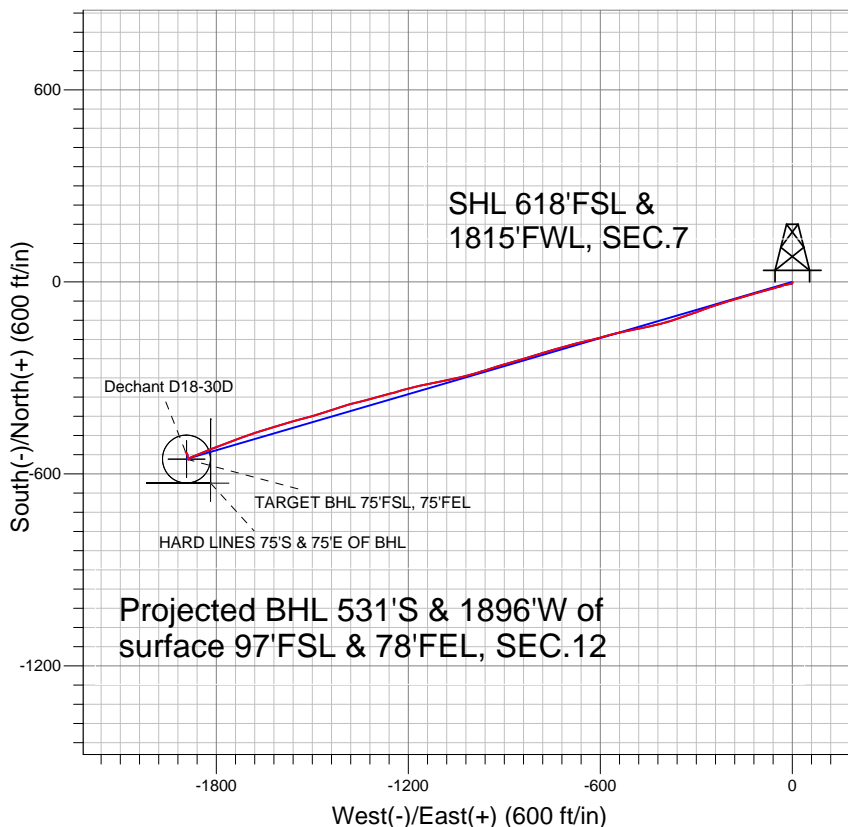


## NOBLE ENERGY INC WELD COUNTY CO



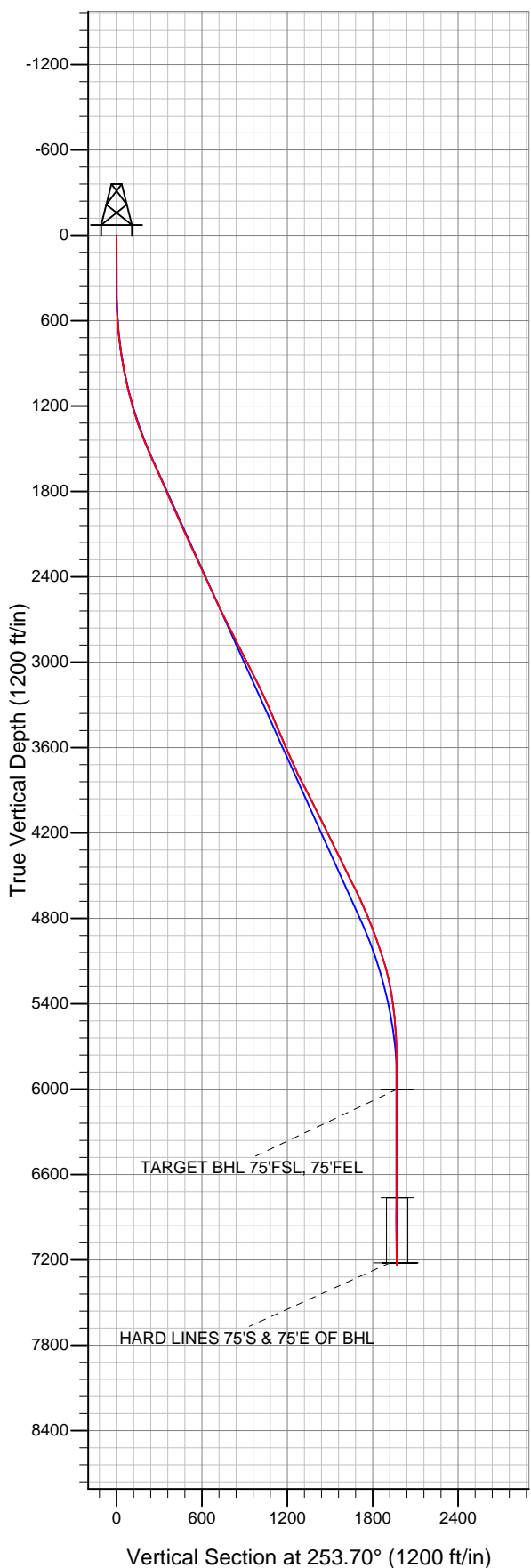
### LEGEND

- ✕ Dechant D18-30D, Wellbore #1, Noble Dechant D18-30D Plan #1 (4-07-11) VO
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7640'MD & 7235'TVD @ 1969'VS  
1.8 deg Inc 316.0 deg AZ

Project: SEC.7-T3N-R64W  
Site: Dechant D18-30D Pad Sec.7-T3N-R64W  
Well: Dechant D18-30D  
Plan: Wellbore #1





## **Directional**

# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.7-T3N-R64W**

**Dechant D18-30D Pad Sec.7-T3N-R64W**

**Dechant D18-30D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**30 August, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D18-30D
<b>Project:</b>	SEC.7-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4838.0ft (Original Well Elev)
<b>Site:</b>	Dechant D18-30D Pad Sec.7-T3N-R64W	<b>MD Reference:</b>	WELL @ 4838.0ft (Original Well Elev)
<b>Well:</b>	Dechant D18-30D	<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.7-T3N-R64W, 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		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Dechant D18-30D Pad Sec.7-T3N-R64W		
<b>Site Position:</b>		<b>Northing:</b>	1,329,450.88ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,252,362.36ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.234210
		<b>Longitude:</b>	-104.596080
		<b>Grid Convergence:</b>	0.58 °

<b>Well</b>	Dechant D18-30D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,329,450.87 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,252,362.36 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.234210
		<b>Longitude:</b>	-104.596080
		<b>Ground Level:</b>	4,825.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/13/2011	8.78	66.95	53,081

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	253.70	

<b>Survey Program</b>	<b>Date</b>	8/30/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
360.0	7,640.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
360.0	1.00	171.40	360.0	-3.1	0.5	0.4	0.28	0.28	0.00	
452.0	0.80	213.70	452.0	-4.4	0.2	1.0	0.73	-0.22	45.98	
545.0	2.10	253.60	544.9	-5.5	-1.8	3.2	1.69	1.40	42.90	
637.0	5.00	261.70	636.8	-6.5	-7.3	8.9	3.19	3.15	8.80	
729.0	7.70	257.20	728.2	-8.5	-17.3	19.0	2.98	2.93	-4.89	
751.0	7.70	258.20	750.0	-9.1	-20.2	21.9	0.61	0.00	4.55	
830.0	8.10	250.30	828.2	-12.0	-30.6	32.8	1.46	0.51	-10.00	
924.0	9.90	254.50	921.1	-16.4	-44.6	47.5	2.04	1.91	4.47	
1,018.0	11.60	254.20	1,013.4	-21.2	-61.5	65.0	1.81	1.81	-0.32	
1,112.0	13.90	254.20	1,105.1	-26.8	-81.5	85.7	2.45	2.45	0.00	
1,206.0	15.90	254.90	1,195.9	-33.2	-104.8	109.9	2.14	2.13	0.74	
1,300.0	17.80	254.50	1,285.9	-40.4	-131.1	137.2	2.03	2.02	-0.43	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D18-30D
<b>Project:</b>	SEC.7-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4838.0ft (Original Well Elev)
<b>Site:</b>	Dechant D18-30D Pad Sec.7-T3N-R64W	<b>MD Reference:</b>	WELL @ 4838.0ft (Original Well Elev)
<b>Well:</b>	Dechant D18-30D	<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)
1,393.0	20.60	253.80	1,373.7	-48.8	-160.5	167.7	3.02	3.01	-0.75
1,487.0	22.00	252.20	1,461.3	-58.8	-193.1	201.9	1.61	1.49	-1.70
1,581.0	24.00	253.30	1,547.8	-69.7	-228.2	238.6	2.18	2.13	1.17
1,675.0	24.00	250.00	1,633.7	-81.7	-264.5	276.8	1.43	0.00	-3.51
1,769.0	24.20	250.70	1,719.5	-94.6	-300.6	315.1	0.37	0.21	0.74
1,863.0	24.30	250.50	1,805.2	-107.4	-337.0	353.7	0.14	0.11	-0.21
1,957.0	23.60	250.50	1,891.1	-120.2	-373.0	391.8	0.74	-0.74	0.00
2,051.0	23.30	256.60	1,977.4	-130.8	-408.8	429.1	2.60	-0.32	6.49
2,145.0	24.30	259.30	2,063.4	-138.7	-445.9	466.9	1.57	1.06	2.87
2,239.0	24.50	258.00	2,149.0	-146.3	-484.0	505.6	0.61	0.21	-1.38
2,333.0	26.00	257.70	2,234.0	-154.8	-523.2	545.6	1.60	1.60	-0.32
2,427.0	25.10	254.70	2,318.8	-164.4	-562.6	586.1	1.68	-0.96	-3.19
2,521.0	24.40	255.00	2,404.2	-174.7	-600.6	625.4	0.76	-0.74	0.32
2,615.0	24.90	257.30	2,489.6	-184.1	-638.6	664.6	1.15	0.53	2.45
2,708.0	24.90	256.10	2,574.0	-193.1	-676.7	703.7	0.54	0.00	-1.29
2,802.0	25.80	254.20	2,658.9	-203.4	-715.6	743.9	1.29	0.96	-2.02
2,896.0	26.90	254.00	2,743.1	-214.8	-755.7	785.7	1.17	1.17	-0.21
2,990.0	26.10	252.10	2,827.3	-227.0	-795.9	827.6	1.24	-0.85	-2.02
3,084.0	27.00	254.00	2,911.3	-239.3	-836.0	869.6	1.32	0.96	2.02
3,178.0	28.00	254.30	2,994.7	-251.1	-877.8	913.0	1.07	1.06	0.32
3,272.0	26.70	252.40	3,078.2	-263.5	-919.2	956.2	1.67	-1.38	-2.02
3,366.0	26.20	252.10	3,162.4	-276.3	-959.0	998.0	0.55	-0.53	-0.32
3,460.0	24.20	254.60	3,247.4	-287.8	-997.4	1,038.0	2.41	-2.13	2.66
3,554.0	23.00	256.10	3,333.6	-297.3	-1,033.8	1,075.7	1.43	-1.28	1.60
3,648.0	22.60	258.90	3,420.2	-305.2	-1,069.3	1,112.0	1.23	-0.43	2.98
3,742.0	23.90	258.10	3,506.6	-312.6	-1,105.7	1,149.0	1.42	1.38	-0.85
3,836.0	23.90	259.30	3,592.5	-320.0	-1,143.0	1,186.9	0.52	0.00	1.28
3,930.0	23.90	255.40	3,678.5	-328.4	-1,180.2	1,224.9	1.68	0.00	-4.15
4,024.0	24.20	253.80	3,764.3	-338.5	-1,217.1	1,263.2	0.76	0.32	-1.70
4,118.0	27.20	255.20	3,849.0	-349.4	-1,256.4	1,303.9	3.26	3.19	1.49
4,211.0	28.00	254.90	3,931.4	-360.5	-1,298.0	1,347.0	0.87	0.86	-0.32
4,305.0	27.30	255.40	4,014.7	-371.7	-1,340.2	1,390.6	0.78	-0.74	0.53
4,399.0	26.00	255.40	4,098.7	-382.3	-1,381.0	1,432.8	1.38	-1.38	0.00
4,493.0	25.10	250.80	4,183.5	-394.1	-1,419.7	1,473.3	2.32	-0.96	-4.89
4,587.0	27.10	252.90	4,267.9	-406.9	-1,459.0	1,514.6	2.34	2.13	2.23
4,681.0	26.10	253.50	4,352.0	-419.1	-1,499.3	1,556.7	1.10	-1.06	0.64
4,775.0	26.00	255.60	4,436.4	-430.1	-1,539.1	1,598.0	0.99	-0.11	2.23
4,869.0	26.30	253.10	4,520.8	-441.3	-1,579.0	1,639.4	1.21	0.32	-2.66
4,963.0	27.10	252.90	4,604.8	-453.6	-1,619.4	1,681.6	0.86	0.85	-0.21
5,057.0	24.20	253.80	4,689.5	-465.3	-1,658.4	1,722.3	3.11	-3.09	0.96
5,151.0	22.60	250.70	4,775.8	-476.7	-1,693.9	1,759.6	2.15	-1.70	-3.30
5,245.0	21.40	249.10	4,862.9	-488.7	-1,727.0	1,794.7	1.43	-1.28	-1.70
5,339.0	19.20	249.20	4,951.1	-500.4	-1,757.5	1,827.2	2.34	-2.34	0.11
5,433.0	18.50	249.10	5,040.1	-511.2	-1,785.8	1,857.5	0.75	-0.74	-0.11
5,527.0	16.60	249.80	5,129.7	-521.1	-1,812.4	1,885.8	2.03	-2.02	0.74
5,620.0	13.10	245.40	5,219.6	-530.1	-1,834.4	1,909.5	3.95	-3.76	-4.73
5,714.0	10.10	248.70	5,311.6	-537.5	-1,851.8	1,928.2	3.27	-3.19	3.51
5,808.0	7.20	248.20	5,404.5	-542.7	-1,864.9	1,942.3	3.09	-3.09	-0.53
5,902.0	5.70	248.50	5,498.0	-546.6	-1,874.8	1,952.8	1.60	-1.60	0.32
5,996.0	3.90	238.20	5,591.6	-550.0	-1,881.8	1,960.5	2.12	-1.91	-10.96
6,090.0	1.70	246.40	5,685.5	-552.2	-1,885.8	1,965.0	2.37	-2.34	8.72
6,184.0	0.80	196.00	5,779.5	-553.4	-1,887.3	1,966.7	1.43	-0.96	-53.62
6,309.0	0.40	156.30	5,904.5	-554.7	-1,887.3	1,967.2	0.44	-0.32	-31.76
6,404.5	0.40	167.85	6,000.0	-555.3	-1,887.1	1,967.1	0.08	0.00	12.10

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D18-30D
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<b>Site:</b>	Dechant D18-30D Pad Sec.7-T3N-R64W	<b>MD Reference:</b>	WELL @ 4838.0ft (Original Well Elev)
<b>Well:</b>	Dechant D18-30D	<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)
<b>TARGET BHL 75'FSL, 75'FEL</b>									
6,434.0	0.40	171.40	6,029.5	-555.5	-1,887.1	1,967.2	0.08	0.01	12.02
6,560.0	0.40	17.90	6,155.5	-555.5	-1,886.9	1,967.0	0.62	0.00	-121.83
6,685.0	1.20	349.80	6,280.5	-553.8	-1,887.0	1,966.6	0.69	0.64	-22.48
6,810.0	1.20	325.40	6,405.4	-551.5	-1,888.0	1,966.9	0.41	0.00	-19.52
6,936.0	1.00	351.20	6,531.4	-549.3	-1,888.9	1,967.1	0.42	-0.16	20.48
7,061.0	1.20	1.20	6,656.4	-546.9	-1,889.0	1,966.6	0.22	0.16	8.00
7,167.4	1.37	352.06	6,762.8	-544.5	-1,889.2	1,966.1	0.25	0.16	-8.59
<b>TARGET CIRCLE 75'FSL &amp; 75'FEL</b>									
7,186.0	1.40	350.70	6,781.4	-544.1	-1,889.2	1,966.0	0.25	0.17	-7.33
7,311.0	2.00	343.80	6,906.3	-540.5	-1,890.1	1,965.8	0.51	0.48	-5.52
7,437.0	2.00	330.10	7,032.2	-536.5	-1,891.8	1,966.3	0.38	0.00	-10.87
7,562.0	1.80	316.00	7,157.2	-533.2	-1,894.3	1,967.8	0.41	-0.16	-11.28
7,623.0	1.80	316.00	7,218.1	-531.8	-1,895.6	1,968.7	0.00	0.00	0.00
<b>HARD LINES 75'S &amp; 75'E OF BHL</b>									
7,640.0	1.80	316.00	7,235.1	-531.4	-1,896.0	1,968.9	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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