

Well Name: **Ehrlich State PC F36-31D**

Surface Location: Ehrlich State PC F36-31D Pad Sec.36-T5N-R65W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

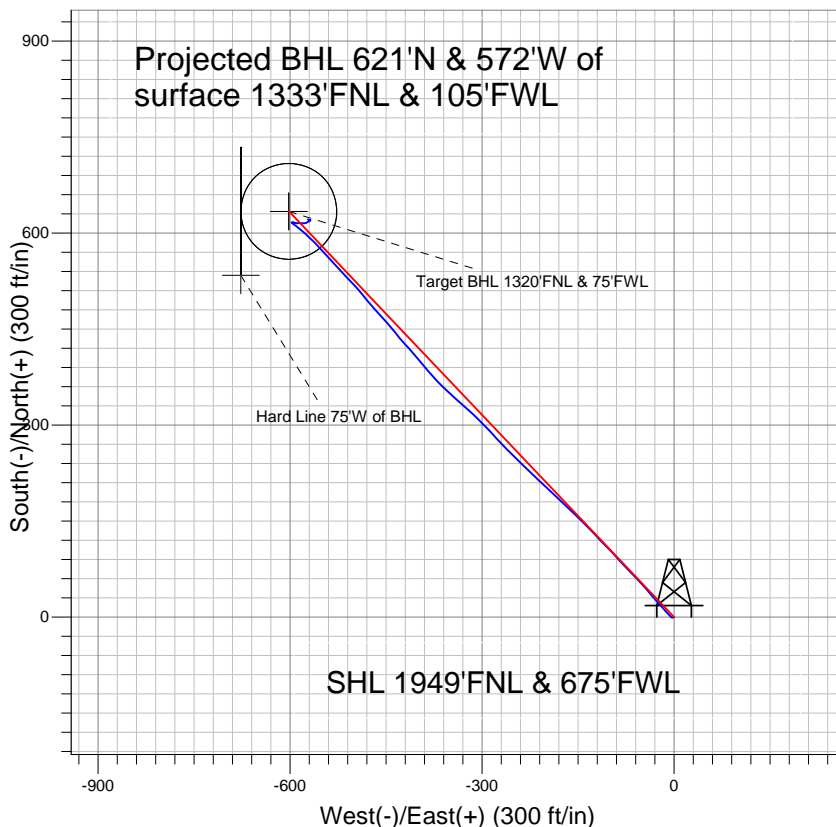
Ground Elevation: 4702.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1374342.49	3245647.95	40° 21' 27.432 N	104° 37' 6.708 W

Original Well Elev WELL @ 4715.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO

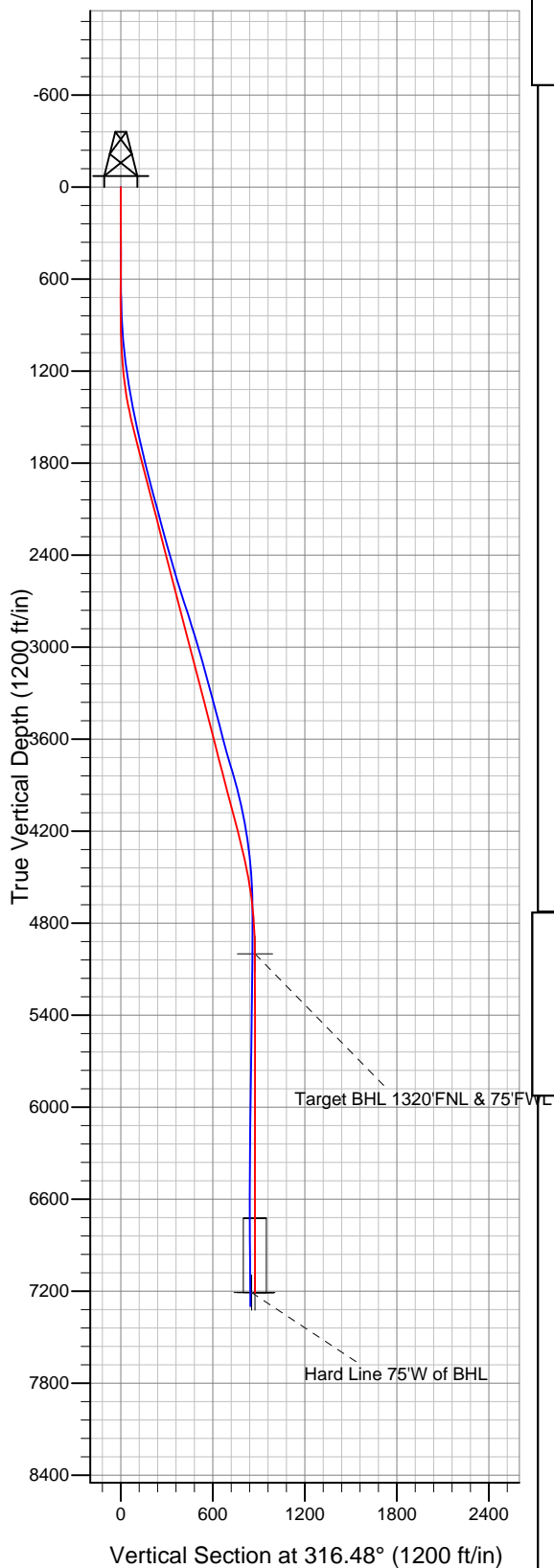


LEGEND

- Ehrlich State PC F36-31D, Wellbore #1, Wellbore #1 V0
- Noble Ehrlich State PC F36-31D Plan #1 (8-10-10)

Final Survey Plot

Projected Final Survey -
 7405'MD & 7299'TVD @ 845' VS
 0.8 deg Inc 276.04 deg AZ



Project: SEC.36-T5N-R65W
 Site: Ehrlich State PC F36-31D Pad Sec.36-T5N-R65W
 Well: Ehrlich State PC F36-31D
 Plan: Noble Ehrlich State PC F36-31D Plan #1 (8-10-10)



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.36-T5N-R65W

Ehrlich State PC F36-31D Pad Sec.36-T5N-R65W

Ehrlich State PC F36-31D

Wellbore #1

Design: Wellbore #1

Standard Survey Report

11 February, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Site Ehrlich State PC F36-31D Pad Sec.36-T5N-R65W
Project:	SEC.36-T5N-R65W	TVD Reference:	WELL @ 4715.0ft (Original Well Elev)
Site:	Ehrlich State PC F36-31D Pad Sec.36-T5N-R65W	MD Reference:	WELL @ 4715.0ft (Original Well Elev)
Well:	Ehrlich State PC F36-31D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.36-T5N-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	Ehrlich State PC F36-31D Pad Sec.36-T5N-R65W				
Site Position:		Northing:	1,374,342.50 ft	Latitude:	40° 21' 27.432 N
From:	Lat/Long	Easting:	3,245,647.95 ft	Longitude:	104° 37' 6.708 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.57 °

Well	Ehrlich State PC F36-31D					
Well Position	+N-S	0.0 ft	Northing:	1,374,342.49 ft	Latitude:	40° 21' 27.432 N
	+E-W	0.0 ft	Easting:	3,245,647.95 ft	Longitude:	104° 37' 6.708 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,702.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/7/2010	8.85	67.06	53,181

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	316.48	

Survey Program	Date 2/11/2011				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
690.0	7,405.0	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
690.0	0.50	254.30	690.0	-0.8	-2.9	1.4	0.07	0.07	0.00
775.0	1.70	310.10	775.0	-0.1	-4.2	2.8	1.74	1.41	65.65
861.0	2.90	313.40	860.9	2.2	-6.8	6.3	1.40	1.40	3.84
946.0	4.00	318.60	945.7	5.9	-10.3	11.4	1.34	1.29	6.12
1,032.0	5.00	318.40	1,031.5	11.0	-14.8	18.1	1.16	1.16	-0.23
1,117.0	6.60	318.40	1,116.0	17.4	-20.5	26.7	1.88	1.88	0.00
1,203.0	8.00	317.40	1,201.3	25.5	-27.8	37.6	1.63	1.63	-1.16
1,288.0	9.60	321.20	1,285.3	35.4	-36.3	50.6	2.00	1.88	4.47
1,374.0	10.10	317.80	1,370.1	46.5	-45.8	65.3	0.89	0.58	-3.95
1,459.0	11.80	317.00	1,453.5	58.4	-56.7	81.4	2.01	2.00	-0.94

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Site:	Ehrlich State PC F36-31D Pad Sec.36-T5N-R65W	MD Reference:	WELL @ 4715.0ft (Original Well Elev)
Well:	Ehrlich State PC F36-31D	North Reference:	True
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)
1,545.0	11.80	315.50	1,537.7	71.1	-68.9	99.0	0.36	0.00	-1.74
1,630.0	12.00	316.60	1,620.9	83.7	-81.1	116.6	0.36	0.24	1.29
1,716.0	13.40	318.50	1,704.8	97.7	-93.8	135.5	1.70	1.63	2.21
1,801.0	13.70	314.00	1,787.4	112.1	-107.6	155.4	1.29	0.35	-5.29
1,887.0	14.40	317.30	1,870.8	127.0	-122.2	176.2	1.24	0.81	3.84
1,972.0	14.60	316.10	1,953.1	142.5	-136.8	197.5	0.42	0.24	-1.41
2,057.0	15.20	312.80	2,035.3	157.8	-152.4	219.3	1.22	0.71	-3.88
2,143.0	15.30	314.10	2,118.2	173.3	-168.8	241.9	0.41	0.12	1.51
2,228.0	15.20	314.20	2,200.3	188.9	-184.8	264.3	0.12	-0.12	0.12
2,314.0	15.60	311.80	2,283.2	204.5	-201.5	287.1	0.87	0.47	-2.79
2,398.0	15.20	315.40	2,364.2	219.8	-217.7	309.3	1.23	-0.48	4.29
2,485.0	15.40	312.90	2,448.1	235.8	-234.2	332.3	0.79	0.23	-2.87
2,570.0	16.60	313.90	2,529.8	251.9	-251.2	355.6	1.45	1.41	1.18
2,656.0	18.10	317.60	2,611.9	270.3	-269.0	381.3	2.16	1.74	4.30
2,741.0	18.00	316.70	2,692.7	289.6	-286.9	407.6	0.35	-0.12	-1.06
2,827.0	18.20	314.50	2,774.4	308.7	-305.6	434.3	0.83	0.23	-2.56
2,912.0	16.50	311.20	2,855.6	326.0	-324.2	459.6	2.31	-2.00	-3.88
2,998.0	17.40	312.00	2,937.8	342.6	-342.9	484.6	1.08	1.05	0.93
3,084.0	16.60	314.20	3,020.1	359.8	-361.3	509.7	1.19	-0.93	2.56
3,168.0	16.00	318.40	3,100.7	376.8	-377.6	533.2	1.57	-0.71	5.00
3,254.0	14.80	320.70	3,183.6	394.2	-392.4	556.0	1.57	-1.40	2.67
3,339.0	15.10	318.20	3,265.7	410.8	-406.7	577.9	0.84	0.35	-2.94
3,425.0	14.80	318.40	3,348.8	427.4	-421.4	600.1	0.35	-0.35	0.23
3,511.0	15.70	321.70	3,431.8	444.7	-435.9	622.7	1.45	1.05	3.84
3,596.0	14.10	318.10	3,513.9	461.5	-450.0	644.5	2.17	-1.88	-4.24
3,682.0	14.50	317.30	3,597.3	477.2	-464.3	665.7	0.52	0.47	-0.93
3,767.0	15.50	321.10	3,679.4	493.8	-478.6	687.7	1.65	1.18	4.47
3,853.0	16.40	318.80	3,762.1	511.9	-493.8	711.3	1.28	1.05	-2.67
3,939.0	15.90	315.20	3,844.7	529.4	-510.1	735.2	1.30	-0.58	-4.19
4,024.0	15.50	318.20	3,926.5	546.1	-525.9	758.2	1.06	-0.47	3.53
4,109.0	13.20	318.90	4,008.8	561.9	-539.9	779.2	2.71	-2.71	0.82
4,195.0	11.30	315.90	4,092.9	575.4	-552.2	797.5	2.33	-2.21	-3.49
4,281.0	9.50	315.90	4,177.5	586.5	-563.0	813.0	2.09	-2.09	0.00
4,366.0	8.00	312.60	4,261.5	595.6	-572.2	825.9	1.86	-1.76	-3.88
4,452.0	6.70	310.80	4,346.8	602.9	-580.4	836.9	1.53	-1.51	-2.09
4,537.0	5.60	304.10	4,431.3	608.5	-587.6	845.8	1.54	-1.29	-7.88
4,623.0	3.50	310.50	4,517.0	612.5	-593.1	852.6	2.51	-2.44	7.44
4,709.0	1.80	309.40	4,602.9	615.1	-596.1	856.5	1.98	-1.98	-1.28
4,794.0	0.60	329.00	4,687.9	616.3	-597.4	858.3	1.47	-1.41	23.06
4,880.0	0.22	131.30	4,773.9	616.6	-597.5	858.5	0.94	-0.44	188.72
4,966.0	0.40	53.10	4,859.9	616.7	-597.1	858.3	0.48	0.21	-90.93
5,051.0	0.40	105.00	4,944.9	616.8	-596.6	858.1	0.41	0.00	61.06
5,106.1	0.52	93.05	4,999.9	616.7	-596.2	857.7	0.28	0.22	-21.70
Target BHL 1320'FNL & 75'FWL									
5,137.0	0.60	88.60	5,030.9	616.7	-595.9	857.5	0.28	0.25	-14.38
5,222.0	0.80	86.60	5,115.9	616.7	-594.8	856.8	0.24	0.24	-2.35
5,308.0	0.80	112.20	5,201.9	616.5	-593.7	855.9	0.41	0.00	29.77
5,393.0	0.70	106.70	5,286.9	616.2	-592.6	854.9	0.14	-0.12	-6.47
5,478.0	0.90	104.50	5,371.8	615.9	-591.5	853.9	0.24	0.24	-2.59
5,564.0	0.80	107.50	5,457.8	615.5	-590.2	852.8	0.13	-0.12	3.49
5,648.0	0.80	90.60	5,541.8	615.3	-589.1	851.9	0.28	0.00	-20.12
5,735.0	1.10	80.70	5,628.8	615.5	-587.7	851.0	0.39	0.34	-11.38

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Design:	Wellbore #1	Database:	Landmark

Survey									
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5,821.0	1.40	88.30	5,714.8	615.6	-585.8	849.8	0.40	0.35	8.84
5,992.0	1.80	90.30	5,885.7	615.7	-581.0	846.5	0.24	0.23	1.17
6,163.0	1.00	103.60	6,056.7	615.3	-576.9	843.4	0.50	-0.47	7.78
6,334.0	1.10	45.10	6,227.7	616.1	-574.3	842.2	0.60	0.06	-34.21
6,419.0	1.50	56.10	6,312.6	617.3	-572.8	842.1	0.55	0.47	12.94
6,590.0	1.10	73.00	6,483.6	619.0	-569.4	840.9	0.32	-0.23	9.88
6,676.0	0.50	38.80	6,569.6	619.6	-568.3	840.6	0.86	-0.70	-39.77
6,761.0	0.20	13.40	6,654.6	620.0	-568.1	840.8	0.39	-0.35	-29.88
6,847.0	0.10	315.40	6,740.6	620.2	-568.1	840.9	0.20	-0.12	-67.44
6,933.0	0.40	302.30	6,826.6	620.4	-568.4	841.3	0.35	0.35	-15.23
7,018.0	0.30	329.80	6,911.6	620.8	-568.8	841.8	0.23	-0.12	32.35
7,104.0	0.80	202.00	6,997.6	620.4	-569.1	841.8	1.18	0.58	-148.60
7,187.0	0.80	314.80	7,080.6	620.3	-569.7	842.1	1.61	0.00	135.90
7,316.9	0.77	283.62	7,210.4	621.1	-571.2	843.7	0.33	-0.02	-24.00
Target Circle 1320'FNL & 75'FWL									
7,317.7	0.77	283.44	7,211.2	621.1	-571.2	843.7	0.33	0.07	-23.68
Hard Line 75'W of BHL									
7,350.0	0.80	276.04	7,243.6	621.2	-571.7	844.1	0.33	0.09	-22.88
7,405.0	0.80	276.04	7,298.5	621.3	-572.4	844.7	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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