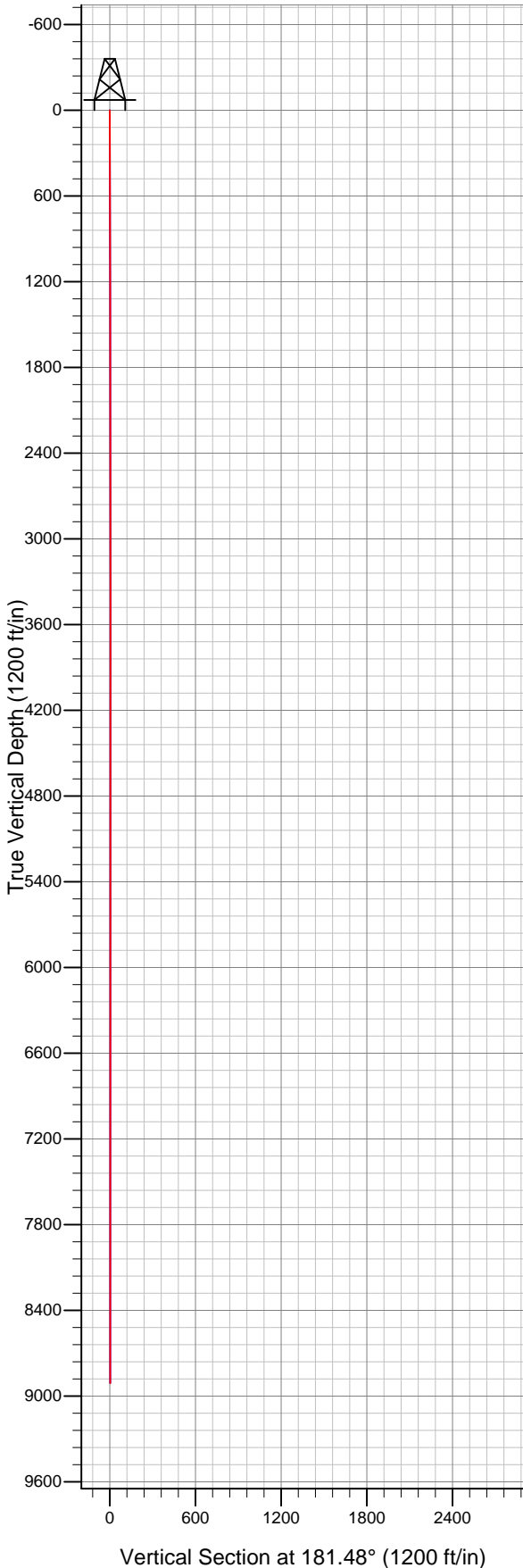
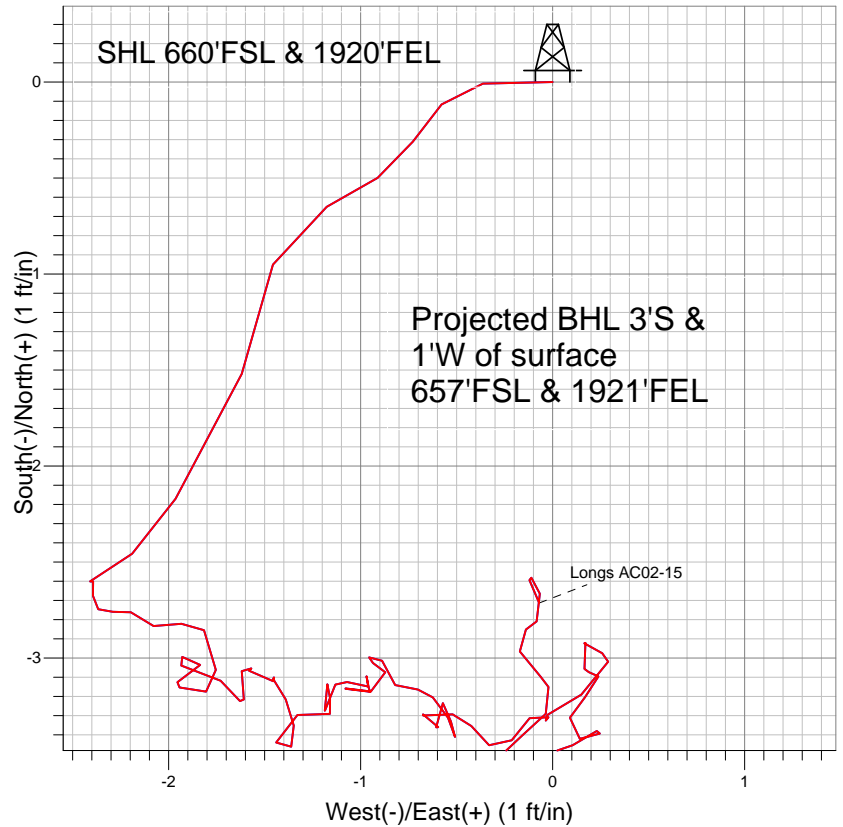


Well Name: **Longs AC02-15**
 Surface Location: Longs AC02-15 (Vert.)
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone
 Ground Elevation: 4837.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1462434.24 3305146.84 40.597590 -104.401130
 Original Well Elev WELL @ 4850.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 8910'MD & 8910'TVD @ -3°VS
 0.10 deg Inc 156.8 deg AZ

Project: SEC.2-T7N-R63W (Grid North)
 Site: Longs AC02-15 (Vert.)
 Well: Longs AC02-15
 Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.2-T7N-R63W (Grid North)

Longs AC02-15 (Vert.)

Longs AC02-15

Wellbore #1

Survey: Survey #1

Standard Survey Report

22 August, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Longs AC02-15
Project:	SEC.2-T7N-R63W (Grid North)	TVD Reference:	WELL @ 4850.0ft (Original Well Elev)
Site:	Longs AC02-15 (Vert.)	MD Reference:	WELL @ 4850.0ft (Original Well Elev)
Well:	Longs AC02-15	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.2-T7N-R63W (Grid North), 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		Longs AC02-15 (Vert.)			
Site Position:		Northing:	1,462,434.25ft	Latitude:	40.597590
From:	Lat/Long	Easting:	3,305,146.84ft	Longitude:	-104.401130
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.71 °

Well	Longs AC02-15					
Well Position	+N/-S	0.0 ft	Northing:	1,462,434.24 ft	Latitude:	40.597590
	+E/-W	0.0 ft	Easting:	3,305,146.84 ft	Longitude:	-104.401130
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,837.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/22/2012	8.52	67.23	53,148

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	181.48	

Survey Program	Date	8/22/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
104.0	8,910.0	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	
104.0	0.40	268.80	104.0	0.0	-0.4	0.0	0.38	0.38	0.00	
164.0	0.20	183.20	164.0	-0.1	-0.6	0.1	0.72	-0.33	-142.67	
249.0	0.20	251.90	249.0	-0.3	-0.7	0.3	0.27	0.00	80.82	
334.0	0.20	196.80	334.0	-0.5	-0.9	0.5	0.22	0.00	-64.82	
419.0	0.30	267.60	419.0	-0.7	-1.2	0.7	0.35	0.12	83.29	
504.0	0.40	191.30	504.0	-1.0	-1.5	1.0	0.52	0.12	-89.76	
589.0	0.40	200.40	589.0	-1.5	-1.6	1.6	0.07	0.00	10.71	
674.0	0.60	212.90	674.0	-2.2	-2.0	2.2	0.27	0.24	14.71	
716.0	0.40	226.60	716.0	-2.5	-2.2	2.5	0.55	-0.48	32.62	
809.0	0.10	12.30	809.0	-2.6	-2.4	2.7	0.52	-0.32	156.67	
894.0	0.10	180.40	894.0	-2.6	-2.4	2.7	0.23	0.00	197.77	
979.0	0.00	237.70	979.0	-2.7	-2.4	2.7	0.12	-0.12	0.00	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Longs AC02-15
Project:	SEC.2-T7N-R63W (Grid North)	TVD Reference:	WELL @ 4850.0ft (Original Well Elev)
Site:	Longs AC02-15 (Vert.)	MD Reference:	WELL @ 4850.0ft (Original Well Elev)
Well:	Longs AC02-15	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)	
1,064.0	0.10	159.10	1,064.0	-2.7	-2.4	2.8	0.12	0.12	0.00	
1,150.0	0.10	40.80	1,150.0	-2.8	-2.3	2.8	0.20	0.00	-137.56	
1,236.0	0.10	142.40	1,236.0	-2.8	-2.2	2.8	0.18	0.00	118.14	
1,321.0	0.10	100.00	1,321.0	-2.8	-2.1	2.9	0.09	0.00	-49.88	
1,407.0	0.10	71.00	1,407.0	-2.8	-1.9	2.9	0.06	0.00	-33.72	
1,492.0	0.10	140.30	1,492.0	-2.9	-1.8	2.9	0.13	0.00	81.53	
1,578.0	0.20	174.60	1,578.0	-3.1	-1.8	3.1	0.15	0.12	39.88	
1,664.0	0.10	299.20	1,664.0	-3.2	-1.8	3.2	0.31	-0.12	144.88	
1,749.0	0.10	259.10	1,749.0	-3.2	-1.9	3.2	0.08	0.00	-47.18	
1,835.0	0.10	56.60	1,835.0	-3.1	-2.0	3.2	0.23	0.00	183.14	
1,920.0	0.10	49.20	1,920.0	-3.0	-1.8	3.1	0.02	0.00	-8.71	
2,006.0	0.20	267.60	2,006.0	-3.0	-1.9	3.0	0.33	0.12	-164.65	
2,092.0	0.20	105.00	2,092.0	-3.0	-1.9	3.1	0.46	0.00	-189.07	
2,177.0	0.10	123.60	2,177.0	-3.1	-1.7	3.2	0.13	-0.12	21.88	
2,263.0	0.10	149.30	2,263.0	-3.2	-1.6	3.3	0.05	0.00	29.88	
2,348.0	0.10	346.50	2,348.0	-3.2	-1.6	3.3	0.23	0.00	-191.53	
2,434.0	0.10	4.80	2,434.0	-3.1	-1.6	3.1	0.04	0.00	21.28	
2,520.0	0.10	144.30	2,520.0	-3.1	-1.6	3.1	0.22	0.00	162.21	
2,605.0	0.10	312.90	2,605.0	-3.1	-1.6	3.1	0.23	0.00	198.35	
2,691.0	0.10	135.00	2,691.0	-3.1	-1.6	3.1	0.23	0.00	-206.86	
2,776.0	0.10	92.10	2,776.0	-3.1	-1.5	3.2	0.09	0.00	-50.47	
2,862.0	0.10	287.40	2,862.0	-3.1	-1.5	3.1	0.23	0.00	-191.51	
2,948.0	0.10	114.80	2,948.0	-3.1	-1.5	3.1	0.23	0.00	-200.70	
3,033.0	0.10	181.40	3,033.0	-3.2	-1.4	3.3	0.13	0.00	78.35	
3,119.0	0.10	145.00	3,119.0	-3.4	-1.3	3.4	0.07	0.00	-42.33	
3,204.0	0.10	228.70	3,204.0	-3.5	-1.4	3.5	0.16	0.00	98.47	
3,290.0	0.10	343.00	3,290.0	-3.4	-1.4	3.5	0.20	0.00	132.91	
3,376.0	0.20	61.90	3,376.0	-3.3	-1.3	3.3	0.24	0.12	91.74	
3,461.0	0.10	149.00	3,461.0	-3.3	-1.2	3.3	0.26	-0.12	102.47	
3,547.0	0.20	345.60	3,547.0	-3.2	-1.2	3.2	0.35	0.12	-190.00	
3,632.0	0.10	162.10	3,632.0	-3.1	-1.2	3.2	0.35	-0.12	207.65	
3,718.0	0.10	209.40	3,718.0	-3.3	-1.2	3.3	0.09	0.00	55.00	
3,804.0	0.10	30.30	3,804.0	-3.3	-1.2	3.3	0.23	0.00	-208.26	
3,889.0	0.10	12.70	3,889.0	-3.1	-1.1	3.2	0.04	0.00	-20.71	
3,975.0	0.10	143.10	3,975.0	-3.1	-1.1	3.2	0.21	0.00	151.63	
4,060.0	0.10	61.00	4,060.0	-3.1	-1.0	3.2	0.15	0.00	-96.59	
4,146.0	0.10	283.00	4,146.0	-3.1	-1.0	3.1	0.22	0.00	-160.47	
4,232.0	0.10	105.00	4,232.0	-3.1	-1.0	3.1	0.23	0.00	-206.98	
4,317.0	0.10	233.60	4,317.0	-3.2	-1.0	3.2	0.21	0.00	151.29	
4,403.0	0.10	67.30	4,403.0	-3.2	-0.9	3.2	0.23	0.00	-193.37	
4,488.0	0.10	247.70	4,488.0	-3.2	-0.9	3.2	0.24	0.00	-211.29	
4,574.0	0.10	305.70	4,574.0	-3.2	-1.1	3.2	0.11	0.00	67.44	
4,660.0	0.10	123.90	4,660.0	-3.2	-1.1	3.2	0.23	0.00	207.21	
4,745.0	0.10	69.80	4,745.0	-3.2	-0.9	3.2	0.11	0.00	-63.65	
4,830.0	0.10	4.20	4,830.0	-3.1	-0.9	3.1	0.13	0.00	-77.18	
4,915.0	0.10	249.50	4,915.0	-3.0	-0.9	3.0	0.20	0.00	-134.94	
5,000.0	0.10	41.70	5,000.0	-3.0	-1.0	3.0	0.23	0.00	179.06	
5,086.0	0.10	166.10	5,086.0	-3.0	-0.9	3.0	0.21	0.00	144.65	
5,171.0	0.10	137.70	5,171.0	-3.1	-0.8	3.2	0.06	0.00	-33.41	
5,257.0	0.10	64.40	5,257.0	-3.2	-0.7	3.2	0.14	0.00	-85.23	
5,342.0	0.10	171.40	5,342.0	-3.2	-0.6	3.2	0.19	0.00	125.88	
5,428.0	0.10	115.00	5,428.0	-3.3	-0.5	3.3	0.11	0.00	-65.58	
5,514.0	0.10	204.60	5,514.0	-3.4	-0.5	3.4	0.16	0.00	104.19	
5,599.0	0.20	3.50	5,599.0	-3.3	-0.5	3.3	0.35	0.12	186.94	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Longs AC02-15
Project:	SEC.2-T7N-R63W (Grid North)	TVD Reference:	WELL @ 4850.0ft (Original Well Elev)
Site:	Longs AC02-15 (Vert.)	MD Reference:	WELL @ 4850.0ft (Original Well Elev)
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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)
5,685.0	0.10	223.40	5,685.0	-3.2	-0.6	3.2	0.33	-0.12	-162.91
5,770.0	0.10	167.40	5,770.0	-3.4	-0.6	3.4	0.11	0.00	-65.88
5,856.0	0.10	356.10	5,856.0	-3.4	-0.6	3.4	0.23	0.00	-199.19
5,941.0	0.10	264.70	5,941.0	-3.3	-0.7	3.3	0.17	0.00	-107.53
5,991.0	0.10	92.70	5,991.0	-3.3	-0.7	3.3	0.40	0.00	-344.00
6,079.0	0.10	82.80	6,079.0	-3.3	-0.5	3.3	0.02	0.00	-11.25
6,165.0	0.10	161.00	6,165.0	-3.4	-0.4	3.4	0.15	0.00	90.93
6,250.0	0.10	113.90	6,250.0	-3.5	-0.3	3.5	0.09	0.00	-55.41
6,336.0	0.10	40.40	6,336.0	-3.4	-0.2	3.4	0.14	0.00	-85.47
6,421.0	0.10	38.00	6,421.0	-3.3	-0.1	3.3	0.00	0.00	-2.82
6,507.0	0.10	137.00	6,507.0	-3.3	0.0	3.3	0.18	0.00	115.12
6,593.0	0.10	299.50	6,593.0	-3.3	0.0	3.3	0.23	0.00	188.95
6,678.0	0.10	94.60	6,678.0	-3.3	0.0	3.3	0.23	0.00	182.47
6,764.0	0.20	42.20	6,764.0	-3.2	0.1	3.2	0.19	0.12	-60.93
6,849.0	0.10	33.60	6,849.0	-3.0	0.3	3.0	0.12	-0.12	-10.12
6,935.0	0.10	255.30	6,935.0	-3.0	0.3	3.0	0.22	0.00	-160.81
7,020.0	0.10	343.30	7,020.0	-2.9	0.2	2.9	0.16	0.00	103.53
7,106.0	0.10	158.70	7,106.0	-2.9	0.2	2.9	0.23	0.00	203.95
7,191.0	0.10	205.50	7,191.0	-3.1	0.2	3.1	0.09	0.00	55.06
7,277.0	0.10	45.90	7,277.0	-3.1	0.2	3.1	0.23	0.00	-185.58
7,363.0	0.10	182.30	7,363.0	-3.1	0.2	3.1	0.22	0.00	158.60
7,448.0	0.10	243.10	7,448.0	-3.2	0.2	3.2	0.12	0.00	71.53
7,534.0	0.10	189.50	7,534.0	-3.3	0.1	3.3	0.10	0.00	-62.33
7,619.0	0.10	119.20	7,619.0	-3.4	0.1	3.4	0.14	0.00	-82.71
7,705.0	0.10	30.80	7,705.0	-3.4	0.2	3.4	0.16	0.00	-102.79
7,790.0	0.10	226.60	7,790.0	-3.4	0.2	3.4	0.23	0.00	-193.18
7,876.0	0.10	252.40	7,876.0	-3.5	0.1	3.5	0.05	0.00	30.00
7,962.0	0.20	249.30	7,962.0	-3.5	-0.1	3.5	0.12	0.12	-3.60
8,047.0	0.10	337.90	8,047.0	-3.5	-0.3	3.5	0.26	-0.12	104.24
8,133.0	0.20	74.00	8,133.0	-3.4	-0.2	3.4	0.27	0.12	111.74
8,218.0	0.10	344.20	8,218.0	-3.3	0.0	3.3	0.26	-0.12	-105.65
8,304.0	0.10	26.90	8,304.0	-3.2	0.0	3.2	0.08	0.00	49.65
8,390.0	0.10	260.00	8,390.0	-3.1	-0.1	3.1	0.21	0.00	-147.56
8,475.0	0.20	346.10	8,475.0	-3.0	-0.2	3.0	0.26	0.12	101.29
8,561.0	0.10	114.30	8,561.0	-2.9	-0.1	2.9	0.32	-0.12	149.07
8,646.0	0.10	350.70	8,646.0	-2.8	-0.1	2.8	0.21	0.00	-145.41
8,732.0	0.10	22.20	8,732.0	-2.7	-0.1	2.7	0.06	0.00	36.63
8,817.0	0.10	281.10	8,817.0	-2.6	-0.1	2.6	0.18	0.00	-118.94
8,836.0	0.10	156.80	8,836.0	-2.6	-0.1	2.6	0.93	0.00	-654.21
8,910.0	0.10	156.80	8,910.0	-2.7	-0.1	2.7	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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