

Well Name: **Carmin USX CC05-16D**

Surface Location: Carmin USX CC05-23D Pad Sec.5-T4N-R63W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

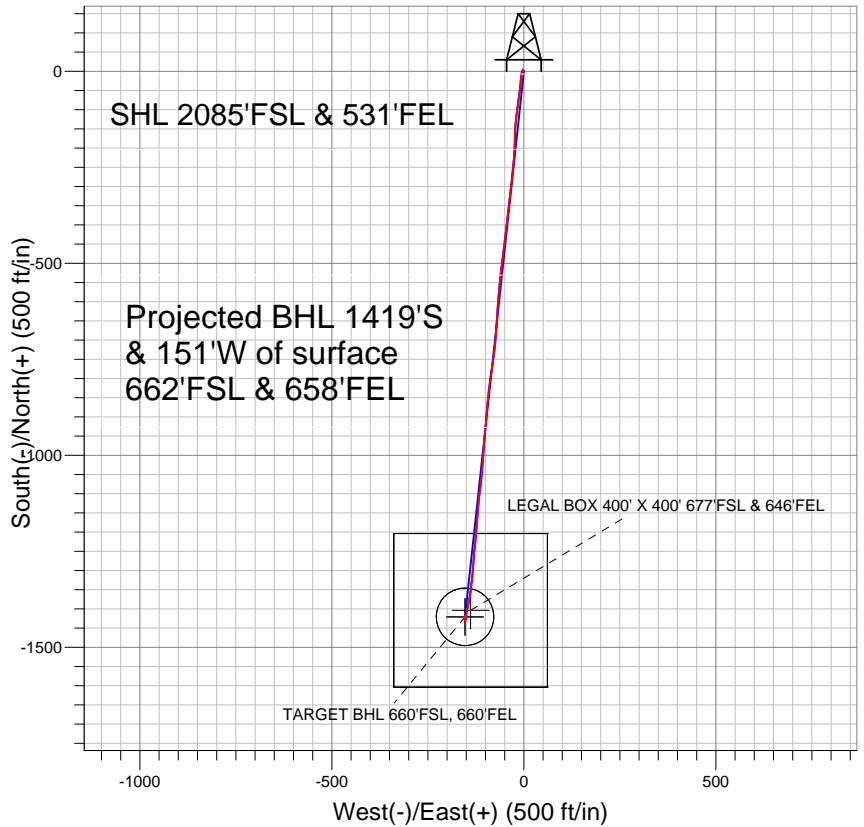
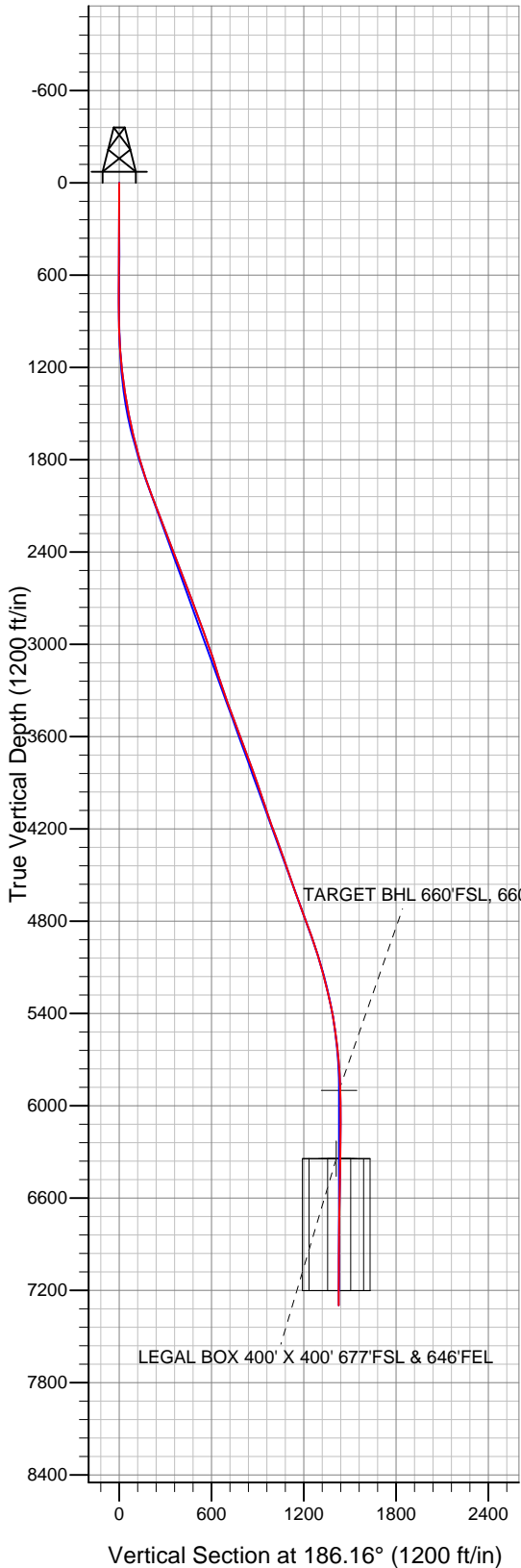
Ground Elevation: 4654.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1368246.34	3291471.83	40.339520	-104.454370

Original Well Elev WELL @ 4667.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- ✕ Carmin USX CC05-16D, Wellbore #1, Noble Carmin USX CC05-16D Plan #3 (5-13-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7528'MD & 7298'TVD @ 1427'VS
0.2 deg Inc 75.6 deg AZ

Project: SEC.5-T4N-R63W
Site: Carmin USX CC05-23D Pad Sec.5-T4N-R63W
Well: Carmin USX CC05-16D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.5-T4N-R63W

Carmin USX CC05-23D Pad Sec.5-T4N-R63W

Carmin USX CC05-16D

Wellbore #1

Survey: Survey #1

Standard Survey Report

23 June, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Carmin USX CC05-16D
Project:	SEC.5-T4N-R63W	TVD Reference:	WELL @ 4667.0ft (Original Well Elev)
Site:	Carmin USX CC05-23D Pad Sec.5-T4N-R63W	MD Reference:	WELL @ 4667.0ft (Original Well Elev)
Well:	Carmin USX CC05-16D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.5-T4N-R63W, 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	Carmin USX CC05-23D Pad Sec.5-T4N-R63W		
Site Position:		Northing:	1,368,246.09 ft
From:	Lat/Long	Easting:	3,291,449.53 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.339520
		Longitude:	-104.454450
		Grid Convergence:	0.68 °

Well	Carmin USX CC05-16D		
Well Position	+N/-S	0.0 ft	Northing: 1,368,246.34 ft
	+E/-W	0.0 ft	Easting: 3,291,471.83 ft
Position Uncertainty	0.0 ft		Wellhead Elevation: ft
			Latitude: 40.339520
			Longitude: -104.454370
			Ground Level: 4,654.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/22/2011	8.69	67.05	53,132

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	186.16	

Survey Program	Date	6/23/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
689.0	7,528.0	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	
689.0	0.70	326.80	689.0	3.5	-2.3	-3.3	0.10	0.10	0.00	
782.0	0.40	190.20	782.0	3.7	-2.7	-3.4	1.11	-0.32	-146.88	
875.0	0.70	222.60	875.0	2.9	-3.1	-2.6	0.45	0.32	34.84	
969.0	1.80	208.40	969.0	1.2	-4.2	-0.8	1.21	1.17	-15.11	
1,063.0	3.80	197.10	1,062.8	-3.1	-5.8	3.7	2.20	2.13	-12.02	
1,158.0	5.60	186.60	1,157.5	-10.7	-7.3	11.4	2.09	1.89	-11.05	
1,251.0	7.00	183.90	1,250.0	-20.8	-8.2	21.6	1.54	1.51	-2.90	
1,346.0	8.80	182.70	1,344.0	-33.9	-8.9	34.6	1.90	1.89	-1.26	
1,440.0	10.10	187.40	1,436.8	-49.2	-10.3	50.0	1.61	1.38	5.00	
1,535.0	10.90	189.40	1,530.2	-66.3	-12.9	67.3	0.93	0.84	2.11	
1,628.0	13.10	187.40	1,621.1	-85.5	-15.7	86.7	2.41	2.37	-2.15	
1,721.0	14.90	187.90	1,711.4	-107.8	-18.7	109.2	1.94	1.94	0.54	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Carmin USX CC05-16D
Project:	SEC.5-T4N-R63W	TVD Reference:	WELL @ 4667.0ft (Original Well Elev)
Site:	Carmin USX CC05-23D Pad Sec.5-T4N-R63W	MD Reference:	WELL @ 4667.0ft (Original Well Elev)
Well:	Carmin USX CC05-16D	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)	
1,815.0	16.70	185.80	1,801.8	-133.2	-21.7	134.7	2.01	1.91	-2.23	
1,908.0	17.50	181.10	1,890.7	-160.5	-23.3	162.0	1.72	0.86	-5.05	
2,001.0	19.90	181.50	1,978.8	-190.3	-24.0	191.7	2.58	2.58	0.43	
2,095.0	21.20	184.10	2,066.8	-223.2	-25.6	224.7	1.69	1.38	2.77	
2,189.0	21.10	185.70	2,154.5	-257.0	-28.5	258.6	0.62	-0.11	1.70	
2,282.0	20.90	187.40	2,241.3	-290.1	-32.3	291.9	0.69	-0.22	1.83	
2,375.0	20.90	185.90	2,328.2	-323.1	-36.2	325.1	0.58	0.00	-1.61	
2,469.0	20.90	186.60	2,416.0	-356.4	-39.8	358.6	0.27	0.00	0.74	
2,563.0	20.50	186.80	2,503.9	-389.4	-43.7	391.8	0.43	-0.43	0.21	
2,657.0	21.10	186.70	2,591.8	-422.5	-47.6	425.2	0.64	0.64	-0.11	
2,750.0	21.10	186.50	2,678.6	-455.8	-51.5	458.7	0.08	0.00	-0.22	
2,844.0	20.90	187.60	2,766.3	-489.2	-55.6	492.4	0.47	-0.21	1.17	
2,937.0	20.00	187.00	2,853.5	-521.5	-59.7	524.9	0.99	-0.97	-0.65	
3,031.0	19.90	184.30	2,941.8	-553.4	-62.9	556.9	0.99	-0.11	-2.87	
3,125.0	19.10	184.90	3,030.4	-584.6	-65.4	588.3	0.88	-0.85	0.64	
3,218.0	17.90	185.30	3,118.6	-614.0	-68.0	617.8	1.30	-1.29	0.43	
3,311.0	17.90	184.10	3,207.1	-642.5	-70.4	646.4	0.40	0.00	-1.29	
3,404.0	18.80	182.60	3,295.4	-671.7	-72.1	675.6	1.09	0.97	-1.61	
3,497.0	18.70	185.40	3,383.5	-701.6	-74.1	705.5	0.97	-0.11	3.01	
3,591.0	20.60	187.40	3,472.0	-733.0	-77.7	737.1	2.14	2.02	2.13	
3,685.0	21.00	188.20	3,559.9	-766.0	-82.2	770.4	0.52	0.43	0.85	
3,778.0	21.00	188.10	3,646.7	-799.0	-86.9	803.7	0.04	0.00	-0.11	
3,872.0	20.60	187.00	3,734.6	-832.1	-91.3	837.1	0.59	-0.43	-1.17	
3,966.0	19.20	184.70	3,822.9	-863.9	-94.6	869.1	1.71	-1.49	-2.45	
4,059.0	18.60	184.70	3,910.9	-894.0	-97.1	899.2	0.65	-0.65	0.00	
4,153.0	19.40	185.70	3,999.8	-924.4	-99.9	929.8	0.92	0.85	1.06	
4,246.0	18.00	184.10	4,087.9	-954.1	-102.4	959.6	1.60	-1.51	-1.72	
4,339.0	19.80	185.20	4,175.9	-984.2	-104.9	989.7	1.97	1.94	1.18	
4,432.0	20.90	183.30	4,263.1	-1,016.4	-107.3	1,022.1	1.38	1.18	-2.04	
4,526.0	19.80	185.50	4,351.2	-1,049.0	-109.8	1,054.7	1.43	-1.17	2.34	
4,620.0	18.40	186.10	4,440.0	-1,079.6	-112.9	1,085.5	1.50	-1.49	0.64	
4,714.0	19.30	188.10	4,529.0	-1,109.7	-116.6	1,115.8	1.18	0.96	2.13	
4,807.0	19.80	185.40	4,616.6	-1,140.6	-120.3	1,146.9	1.11	0.54	-2.90	
4,900.0	19.70	182.50	4,704.2	-1,172.0	-122.4	1,178.3	1.06	-0.11	-3.12	
4,994.0	21.00	184.30	4,792.3	-1,204.6	-124.4	1,211.0	1.53	1.38	1.91	
5,088.0	19.80	187.60	4,880.4	-1,237.2	-127.8	1,243.7	1.77	-1.28	3.51	
5,181.0	17.70	183.50	4,968.5	-1,266.9	-130.7	1,273.6	2.66	-2.26	-4.41	
5,275.0	16.40	184.40	5,058.3	-1,294.4	-132.6	1,301.2	1.41	-1.38	0.96	
5,368.0	15.60	185.50	5,147.7	-1,319.9	-134.8	1,326.8	0.92	-0.86	1.18	
5,461.0	13.40	188.90	5,237.8	-1,343.0	-137.7	1,350.1	2.54	-2.37	3.66	
5,554.0	12.40	187.30	5,328.4	-1,363.6	-140.6	1,370.8	1.14	-1.08	-1.72	
5,648.0	9.90	191.00	5,420.6	-1,381.5	-143.4	1,388.9	2.77	-2.66	3.94	
5,741.0	8.40	194.30	5,512.4	-1,396.0	-146.6	1,403.6	1.71	-1.61	3.55	
5,835.0	6.40	190.40	5,605.7	-1,407.8	-149.3	1,415.7	2.19	-2.13	-4.15	
5,929.0	5.20	184.50	5,699.2	-1,417.2	-150.6	1,425.1	1.42	-1.28	-6.28	
6,024.0	3.20	185.70	5,793.9	-1,424.1	-151.2	1,432.1	2.11	-2.11	1.26	
6,118.0	1.90	202.10	5,887.8	-1,428.2	-152.0	1,436.2	1.57	-1.38	17.45	
6,130.0	1.79	200.71	5,899.8	-1,428.5	-152.1	1,436.6	0.99	-0.91	-11.57	
TARGET BHL 660°FSL, 660°FEL										
6,211.0	1.10	184.30	5,980.8	-1,430.5	-152.6	1,438.6	0.99	-0.85	-20.26	
6,305.0	0.20	263.10	6,074.8	-1,431.4	-152.9	1,439.5	1.15	-0.96	83.83	
6,398.0	0.30	14.10	6,167.8	-1,431.2	-153.0	1,439.3	0.45	0.11	119.36	
6,492.0	1.00	343.70	6,261.8	-1,430.1	-153.2	1,438.3	0.80	0.74	-32.34	
6,574.4	1.35	338.20	6,344.2	-1,428.6	-153.7	1,436.8	0.45	0.43	-6.67	

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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)
TARGET CIRCLE 660'FSL & 660'FEL									
6,574.7	1.35	338.20	6,344.4	-1,428.5	-153.7	1,436.8	0.00	0.00	0.00
LEGAL BOX 400' X 400' 677'FSL & 646'FEL									
6,585.0	1.40	337.70	6,354.8	-1,428.3	-153.8	1,436.6	0.46	0.45	-4.88
6,679.0	1.40	329.00	6,448.7	-1,426.3	-154.8	1,434.7	0.23	0.00	-9.26
6,773.0	1.10	326.90	6,542.7	-1,424.5	-155.9	1,433.0	0.32	-0.32	-2.23
6,866.0	1.00	320.00	6,635.7	-1,423.2	-156.9	1,431.8	0.17	-0.11	-7.42
6,959.0	0.60	12.00	6,728.7	-1,422.1	-157.4	1,430.7	0.85	-0.43	55.91
7,052.0	0.40	52.30	6,821.7	-1,421.4	-157.0	1,430.0	0.42	-0.22	43.33
7,145.0	1.10	45.90	6,914.7	-1,420.6	-156.1	1,429.1	0.76	0.75	-6.88
7,239.0	1.10	71.40	7,008.7	-1,419.7	-154.6	1,428.0	0.52	0.00	27.13
7,332.0	1.10	71.40	7,101.6	-1,419.1	-152.9	1,427.3	0.00	0.00	0.00
7,425.0	0.60	75.70	7,194.6	-1,418.7	-151.6	1,426.8	0.54	-0.54	4.62
7,483.0	0.20	75.60	7,252.6	-1,418.6	-151.2	1,426.6	0.69	-0.69	-0.17
7,528.0	0.20	75.60	7,297.6	-1,418.5	-151.0	1,426.6	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____