ft (Original Well Elev)
Site:	Ulrich PC G21-28D Pad Sec.21-T4N-R65W (Grid North)	MD Reference:	WELL @ 4872.0ft (Original Well Elev)
Well:	Ulrich PC G21-17D	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.21-T4N-R65W, 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	Ulrich PC G21-28D Pad Sec.21-T4N-R65W (Grid North)				
Site Position:		Northing:	1,353,294.54 ft	Latitude:	40.300190
From:	Lat/Long	Easting:	3,232,652.44 ft	Longitude:	-104.665870
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.54 °

Well	Ulrich PC G21-17D					
Well Position	+N-S	0.0 ft	Northing:	1,353,272.67 ft	Latitude:	40.300130
	+E-W	0.0 ft	Easting:	3,232,652.64 ft	Longitude:	-104.665870
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,859.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/16/2012	8.65	66.95	52,966

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	52.19	

Survey Program	Date	8/23/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
136.0	7,515.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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	
136.0	0.20	140.60	136.0	-0.2	0.2	0.0	0.15	0.15	0.00	
353.0	0.10	219.40	353.0	-0.6	0.3	-0.2	0.09	-0.05	36.31	
565.0	0.20	198.80	565.0	-1.1	0.0	-0.7	0.05	0.05	-9.72	
658.0	0.30	317.10	658.0	-1.1	-0.2	-0.8	0.46	0.11	127.20	
772.0	0.60	275.80	772.0	-0.8	-1.0	-1.3	0.37	0.26	-36.23	
900.0	2.70	39.40	900.0	1.6	0.3	1.2	2.40	1.64	96.56	
1,028.0	5.00	49.80	1,027.7	7.5	6.4	9.7	1.87	1.80	8.13	
1,156.0	8.00	55.40	1,154.8	16.2	18.0	24.2	2.39	2.34	4.38	
1,285.0	10.10	51.40	1,282.2	28.3	34.3	44.4	1.70	1.63	-3.10	
1,413.0	13.00	53.60	1,407.6	43.9	54.6	70.1	2.29	2.27	1.72	
1,541.0	13.40	49.20	1,532.2	62.1	77.4	99.3	0.84	0.31	-3.44	

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Site:	Ulrich PC G21-28D Pad Sec.21-T4N-R65W (Grid North)	MD Reference:	WELL @ 4872.0ft (Original Well Elev)
Well:	Ulrich PC G21-17D	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)
1,669.0	13.40	48.70	1,656.7	81.6	99.8	128.9	0.09	0.00	-0.39
1,798.0	14.60	52.60	1,781.9	101.3	124.0	160.1	1.18	0.93	3.02
1,926.0	14.10	54.00	1,905.9	120.3	149.4	191.8	0.48	-0.39	1.09
2,054.0	13.70	55.90	2,030.2	138.0	174.6	222.5	0.47	-0.31	1.48
2,182.0	13.50	56.40	2,154.6	154.7	199.6	252.5	0.18	-0.16	0.39
2,311.0	14.80	54.30	2,279.7	172.7	225.5	284.0	1.08	1.01	-1.63
2,439.0	12.90	52.90	2,403.9	190.8	250.2	314.6	1.51	-1.48	-1.09
2,567.0	14.90	47.50	2,528.2	210.6	273.7	345.3	1.86	1.56	-4.22
2,695.0	14.20	45.40	2,652.1	232.7	297.0	377.3	0.68	-0.55	-1.64
2,824.0	15.30	50.30	2,776.8	254.7	321.4	410.0	1.29	0.85	3.80
2,952.0	15.20	49.20	2,900.3	276.5	347.1	443.7	0.24	-0.08	-0.86
3,080.0	14.70	48.00	3,024.0	298.3	371.8	476.6	0.46	-0.39	-0.94
3,208.0	15.00	55.40	3,147.7	318.6	397.5	509.4	1.50	0.23	5.78
3,337.0	14.70	54.50	3,272.4	337.5	424.6	542.4	0.29	-0.23	-0.70
3,465.0	13.40	56.30	3,396.6	355.2	450.2	573.4	1.07	-1.02	1.41
3,593.0	13.80	55.90	3,521.0	372.0	475.1	603.4	0.32	0.31	-0.31
3,721.0	14.00	55.70	3,645.3	389.3	500.6	634.1	0.16	0.16	-0.16
3,850.0	14.10	53.10	3,770.4	407.5	526.0	665.4	0.50	0.08	-2.02
3,978.0	14.50	53.30	3,894.4	426.4	551.3	697.0	0.31	0.31	0.16
4,106.0	14.90	51.50	4,018.2	446.3	577.1	729.5	0.47	0.31	-1.41
4,234.0	14.30	49.40	4,142.1	466.8	602.0	761.7	0.63	-0.47	-1.64
4,363.0	11.80	47.70	4,267.8	486.0	623.8	790.8	1.96	-1.94	-1.32
4,491.0	9.20	59.10	4,393.6	500.1	642.3	814.0	2.59	-2.03	8.91
4,619.0	5.70	60.80	4,520.5	508.5	656.6	830.5	2.74	-2.73	1.33
4,747.0	4.00	54.30	4,648.1	514.2	665.8	841.2	1.39	-1.33	-5.08
4,876.0	3.90	46.40	4,776.8	519.8	672.6	850.1	0.43	-0.08	-6.12
5,004.0	1.10	64.00	4,904.6	523.4	676.9	855.6	2.24	-2.19	13.75
5,099.3	0.65	72.03	4,999.9	523.9	678.2	857.0	0.49	-0.47	8.43
TARGET BHL 1320'FNL & 1320'FEL									
5,132.0	0.50	78.10	5,032.6	524.0	678.5	857.3	0.49	-0.45	18.53
5,260.0	0.40	81.40	5,160.6	524.2	679.5	858.2	0.08	-0.08	2.58
5,389.0	0.50	86.00	5,289.6	524.3	680.5	859.1	0.08	0.08	3.57
5,517.0	0.40	118.10	5,417.6	524.1	681.5	859.7	0.21	-0.08	25.08
5,645.0	0.40	137.00	5,545.6	523.6	682.2	859.9	0.10	0.00	14.77
5,773.0	0.40	160.30	5,673.6	522.9	682.6	859.8	0.13	0.00	18.20
5,902.0	0.50	141.20	5,802.6	522.0	683.1	859.7	0.14	0.08	-14.81
6,030.0	0.50	161.20	5,930.6	521.0	683.7	859.5	0.14	0.00	15.63
6,158.0	0.40	139.20	6,058.6	520.2	684.1	859.4	0.15	-0.08	-17.19
6,286.0	0.40	139.20	6,186.6	519.5	684.7	859.4	0.00	0.00	0.00
6,415.0	0.70	152.60	6,315.6	518.4	685.4	859.3	0.25	0.23	10.39
6,543.0	0.50	128.20	6,443.6	517.4	686.2	859.3	0.25	-0.16	-19.06
6,671.0	0.50	105.50	6,571.6	516.9	687.1	859.8	0.15	0.00	-17.73
6,799.0	0.40	90.00	6,699.6	516.8	688.1	860.5	0.12	-0.08	-12.11
6,928.0	0.40	96.40	6,828.6	516.7	689.0	861.1	0.03	0.00	4.96
7,001.4	0.38	115.60	6,901.9	516.6	689.5	861.4	0.18	-0.02	26.17
TARGET CIRCLE 1320'FNL & 1320'FEL - LEGAL BOX 800' X 800', 1325'FNL & 1317'FEL									
7,056.0	0.40	129.80	6,956.5	516.4	689.8	861.6	0.18	0.03	25.99
7,184.0	0.60	121.80	7,084.5	515.7	690.7	861.9	0.17	0.16	-6.25
7,312.0	0.50	117.30	7,212.5	515.1	691.8	862.3	0.09	-0.08	-3.52
7,441.0	0.70	105.00	7,341.5	514.7	693.1	863.1	0.18	0.16	-9.53
7,515.0	0.70	99.20	7,415.5	514.5	693.9	863.6	0.10	0.00	-7.84

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Design:	Wellbore #1	Database:	Landmark

Checked By: _____	Approved By: _____	Date: _____
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