

Well Name: **Phillips 24-3-21 (Dir)**

Surface Location: Phillips 24-3-21 (Dir) Pad Sec.24-T5N-R67W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

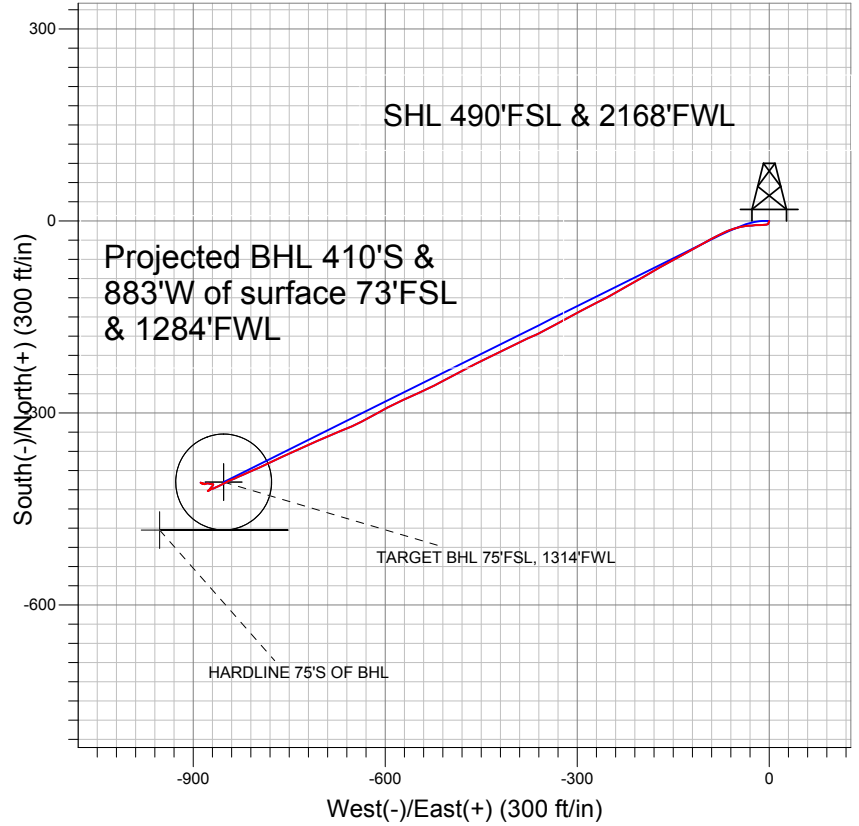
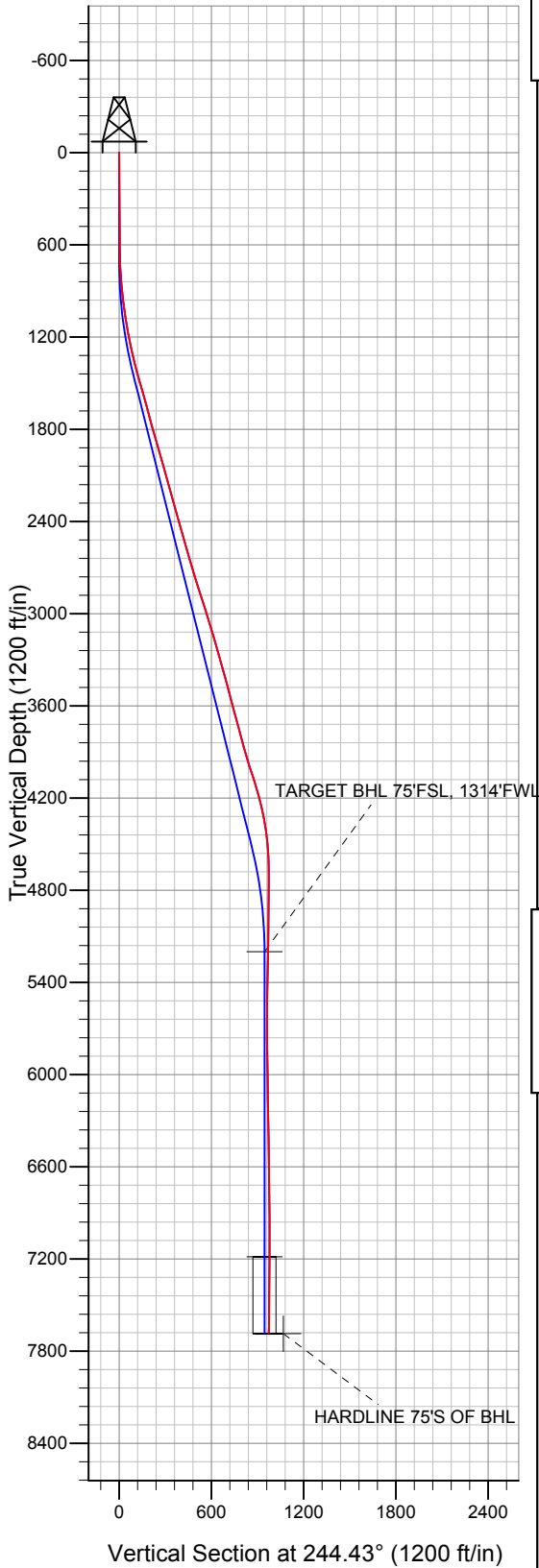
Ground Elevation: 5023.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1381653.42	3182985.68	40.379180	-104.843180

Original Well Elev WELL @ 5036.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Phillips 24-3-21 (Dir), Wellbore #1, Noble Phillips 24-3-21 (Dir) Plan #3 (11-02-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 7811'MD & 7683'TVD @ 974'VS
 0.7 deg Inc 80.0 deg AZ

Project: SEC.24-T5N-R67W
 Site: Phillips 24-3-21 (Dir) Pad Sec.24-T5N-R67W
 Well: Phillips 24-3-21 (Dir)
 Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.24-T5N-R67W

Phillips 24-3-21 (Dir) Pad Sec.24-T5N-R67W

Phillips 24-3-21 (Dir)

Wellbore #1

Survey: Survey #1

Standard Survey Report

05 July, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-21 (Dir)
Project:	SEC.24-T5N-R67W	TVD Reference:	WELL @ 5036.0ft (Original Well Elev)
Site:	Phillips 24-3-21 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5036.0ft (Original Well Elev)
Well:	Phillips 24-3-21 (Dir)	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Phillips 24-3-21 (Dir) Pad Sec.24-T5N-R67W				
Site Position:		Northing:	1,381,653.44 ft	Latitude:	40.379180
From:	Lat/Long	Easting:	3,182,985.68 ft	Longitude:	-104.843180
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.42 °

Well	Phillips 24-3-21 (Dir)					
Well Position	+N/-S	0.0 ft	Northing:	1,381,653.42 ft	Latitude:	40.379180
	+E/-W	0.0 ft	Easting:	3,182,985.68 ft	Longitude:	-104.843180
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,023.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/2/2010	8.99	67.04	53,175

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	244.43	

Survey Program	Date	7/5/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
639.0	7,811.0	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	
639.0	0.90	200.50	639.0	-4.7	-1.8	3.6	0.14	0.14	0.00	
768.0	3.50	265.20	767.9	-6.0	-6.0	8.0	2.50	2.02	50.16	
896.0	6.10	268.60	895.4	-6.5	-16.7	17.9	2.04	2.03	2.66	
1,024.0	8.60	264.10	1,022.4	-7.6	-33.1	33.1	2.00	1.95	-3.52	
1,153.0	10.20	253.90	1,149.6	-11.8	-53.6	53.5	1.79	1.24	-7.91	
1,281.0	12.20	243.60	1,275.2	-20.9	-76.6	78.2	2.20	1.56	-8.05	
1,410.0	14.90	239.80	1,400.6	-35.3	-103.2	108.3	2.20	2.09	-2.95	
1,538.0	16.50	242.50	1,523.8	-52.0	-133.5	142.9	1.37	1.25	2.11	
1,666.0	14.90	240.10	1,647.0	-68.6	-163.9	177.5	1.35	-1.25	-1.88	
1,795.0	15.60	240.10	1,771.5	-85.5	-193.3	211.3	0.54	0.54	0.00	
1,923.0	16.20	240.10	1,894.6	-103.0	-223.7	246.3	0.47	0.47	0.00	
2,052.0	15.60	241.20	2,018.7	-120.3	-254.5	281.5	0.52	-0.47	0.85	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Phillips 24-3-21 (Dir)
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Site:	Phillips 24-3-21 (Dir) Pad Sec.24-T5N-R67W	MD Reference:	WELL @ 5036.0ft (Original Well Elev)
Well:	Phillips 24-3-21 (Dir)	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)
2,180.0	15.30	244.70	2,142.0	-135.8	-284.9	315.6	0.77	-0.23	2.73
2,308.0	16.00	240.40	2,265.3	-151.8	-315.5	350.1	1.06	0.55	-3.36
2,437.0	15.80	242.20	2,389.4	-168.8	-346.5	385.4	0.41	-0.16	1.40
2,565.0	15.90	245.90	2,512.5	-184.0	-377.9	420.3	0.79	0.08	2.89
2,694.0	16.10	243.10	2,636.5	-199.3	-410.0	455.9	0.62	0.16	-2.17
2,822.0	16.70	244.40	2,759.3	-215.3	-442.4	492.0	0.55	0.47	1.02
2,950.0	17.90	242.50	2,881.5	-232.4	-476.4	530.1	1.04	0.94	-1.48
3,079.0	17.60	241.90	3,004.4	-250.7	-511.2	569.4	0.27	-0.23	-0.47
3,207.0	16.60	245.70	3,126.7	-267.3	-545.0	607.0	1.17	-0.78	2.97
3,336.0	16.20	244.90	3,250.5	-282.5	-578.1	643.4	0.36	-0.31	-0.62
3,464.0	14.80	240.30	3,373.8	-298.2	-608.4	677.6	1.45	-1.09	-3.59
3,592.0	14.80	243.20	3,497.6	-313.7	-637.2	710.2	0.58	0.00	2.27
3,721.0	15.40	247.90	3,622.1	-327.6	-667.8	743.8	1.06	0.47	3.64
3,849.0	15.00	246.80	3,745.6	-340.5	-698.8	777.3	0.39	-0.31	-0.86
3,978.0	15.30	245.60	3,870.2	-354.1	-729.6	811.0	0.34	0.23	-0.93
4,106.0	17.40	244.90	3,993.0	-369.2	-762.3	847.0	1.65	1.64	-0.55
4,234.0	17.60	245.40	4,115.0	-385.4	-797.3	885.5	0.20	0.16	0.39
4,363.0	14.40	246.80	4,239.0	-399.8	-829.7	921.0	2.50	-2.48	1.09
4,491.0	9.10	242.30	4,364.3	-410.8	-853.3	947.1	4.20	-4.14	-3.52
4,620.0	5.80	248.80	4,492.2	-417.9	-868.5	963.8	2.64	-2.56	5.04
4,748.0	1.60	241.30	4,619.9	-421.1	-876.1	972.0	3.30	-3.28	-5.86
4,876.0	0.40	94.50	4,747.9	-422.0	-877.2	973.4	1.52	-0.94	-114.69
5,005.0	1.10	42.90	4,876.9	-421.1	-875.9	971.9	0.70	0.54	-40.00
5,133.0	0.70	38.30	5,004.9	-419.6	-874.6	970.0	0.32	-0.31	-3.59
5,262.0	0.80	27.30	5,133.9	-418.2	-873.7	968.6	0.14	0.08	-8.53
5,328.5	1.05	39.43	5,200.4	-417.3	-873.1	967.7	0.47	0.37	18.24
TARGET BHL 75'FSL, 1314'FWL									
5,390.0	1.30	46.30	5,261.8	-416.4	-872.2	966.5	0.47	0.41	11.17
5,518.0	1.00	44.10	5,389.8	-414.6	-870.4	964.1	0.24	-0.23	-1.72
5,647.0	0.80	24.00	5,518.8	-412.9	-869.2	962.3	0.29	-0.16	-15.58
5,775.0	0.40	6.60	5,646.8	-411.7	-868.8	961.4	0.34	-0.31	-13.59
5,904.0	0.40	281.70	5,775.8	-411.1	-869.2	961.5	0.42	0.00	-65.81
6,032.0	1.20	271.70	5,903.8	-411.0	-871.0	963.1	0.63	0.63	-7.81
6,160.0	1.10	274.60	6,031.7	-410.9	-873.5	965.3	0.09	-0.08	2.27
6,289.0	1.10	285.10	6,160.7	-410.5	-876.0	967.3	0.16	0.00	8.14
6,417.0	1.10	278.90	6,288.7	-409.9	-878.4	969.3	0.09	0.00	-4.84
6,546.0	1.00	224.30	6,417.7	-410.6	-880.4	971.4	0.75	-0.08	-42.33
6,674.0	1.00	277.00	6,545.7	-411.2	-882.3	973.4	0.69	0.00	41.17
6,802.0	1.10	289.10	6,673.6	-410.7	-884.5	975.2	0.19	0.08	9.45
6,931.0	0.90	283.50	6,802.6	-410.0	-886.7	976.8	0.17	-0.16	-4.34
7,059.0	0.50	307.80	6,930.6	-409.5	-888.1	977.9	0.38	-0.31	18.98
7,188.0	0.10	349.20	7,059.6	-409.0	-888.6	978.1	0.33	-0.31	32.09
7,314.6	0.79	116.24	7,186.2	-409.3	-887.8	977.5	0.68	0.55	100.34
TARGET CIRCLE 75'FSL, 1314'FWL									
7,316.0	0.80	116.30	7,187.6	-409.3	-887.8	977.5	0.68	0.67	4.52
7,444.0	0.50	109.70	7,315.6	-409.9	-886.5	976.6	0.24	-0.23	-5.16
7,573.0	0.50	114.50	7,444.6	-410.3	-885.4	975.8	0.03	0.00	3.72
7,761.0	0.70	80.00	7,632.6	-410.4	-883.6	974.2	0.21	0.11	-18.35
7,811.0	0.70	80.00	7,682.6	-410.3	-883.0	973.6	0.00	0.00	0.00
HARDLINE 75'S OF BHL									

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Design:	Wellbore #1	Database:	Landmark

Checked By: _____	Approved By: _____	Date: _____
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