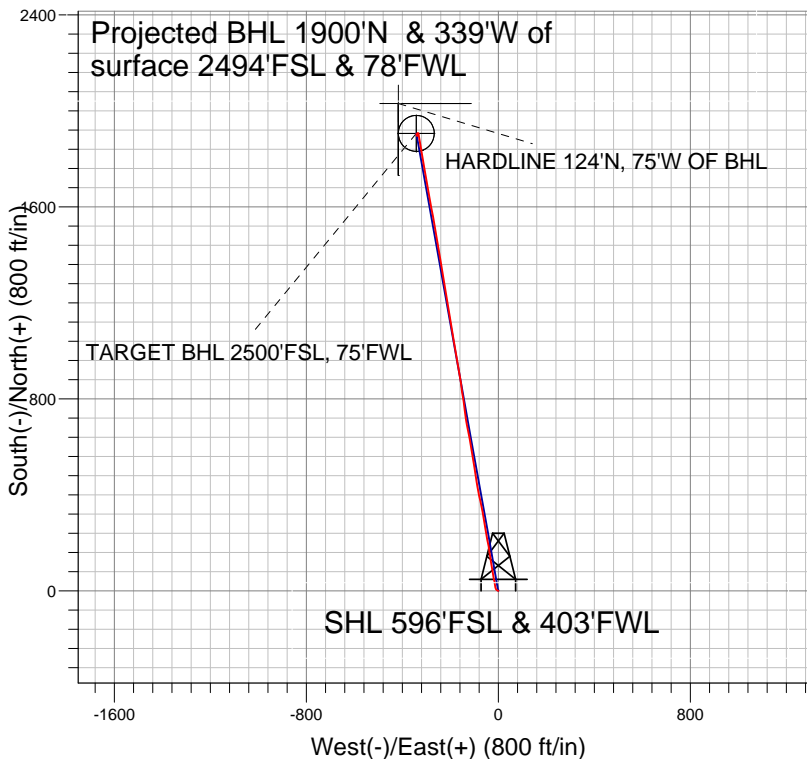
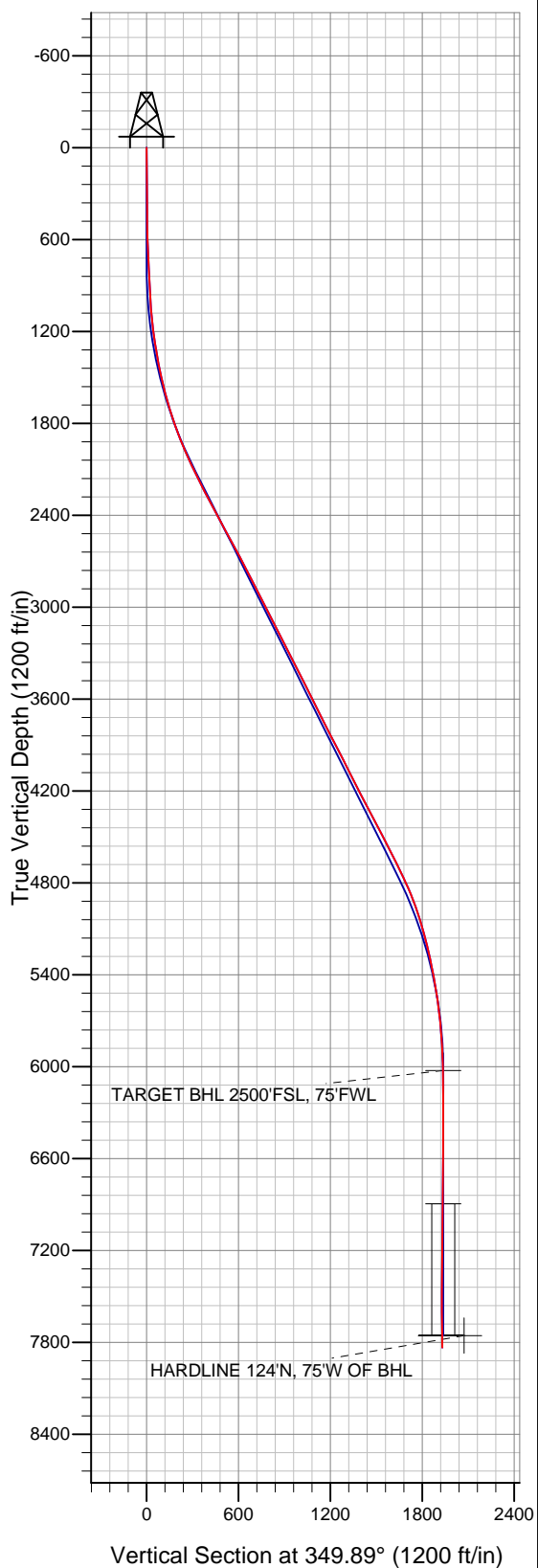


## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- △ Salazar P20-32D, Wellbore #1, Noble Salazar P20-32D Plan #1 11-23-09 V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
8245'MD & 7834'TVD @ 1930' VS  
0.8 deg Inc 353.4 deg AZ

Project: SEC.20-T3N-R67W  
Site: Salazar P20-32D Pad Sec.20-T3N-R67W  
Well: Salazar P20-32D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.20-T3N-R67W**

**Salazar P20-32D Pad Sec.20-T3N-R67W**

**Salazar P20-32D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**30 June, 2010**

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Salazar P20-32D
<b>Project:</b>	SEC.20-T3N-R67W	<b>TVD Reference:</b>	WELL @ 4876.0ft (Original Well Elev)
<b>Site:</b>	Salazar P20-32D Pad Sec.20-T3N-R67W	<b>MD Reference:</b>	WELL @ 4876.0ft (Original Well Elev)
<b>Well:</b>	Salazar P20-32D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.20-T3N-R67W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Salazar P20-32D Pad Sec.20-T3N-R67W			
Position:		Northing:	1,318,357.43ft	Latitude:	40° 12' 21.035 N
From:	Lat/Long	Easting:	3,161,487.75ft	Longitude:	104° 55' 18.570 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.37 °

Well	Salazar P20-32D					
Well Position	+N/-S	0.0 ft	Northing:	1,318,357.43 ft	Latitude:	40° 12' 21.035 N
	+E/-W	0.0 ft	Easting:	3,161,487.75 ft	Longitude:	104° 55' 18.570 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,863.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/8/2010	9.07	66.90	53,119

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	349.89	

Survey Program		Date	6/29/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
206.0	8,245.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey	Wellbore Data									
	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)
Survey Data	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	206.0	0.80	299.40	206.0	0.7	-1.3	0.9	0.39	0.39	0.00
	423.0	1.10	276.80	423.0	1.7	-4.6	2.5	0.22	0.14	-10.41
	508.0	1.50	308.20	507.9	2.5	-6.3	3.6	0.94	0.47	36.94
	593.0	2.00	318.40	592.9	4.3	-8.2	5.6	0.69	0.59	12.00
	678.0	2.40	333.60	677.8	7.0	-10.0	8.6	0.83	0.47	17.88
	763.0	2.40	346.50	762.8	10.3	-11.2	12.1	0.63	0.00	15.18
	903.0	2.70	348.00	902.6	16.4	-12.5	18.3	0.22	0.21	1.07
	989.0	3.50	353.40	988.5	21.0	-13.3	23.0	0.99	0.93	6.28
	1,074.0	5.00	350.40	1,073.3	27.2	-14.2	29.3	1.78	1.76	-3.53
	1,160.0	6.90	347.00	1,158.8	35.9	-16.0	38.2	2.25	2.21	-3.95
	1,246.0	8.30	348.80	1,244.0	47.1	-18.3	49.5	1.65	1.63	2.09
	1,332.0	9.70	350.00	1,329.0	60.3	-20.8	63.0	1.64	1.63	1.40

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Salazar P20-32D
<b>Project:</b>	SEC.20-T3N-R67W	<b>TVD Reference:</b>	WELL @ 4876.0ft (Original Well Elev)
<b>Site:</b>	Salazar P20-32D Pad Sec.20-T3N-R67W	<b>MD Reference:</b>	WELL @ 4876.0ft (Original Well Elev)
<b>Well:</b>	Salazar P20-32D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)	
1,417.0	10.50	352.20	1,412.7	75.0	-23.1	77.9	1.04	0.94	2.59	
1,503.0	12.60	350.00	1,496.9	92.0	-25.8	95.1	2.49	2.44	-2.56	
1,589.0	14.40	349.80	1,580.5	111.8	-29.3	115.2	2.09	2.09	-0.23	
1,674.0	15.80	351.90	1,662.6	133.6	-32.8	137.3	1.77	1.65	2.47	
1,760.0	18.00	351.10	1,744.9	158.4	-36.5	162.3	2.57	2.56	-0.93	
1,846.0	19.60	350.20	1,826.3	185.7	-41.0	190.0	1.89	1.86	-1.05	
1,931.0	21.50	349.80	1,905.9	215.1	-46.2	219.9	2.24	2.24	-0.47	
2,017.0	23.90	349.90	1,985.2	247.7	-52.1	253.0	2.79	2.79	0.12	
2,103.0	24.90	351.10	2,063.5	282.8	-57.9	288.6	1.30	1.16	1.40	
2,188.0	26.20	349.80	2,140.2	318.9	-64.0	325.2	1.67	1.53	-1.53	
2,274.0	26.80	347.40	2,217.2	356.5	-71.6	363.6	1.43	0.70	-2.79	
2,360.0	27.70	348.20	2,293.6	395.0	-79.9	402.9	1.13	1.05	0.93	
2,445.0	28.00	350.20	2,368.8	434.0	-87.3	442.6	1.15	0.35	2.35	
2,531.0	29.10	351.30	2,444.3	474.6	-93.9	483.7	1.42	1.28	1.28	
2,616.0	28.90	351.30	2,518.7	515.3	-100.2	524.9	0.24	-0.24	0.00	
2,702.0	28.70	350.80	2,594.0	556.3	-106.6	566.3	0.36	-0.23	-0.58	
2,788.0	27.60	350.70	2,669.9	596.3	-113.1	606.9	1.28	-1.28	-0.12	
2,874.0	26.90	348.90	2,746.3	635.0	-120.1	646.3	1.26	-0.81	-2.09	
2,959.0	27.00	348.60	2,822.1	672.8	-127.6	684.8	0.20	0.12	-0.35	
3,045.0	27.50	351.80	2,898.6	711.6	-134.3	724.2	1.80	0.58	3.72	
3,131.0	27.30	352.40	2,974.9	750.8	-139.8	763.7	0.40	-0.23	0.70	
3,216.0	26.90	351.60	3,050.6	789.2	-145.1	802.4	0.64	-0.47	-0.94	
3,302.0	27.60	351.80	3,127.0	828.1	-150.8	841.8	0.82	0.81	0.23	
3,388.0	26.60	352.20	3,203.6	866.9	-156.3	880.9	1.18	-1.16	0.47	
3,473.0	26.40	350.10	3,279.7	904.4	-162.1	918.8	1.13	-0.24	-2.47	
3,559.0	26.70	349.60	3,356.6	942.2	-168.9	957.3	0.43	0.35	-0.58	
3,664.0	27.20	350.80	3,450.2	989.1	-177.0	1,004.8	0.70	0.48	1.14	
3,730.0	27.90	350.50	3,508.7	1,019.2	-181.9	1,035.4	1.08	1.06	-0.45	
3,816.0	26.30	351.10	3,585.3	1,057.9	-188.2	1,074.5	1.89	-1.86	0.70	
3,901.0	26.10	349.90	3,661.5	1,094.9	-194.4	1,112.1	0.67	-0.24	-1.41	
3,987.0	26.40	350.30	3,738.7	1,132.4	-200.9	1,150.1	0.40	0.35	0.47	
4,072.0	26.90	351.00	3,814.6	1,170.0	-207.1	1,188.2	0.69	0.59	0.82	
4,158.0	28.10	351.10	3,890.9	1,209.2	-213.3	1,227.9	1.40	1.40	0.12	
4,244.0	27.20	349.90	3,967.1	1,248.6	-219.9	1,267.8	1.23	-1.05	-1.40	
4,329.0	26.10	351.40	4,043.1	1,286.2	-226.1	1,305.9	1.52	-1.29	1.76	
4,415.0	26.80	351.10	4,120.1	1,324.1	-231.9	1,344.2	0.83	0.81	-0.35	
4,501.0	27.30	349.50	4,196.6	1,362.6	-238.5	1,383.3	1.03	0.58	-1.86	
4,586.0	28.40	350.50	4,271.8	1,401.7	-245.4	1,423.0	1.41	1.29	1.18	
4,672.0	28.40	350.70	4,347.4	1,442.1	-252.1	1,463.9	0.11	0.00	0.23	
4,757.0	27.30	350.50	4,422.6	1,481.3	-258.6	1,503.7	1.30	-1.29	-0.24	
4,843.0	26.70	350.30	4,499.2	1,519.8	-265.1	1,542.7	0.71	-0.70	-0.23	
4,929.0	26.60	349.30	4,576.1	1,557.7	-271.9	1,581.3	0.53	-0.12	-1.16	
5,014.0	26.60	349.50	4,652.1	1,595.1	-278.9	1,619.3	0.11	0.00	0.24	
5,100.0	26.20	349.30	4,729.1	1,632.7	-286.0	1,657.6	0.48	-0.47	-0.23	
5,185.0	24.60	349.70	4,805.9	1,668.6	-292.6	1,694.0	1.89	-1.88	0.47	
5,271.0	22.00	350.70	4,884.9	1,702.1	-298.4	1,728.0	3.06	-3.02	1.16	
5,357.0	19.40	350.70	4,965.3	1,732.1	-303.3	1,758.4	3.02	-3.02	0.00	
5,443.0	17.30	350.30	5,047.0	1,758.8	-307.8	1,785.5	2.45	-2.44	-0.47	
5,528.0	15.30	350.40	5,128.5	1,782.3	-311.8	1,809.3	2.35	-2.35	0.12	
5,614.0	13.60	350.30	5,211.8	1,803.5	-315.4	1,830.8	1.98	-1.98	-0.12	
5,699.0	12.20	351.00	5,294.7	1,822.2	-318.5	1,849.8	1.66	-1.65	0.82	
5,785.0	10.90	349.00	5,378.9	1,839.1	-321.4	1,867.0	1.58	-1.51	-2.33	
5,871.0	9.90	350.60	5,463.5	1,854.4	-324.2	1,882.5	1.21	-1.16	1.86	
5,956.0	8.70	352.40	5,547.4	1,868.0	-326.2	1,896.2	1.45	-1.41	2.12	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Salazar P20-32D
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<b>Site:</b>	Salazar P20-32D Pad Sec.20-T3N-R67W	<b>MD Reference:</b>	WELL @ 4876.0ft (Original Well Elev)
<b>Well:</b>	Salazar P20-32D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
6,042.0	6.90	351.00	5,632.6	1,879.5	-327.9	1,907.9	2.10	-2.09	-1.63
6,127.0	5.30	348.90	5,717.1	1,888.4	-329.5	1,916.9	1.90	-1.88	-2.47
6,213.0	3.90	347.70	5,802.8	1,895.2	-330.9	1,923.8	1.63	-1.63	-1.40
6,299.0	2.90	347.70	5,888.7	1,900.2	-331.9	1,928.9	1.16	-1.16	0.00
6,384.0	1.70	347.80	5,973.6	1,903.5	-332.7	1,932.3	1.41	-1.41	0.12
6,435.5	1.10	348.94	6,025.1	1,904.7	-332.9	1,933.6	1.16	-1.16	2.22
<b>TARGET BHL 2500'FSL, 75'FWL</b>									
6,470.0	0.70	350.80	6,059.6	1,905.3	-333.0	1,934.1	1.16	-1.16	5.38
6,598.0	0.20	359.50	6,187.6	1,906.3	-333.1	1,935.1	0.39	-0.39	6.80
6,727.0	0.10	278.50	6,316.6	1,906.5	-333.3	1,935.4	0.16	-0.08	-62.79
6,855.0	0.30	239.60	6,444.6	1,906.4	-333.7	1,935.3	0.18	0.16	-30.39
6,984.0	0.70	259.10	6,573.6	1,906.0	-334.7	1,935.2	0.33	0.31	15.12
7,112.0	1.80	255.60	6,701.5	1,905.4	-337.4	1,935.0	0.86	0.86	-2.73
7,240.0	1.40	232.30	6,829.5	1,903.9	-340.6	1,934.2	0.59	-0.31	-18.20
7,306.5	1.04	207.18	6,896.0	1,902.9	-341.5	1,933.3	0.96	-0.54	-37.79
<b>TARGET CIRCLE 2500'FSL, 75'FWL</b>									
7,369.0	1.00	173.20	6,958.5	1,901.8	-341.7	1,932.3	0.96	-0.07	-54.35
7,497.0	1.10	137.30	7,086.4	1,899.8	-340.8	1,930.2	0.51	0.08	-28.05
7,625.0	0.90	143.00	7,214.4	1,898.1	-339.3	1,928.2	0.17	-0.16	4.45
7,754.0	0.50	149.30	7,343.4	1,896.8	-338.4	1,926.8	0.32	-0.31	4.88
7,882.0	0.10	350.50	7,471.4	1,896.5	-338.2	1,926.4	0.46	-0.31	-124.06
8,010.0	0.60	345.90	7,599.4	1,897.2	-338.3	1,927.2	0.39	0.39	-3.59
8,139.0	0.60	347.40	7,728.4	1,898.5	-338.7	1,928.5	0.01	0.00	1.16
8,168.3	0.70	350.71	7,757.7	1,898.9	-338.7	1,928.8	0.35	0.32	11.30
<b>HARDLINE 124'N, 75'W OF BHL</b>									
8,200.0	0.80	353.40	7,789.4	1,899.3	-338.8	1,929.3	0.35	0.33	8.48
8,245.0	0.80	353.40	7,834.4	1,899.9	-338.8	1,929.9	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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