

# **Noble Energy**

**Weld County, CO**

**Sec. 15-T5N-R63W (Wells Ranch PAD)**

**Wells Ranch USX BB15-65HN - Slot A1**

**Plan B - Rev 2 - Tgt 0**

**Plan: Plan B - Rev 2 - Tgt 0 Proposal**

## **Standard Planning Report**

**25 April, 2011**

# Halliburton Company

## Planning Report

<b>Database:</b> EDM 2003.16 Single User Db <b>Company:</b> Noble Energy <b>Project:</b> Weld County, CO <b>Site:</b> Sec. 15-T5N-R63W (Wells Ranch PAD) <b>Well:</b> Wells Ranch USX BB15-65HN <b>Wellbore:</b> Plan B - Rev 2 - Tgt 0 <b>Design:</b> Plan B - Rev 2 - Tgt 0 Proposal	<b>Local Co-ordinate Reference:</b> Well Wells Ranch USX BB15-65HN - Slot A1 <b>TVD Reference:</b> KB @ 4689.00ft (Rig KB) <b>MD Reference:</b> KB @ 4689.00ft (Rig KB) <b>North Reference:</b> Grid <b>Survey Calculation Method:</b> Minimum Curvature	
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<b>Project</b> Weld County, CO		
<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

<b>Site</b> Sec. 15-T5N-R63W (Wells Ranch PAD)			
<b>Site Position:</b>	<b>Northing:</b> 1,390,897.02 ft	<b>Latitude:</b> 40° 24' 5.364 N	
<b>From:</b> Lat/Long	<b>Easting:</b> 3,297,655.33 ft	<b>Longitude:</b> 104° 25' 52.356 W	
<b>Position Uncertainty:</b> 0.00 ft	<b>Slot Radius:</b> "	<b>Grid Convergence:</b> 0.69 °	

<b>Well</b> Wells Ranch USX BB15-65HN - Slot A1			
<b>Well Position</b>	<b>Northing:</b> 1,390,897.02 ft	<b>Latitude:</b> 40° 24' 5.364 N	
<b>+N/-S</b> 0.00 ft	<b>Easting:</b> 3,297,655.33 ft	<b>Longitude:</b> 104° 25' 52.356 W	
<b>+E/-W</b> 0.00 ft	<b>Wellhead Elevation:</b> 4,665.00 ft	<b>Ground Level:</b> 4,665.00 ft	
<b>Position Uncertainty</b> 0.00 ft			

<b>Wellbore</b> Plan B - Rev 2 - Tgt 0					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b> (°)	<b>Dip Angle</b> (°)	<b>Field Strength</b> (nT)
	BGGM2010	4/15/2011	8.66	67.12	53,163

<b>Design</b> Plan B - Rev 2 - Tgt 0 Proposal				
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b> PLAN	<b>Tie On Depth:</b> 5,800.00		
<b>Vertical Section:</b>	<b>Depth From (TVD)</b> (ft)	<b>+N/-S</b> (ft)	<b>+E/-W</b> (ft)	<b>Direction</b> (°)
	0.00	0.00	0.00	98.98

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
5,800.00	1.44	261.38	5,727.40	-768.79	-111.37	0.00	0.00	0.00	0.00	
5,939.55	10.00	120.00	5,866.30	-775.13	-102.59	8.00	6.13	-101.31	-145.96	
5,979.55	10.00	120.00	5,905.70	-778.61	-96.57	0.00	0.00	0.00	0.00	
6,935.82	85.00	88.56	6,510.95	-813.49	550.63	8.00	7.84	-3.29	-32.30	
7,015.12	85.00	88.56	6,517.86	-811.51	629.60	0.00	0.00	0.00	0.00	
7,085.12	90.60	88.56	6,520.54	-809.75	699.50	8.00	8.00	0.00	0.02	Wells Ranch USX BB
10,905.26	90.60	88.56	6,480.54	-713.88	4,518.24	0.00	0.00	0.00	0.00	Wells Ranch USX BB

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## Planning Report

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch USX BB15-65HN - Slot A1
<b>Company:</b>	Noble Energy	<b>TVD Reference:</b>	KB @ 4689.00ft (Rig KB)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KB @ 4689.00ft (Rig KB)
<b>Site:</b>	Sec. 15-T5N-R63W (Wells Ranch PAD)	<b>North Reference:</b>	Grid
<b>Well:</b>	Wells Ranch USX BB15-65HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B - Rev 2 - Tgt 0		
<b>Design:</b>	Plan B - Rev 2 - Tgt 0 Proposal		

### Planned 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)
5,800.00	1.44	261.38	5,727.40	-768.79	-111.37	9.97	0.00	0.00	0.00
5,939.55	10.00	120.00	5,866.30	-775.13	-102.59	19.64	8.00	6.13	-101.31
5,979.55	10.00	120.00	5,905.70	-778.61	-96.57	26.12	0.00	0.00	0.00
6,592.33	57.66	91.48	6,402.00	-814.07	228.34	352.59	8.00	7.78	-4.65
<b>Sharon Springs Mrkr</b>									
6,635.52	61.09	91.04	6,424.00	-814.88	265.49	389.41	8.00	7.95	-1.00
<b>Niobrara</b>									
6,661.18	63.13	90.80	6,436.00	-815.24	288.17	411.87	8.00	7.96	-0.95
<b>Niobrara A</b>									
6,716.29	67.52	90.30	6,459.00	-815.72	338.23	461.39	8.00	7.96	-0.90
<b>Niobrara A Marl</b>									
6,935.82	85.00	88.56	6,510.95	-813.49	550.63	670.84	8.00	7.96	-0.79
6,947.91	85.00	88.56	6,512.00	-813.19	562.67	682.69	0.00	0.00	0.00
<b>Niobrara B</b>									
7,015.12	85.00	88.56	6,517.86	-811.51	629.60	748.53	0.00	0.00	0.00
7,085.12	90.60	88.56	6,520.54	-809.75	699.50	817.30	8.00	8.00	0.00
10,905.26	90.60	88.56	6,480.54	-713.88	4,518.24	4,574.28	0.00	0.00	0.00

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Wells Ranch USX BB15- - plan hits target center - Point	0.00	0.00	6,480.54	-713.88	4,518.24	1,390,183.17	3,302,173.39	40° 23' 57.768 N	104° 24' 54.072 W
Wells Ranch USX BB15- - plan misses target center by 5779.84ft at 5800.00ft MD (5727.40 TVD, -768.79 N, -111.37 E) - Polygon	0.00	0.00	0.00	0.00	0.00	1,390,897.02	3,297,655.33	40° 24' 5.364 N	104° 25' 52.356 W
Point 1			0.00	1,872.00	-368.00	1,392,768.95	3,297,287.35		
Point 2			0.00	1,929.00	4,926.00	1,392,825.95	3,302,581.14		
Point 3			0.00	-3,373.00	5,183.00	1,387,524.16	3,302,838.13		
Point 4			0.00	-3,395.00	60.00	1,387,502.16	3,297,715.33		
Point 5			0.00	1,872.00	-368.00	1,392,768.95	3,297,287.35		
Wells Ranch USX BB15- - plan misses target center by 5779.84ft at 5800.00ft MD (5727.40 TVD, -768.79 N, -111.37 E) - Polygon	0.00	0.00	0.00	0.00	0.00	1,390,897.02	3,297,655.33	40° 24' 5.364 N	104° 25' 52.356 W
Point 1			0.00	1,412.00	92.00	1,392,308.97	3,297,747.33		
Point 2			0.00	1,469.00	4,466.00	1,392,365.96	3,302,121.16		
Point 3			0.00	-2,913.00	4,723.00	1,387,984.14	3,302,378.15		
Point 4			0.00	-2,933.00	520.00	1,387,964.14	3,298,175.31		
Point 5			0.00	1,412.00	92.00	1,392,308.97	3,297,747.33		
Wells Ranch USX BB15- - plan hits target center - Point	0.00	0.00	6,480.58	-713.88	4,518.24	1,390,183.17	3,302,173.39	40° 23' 57.768 N	104° 24' 54.072 W