

Well Name: **Carmin CC05-17D**

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

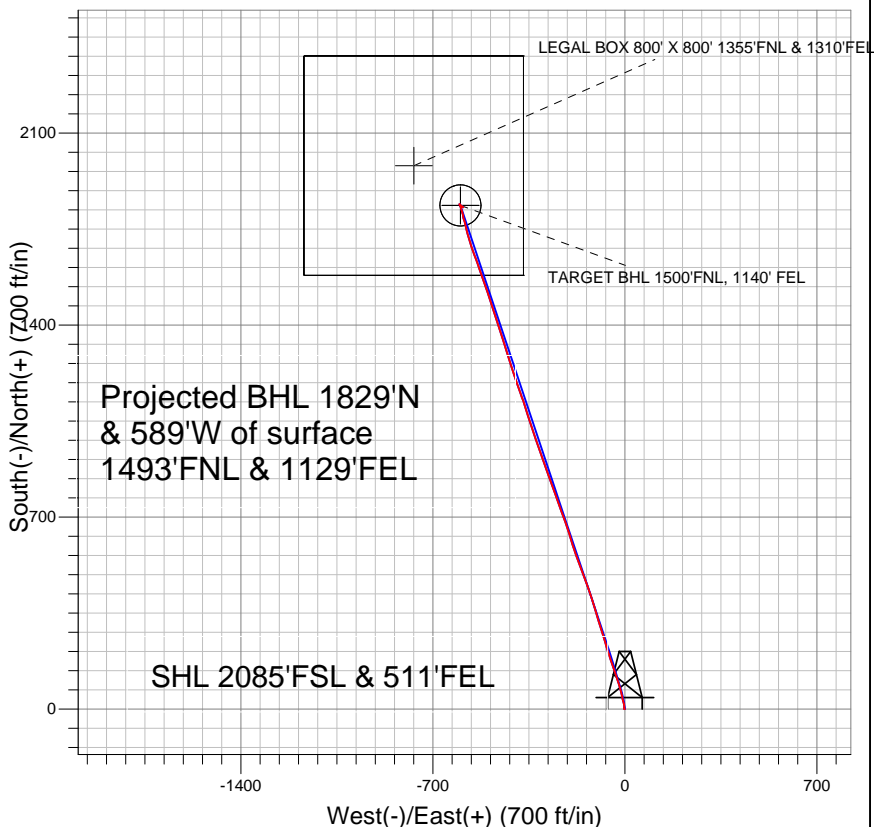
Ground Elevation: 4654.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1368246.57	3291491.34	40.339520	-104.454300

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

Slot

NOBLE ENERGY INC WELD COUNTY CO

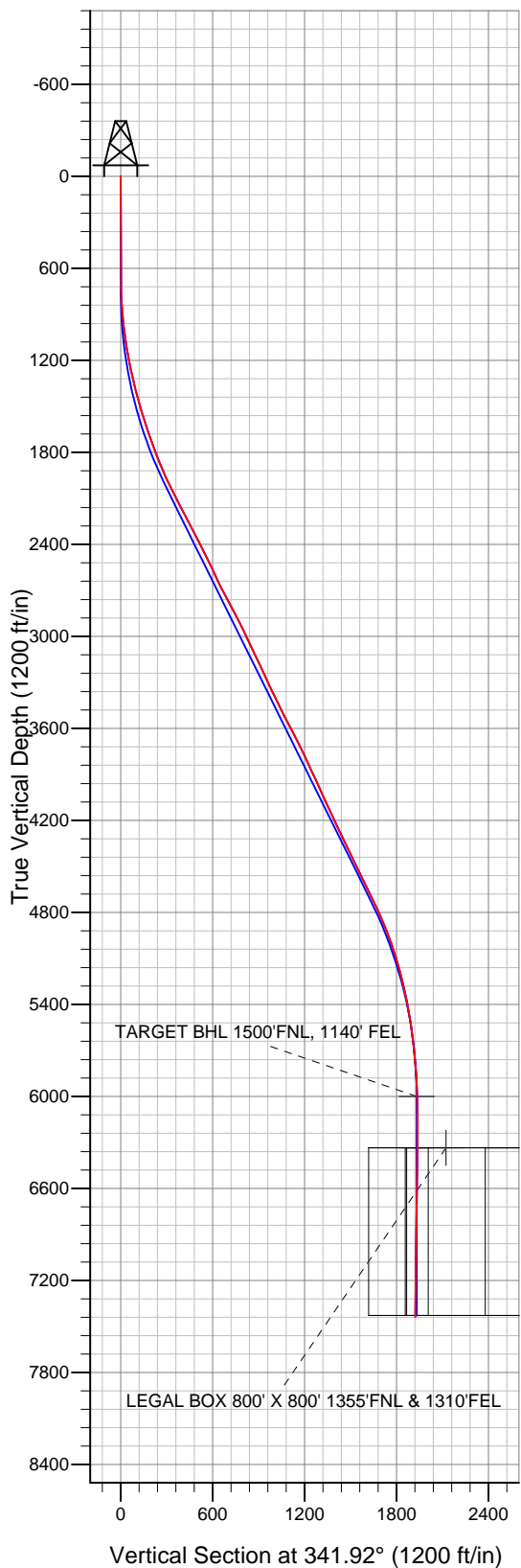


LEGEND

- Carmin CC05-17D, Wellbore #1, Noble Carmin CC05-17D Plan #3 (5-13-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7836'MD & 7437'TVD @ 1922'VS
1.0 deg Inc 135.3 deg AZ



Project: SEC.5-T4N-R63W
Site: Carmin CC05-23D Pad Sec.5-T4N-R63W
Well: Carmin CC05-17D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.5-T4N-R63W

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

Carmin CC05-17D

Wellbore #1

Survey: Survey #1

Standard Survey Report

20 June, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Carmin CC05-17D
Project:	SEC.5-T4N-R63W	TVD Reference:	WELL @ 4667.0ft (Original Well Elev)
Site:	Carmin CC05-23D Pad Sec.5-T4N-R63W	MD Reference:	WELL @ 4667.0ft (Original Well Elev)
Well:	Carmin CC05-17D	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 CC05-23D Pad Sec.5-T4N-R63W		
Site Position:		Northing:	1,368,246.09ft
From:	Lat/Long	Easting:	3,291,449.53ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.339520
		Longitude:	-104.454450
		Grid Convergence:	0.68 °

Well	Carmin CC05-17D		
Well Position	+N/-S	0.0 ft	Northing: 1,368,246.57 ft
	+E/-W	0.0 ft	Easting: 3,291,491.34 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.339520
		Longitude:	-104.454300
		Ground Level:	4,654.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/13/2011	8.70	67.06	53,144

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	341.92	

Survey Program	Date	6/20/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
690.0	7,836.0	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	285.70	690.0	0.8	-2.9	1.7	0.07	0.07	0.00	
783.0	2.50	17.80	783.0	2.9	-2.7	3.5	2.76	2.15	99.03	
877.0	5.00	358.80	876.8	8.9	-2.1	9.1	2.93	2.66	-20.21	
971.0	6.60	346.60	970.3	18.3	-3.5	18.4	2.14	1.70	-12.98	
1,064.0	8.30	345.20	1,062.5	29.9	-6.4	30.5	1.84	1.83	-1.51	
1,158.0	10.00	348.00	1,155.3	44.5	-9.8	45.3	1.87	1.81	2.98	
1,252.0	11.80	347.40	1,247.6	61.9	-13.6	63.0	1.92	1.91	-0.64	
1,347.0	13.70	343.20	1,340.2	82.1	-19.0	84.0	2.22	2.00	-4.42	
1,440.0	15.00	342.00	1,430.3	104.1	-25.9	107.0	1.43	1.40	-1.29	
1,534.0	16.50	341.20	1,520.8	128.3	-34.0	132.5	1.61	1.60	-0.85	
1,627.0	17.70	340.90	1,609.7	154.2	-42.9	159.9	1.29	1.29	-0.32	
1,721.0	19.80	342.40	1,698.7	182.8	-52.4	190.1	2.29	2.23	1.60	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Carmin CC05-17D
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Site:	Carmin CC05-23D Pad Sec.5-T4N-R63W	MD Reference:	WELL @ 4667.0ft (Original Well Elev)
Well:	Carmin CC05-17D	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)
1,814.0	20.50	342.60	1,786.0	213.4	-62.0	222.1	0.76	0.75	0.22
1,907.0	22.20	342.80	1,872.6	245.7	-72.1	256.0	1.83	1.83	0.22
2,001.0	24.10	342.20	1,959.1	281.0	-83.2	292.9	2.04	2.02	-0.64
2,095.0	27.10	343.20	2,043.8	319.7	-95.2	333.5	3.22	3.19	1.06
2,189.0	27.90	343.10	2,127.2	361.3	-107.8	376.9	0.85	0.85	-0.11
2,282.0	27.30	342.50	2,209.6	402.4	-120.5	420.0	0.71	-0.65	-0.65
2,376.0	27.60	340.60	2,293.0	443.5	-134.3	463.3	0.98	0.32	-2.02
2,469.0	27.10	339.30	2,375.6	483.7	-148.9	506.0	0.84	-0.54	-1.40
2,562.0	26.30	339.80	2,458.7	522.8	-163.5	547.8	0.89	-0.86	0.54
2,656.0	24.70	339.80	2,543.6	560.8	-177.5	588.2	1.70	-1.70	0.00
2,749.0	26.00	342.60	2,627.6	598.5	-190.3	628.0	1.90	1.40	3.01
2,843.0	27.90	342.90	2,711.4	639.2	-202.9	670.6	2.03	2.02	0.32
2,937.0	28.00	340.30	2,794.4	681.0	-216.8	714.6	1.30	0.11	-2.77
3,031.0	27.10	340.70	2,877.8	722.0	-231.3	758.1	0.98	-0.96	0.43
3,124.0	26.80	340.80	2,960.7	761.8	-245.2	800.2	0.33	-0.32	0.11
3,218.0	25.30	339.40	3,045.1	800.6	-259.3	841.5	1.72	-1.60	-1.49
3,311.0	25.10	341.10	3,129.3	837.8	-272.7	881.1	0.81	-0.22	1.83
3,405.0	25.20	340.10	3,214.4	875.5	-285.9	921.0	0.46	0.11	-1.06
3,497.0	24.80	338.60	3,297.7	911.9	-299.6	959.9	0.81	-0.43	-1.63
3,591.0	25.70	340.60	3,382.8	949.5	-313.6	999.9	1.32	0.96	2.13
3,685.0	26.50	342.90	3,467.2	988.7	-326.5	1,041.3	1.37	0.85	2.45
3,778.0	27.40	342.20	3,550.1	1,029.0	-339.2	1,083.4	1.03	0.97	-0.75
3,871.0	27.60	342.00	3,632.6	1,069.8	-352.4	1,126.4	0.24	0.22	-0.22
3,964.0	26.70	341.30	3,715.3	1,110.1	-365.7	1,168.8	1.03	-0.97	-0.75
4,058.0	24.70	340.20	3,800.0	1,148.6	-379.2	1,209.5	2.19	-2.13	-1.17
4,152.0	25.50	340.90	3,885.1	1,186.2	-392.4	1,249.4	0.91	0.85	0.74
4,245.0	24.00	341.50	3,969.6	1,223.0	-405.0	1,288.3	1.64	-1.61	0.65
4,340.0	24.70	342.20	4,056.1	1,260.3	-417.2	1,327.5	0.80	0.74	0.74
4,433.0	24.90	341.70	4,140.6	1,297.3	-429.3	1,366.5	0.31	0.22	-0.54
4,527.0	25.50	342.90	4,225.6	1,335.5	-441.4	1,406.5	0.84	0.64	1.28
4,621.0	25.50	343.90	4,310.5	1,374.3	-453.0	1,447.0	0.46	0.00	1.06
4,714.0	25.00	342.70	4,394.6	1,412.3	-464.4	1,486.6	0.77	-0.54	-1.29
4,808.0	25.90	340.10	4,479.5	1,450.5	-477.3	1,527.0	1.53	0.96	-2.77
4,902.0	27.50	340.90	4,563.4	1,490.3	-491.4	1,569.2	1.74	1.70	0.85
4,994.0	25.30	341.80	4,645.8	1,529.1	-504.5	1,610.1	2.43	-2.39	0.98
5,088.0	26.10	341.30	4,730.5	1,567.8	-517.4	1,650.9	0.88	0.85	-0.53
5,181.0	24.00	341.10	4,814.8	1,605.0	-530.1	1,690.3	2.26	-2.26	-0.22
5,274.0	22.30	338.90	4,900.3	1,639.4	-542.5	1,726.8	2.05	-1.83	-2.37
5,369.0	19.20	340.60	4,989.1	1,670.9	-554.2	1,760.4	3.32	-3.26	1.79
5,462.0	18.10	343.40	5,077.2	1,699.2	-563.4	1,790.2	1.52	-1.18	3.01
5,556.0	14.70	343.10	5,167.4	1,724.6	-571.1	1,816.7	3.62	-3.62	-0.32
5,649.0	13.40	348.30	5,257.6	1,746.5	-576.7	1,839.2	1.95	-1.40	5.59
5,743.0	12.00	345.10	5,349.3	1,766.6	-581.4	1,859.8	1.67	-1.49	-3.40
5,836.0	10.10	343.40	5,440.6	1,783.7	-586.2	1,877.6	2.07	-2.04	-1.83
5,930.0	9.10	348.90	5,533.3	1,798.9	-590.0	1,893.2	1.44	-1.06	5.85
6,024.0	6.50	346.20	5,626.4	1,811.4	-592.7	1,905.9	2.79	-2.77	-2.87
6,118.0	5.80	341.60	5,719.9	1,821.1	-595.5	1,916.0	0.91	-0.74	-4.89
6,211.0	4.30	343.10	5,812.5	1,828.9	-598.0	1,924.1	1.62	-1.61	1.61
6,304.0	3.30	350.10	5,905.3	1,834.8	-599.4	1,930.3	1.18	-1.08	7.53
6,398.7	1.92	337.41	5,999.9	1,839.0	-600.5	1,934.6	1.57	-1.46	-13.41
TARGET BHL 1500'FNL, 1140' FEL									
6,400.0	1.90	337.10	6,001.2	1,839.0	-600.5	1,934.6	1.57	-1.37	-23.09
6,493.0	0.90	310.10	6,094.2	1,840.9	-601.7	1,936.8	1.26	-1.08	-29.03
6,586.0	0.60	233.40	6,187.2	1,841.1	-602.6	1,937.2	1.03	-0.32	-82.47

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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)
6,680.0	0.70	180.30	6,281.1	1,840.2	-603.0	1,936.5	0.63	0.11	-56.49
6,731.1	0.70	175.14	6,332.2	1,839.6	-603.0	1,935.9	0.12	0.00	-10.11
LEGAL BOX 800' X 800' 1355'FNL & 1310'FEL									
6,732.9	0.70	174.95	6,334.0	1,839.6	-603.0	1,935.9	0.12	0.00	-10.13
TARGET CIRCLE 1500'FNL & 1140'FEL									
6,773.0	0.70	170.90	6,374.1	1,839.1	-603.0	1,935.4	0.12	0.01	-10.10
6,867.0	0.90	141.50	6,468.1	1,838.0	-602.4	1,934.2	0.48	0.21	-31.28
6,961.0	1.10	128.50	6,562.1	1,836.8	-601.2	1,932.7	0.32	0.21	-13.83
7,054.0	1.20	110.00	6,655.1	1,835.9	-599.6	1,931.4	0.41	0.11	-19.89
7,148.0	0.90	103.70	6,749.1	1,835.4	-598.0	1,930.4	0.34	-0.32	-6.70
7,241.0	1.00	109.50	6,842.1	1,835.0	-596.5	1,929.5	0.15	0.11	6.24
7,334.0	0.90	133.10	6,935.1	1,834.2	-595.2	1,928.4	0.43	-0.11	25.38
7,427.0	0.70	133.40	7,028.0	1,833.3	-594.3	1,927.2	0.22	-0.22	0.32
7,521.0	1.10	124.20	7,122.0	1,832.4	-593.1	1,926.0	0.45	0.43	-9.79
7,614.0	1.00	122.30	7,215.0	1,831.5	-591.7	1,924.7	0.11	-0.11	-2.04
7,708.0	0.90	121.40	7,309.0	1,830.7	-590.4	1,923.5	0.11	-0.11	-0.96
7,791.0	1.00	135.30	7,392.0	1,829.8	-589.3	1,922.3	0.30	0.12	16.75
7,836.0	1.00	135.30	7,437.0	1,829.2	-588.7	1,921.6	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____