

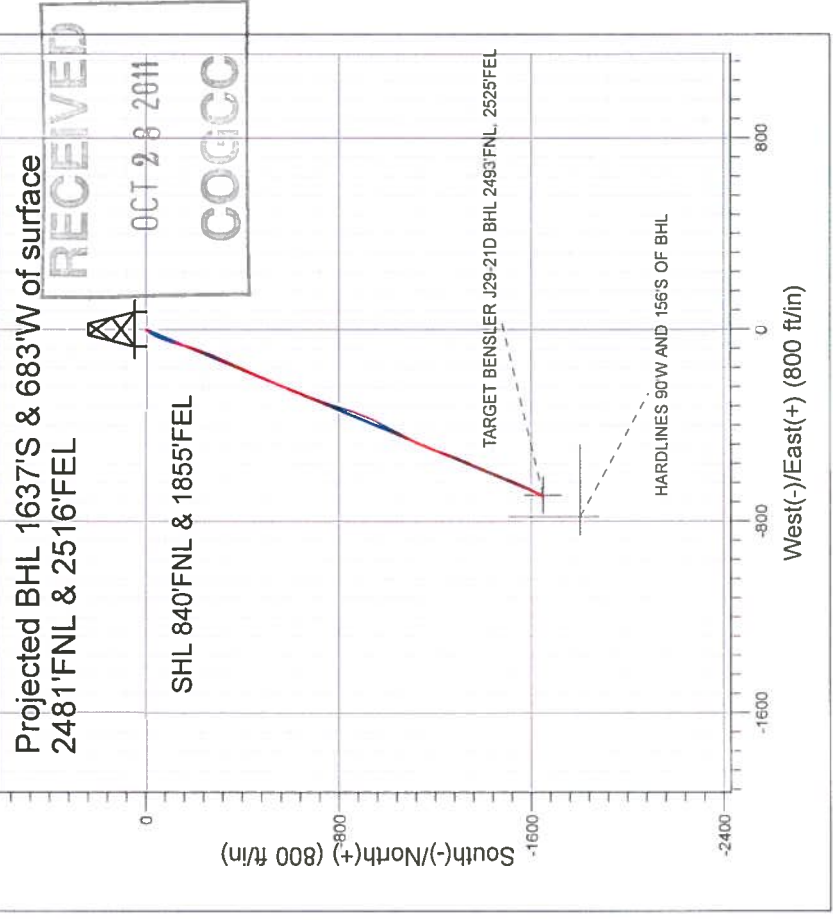


Directional

Surface Location: Bensler J29-27D Pad Sec.29-T5N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4884.0
Slot
+N/-S+E/-W Northing Easting Longitude
0.0 0.01380385 28 3194847.52 40° 22' 31.620 N 104° 48' 2.304 W
Original Well Elev WELL @ 4897.0ft (Original Well Elev)

123-29136

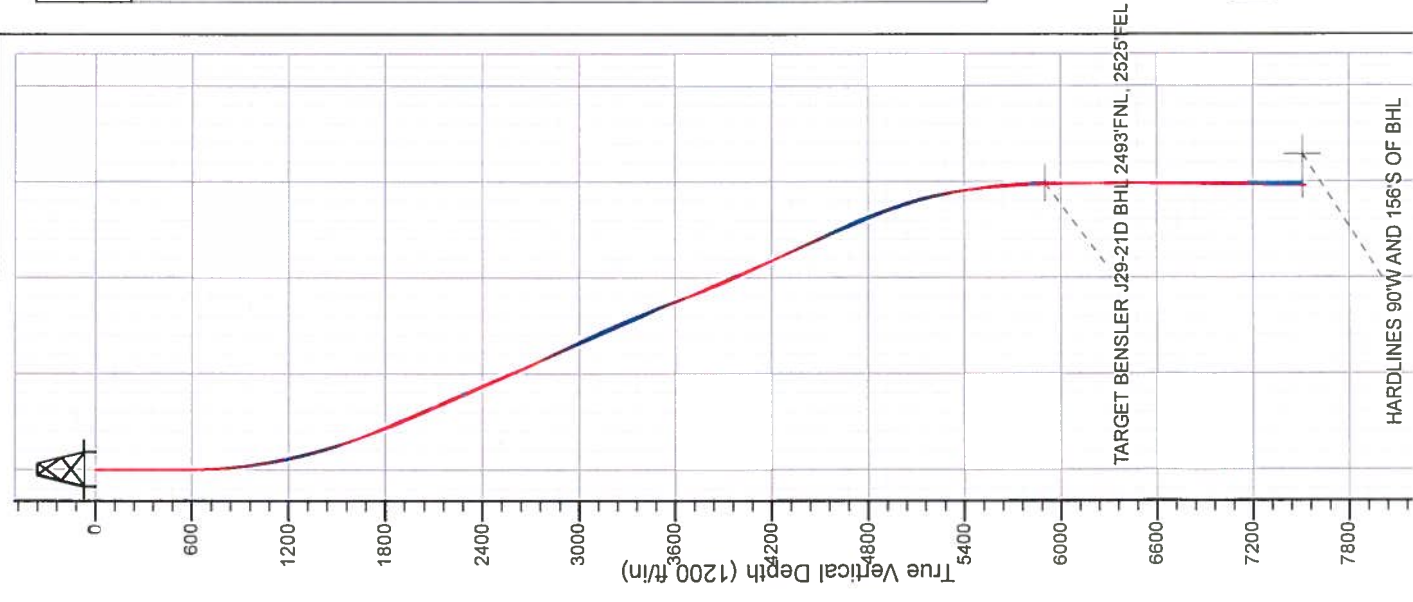
NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Bensler J29-21D, Wellbore #1, Plan #3 (9-17-09) V0
- Wellbore #1
- Survey #1

Final Survey Plot



Projected Final Survey -
7871'MD & 7529'TVD @ 1773.5' VS



Directional

RECEIVED

OCT 28 2011

COGCC

NOBLE ENERGY INC WELD COUNTY CO

SEC.29-T5N-R66W

Bensler J29-27D Pad Sec.29-T5N-R66W

Bensler J29-21D

Wellbore #1

Survey: Survey #1

Standard Survey Report

19 October, 2009



Directional

ENSIGN DIRECTIONAL

Survey Report



Company:	NOBLE ENERGY INC WELD COUNTY CO		Local Co-ordinate Reference:	Well Bensler J29-21D
Project:	SEC.29-T5N-R66W		TVD Reference:	WELL @ 4897.0ft (Original Well Elev)
Site:	Bensler J29-27D Pad Sec.29-T5N-R66W		MD Reference:	WELL @ 4897.0ft (Original Well Elev)
Well:	Bensler J29-21D		North Reference:	True
Wellbore:	Wellbore #1		Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1		Database:	EDM den0-adp01 Server Data

Project	SEC.29-T5N-R66W, Weld County, Colorado	
Map System:	US State Plane 1983	
Geo Datum:	North American Datum 1983	
Map Zone:	Colorado Northern Zone	
System Datum:	Mean Sea Level	
	Using Well Reference Point	
	Using geodetic scale factor	

Site	Bensler J29-27D Pad Sec.29-T5N-R66W	
Site Position:	Northing: 1,380,385.69 ft Latitude: 40° 22' 31.620 N	
From:	Easting: 3,194,897.67 ft Longitude: 104° 48' 1.656 W	
Position Uncertainty:	Slot Radius: 0.0 ft Grid Convergence: 0.45 °	

Well	Bensler J29-21D	
Well Position	+N/-S 0.0 ft Northing: 1,380,385.28 ft Latitude: 40° 22' 31.620 N	
	+E/-W 0.0 ft Easting: 3,194,847.52 ft Longitude: 104° 48' 2.304 W	
Position Uncertainty	Wellhead Elevation: 0.0 ft Ground Level: 4,884.0 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/28/2008	9.27	67.14	53,460
	IGRF200510	9/17/2009	9.08	67.09	53,317

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	202.66	

Survey Program		Date	10/19/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
517.0	7,871.0	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)
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Company: NOBLE ENERGY INC WELD COUNTY CO				Local Co-ordinate Reference:				Well Bensler J29-21D			
Project: SEC.29-T5N-R66W				TVD Reference:				WELL @ 4897.0ft (Original Well Elev)			
Site: Bensler J29-27D Pad Sec.29-T5N-R66W				MD Reference:				WELL @ 4897.0ft (Original Well Elev)			
Well: Bensler J29-21D				North Reference:				True			
Wellbore: Wellbore #1				Survey Calculation Method:				Minimum Curvature			
Design: Wellbore #1				Database:				EDM den0-adp01 Server Data			
Survey											
Measured Depth (ft)	Vertical			+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)		
	Inclination (°)	Azimuth (°)	Depth (ft)								
1,457.0	16.20	194.60	1,443.4	-123.0	-56.2	135.1	1.52	1.51	0.70		
1,542.0	17.40	196.80	1,524.8	-146.6	-62.8	159.5	1.60	1.41	2.59		
1,628.0	17.70	197.70	1,606.8	-171.4	-70.5	185.3	0.47	0.35	1.05		
1,713.0	20.00	198.50	1,687.2	-197.5	-79.1	212.7	2.72	2.71	0.94		
1,799.0	21.10	199.40	1,767.8	-226.1	-88.9	242.8	1.33	1.28	1.05		
1,884.0	21.70	200.50	1,846.9	-255.2	-99.4	273.8	0.85	0.71	1.29		
1,970.0	23.20	203.10	1,926.4	-285.7	-111.7	306.7	2.09	1.74	3.02		
2,055.0	23.70	203.80	2,004.4	-316.7	-125.1	340.5	0.67	0.59	0.82		
2,141.0	23.30	206.40	2,083.2	-347.8	-139.7	374.7	1.29	-0.47	3.02		
2,226.0	23.80	205.40	2,161.2	-378.3	-154.5	408.6	0.75	0.59	-1.18		
2,312.0	25.10	203.00	2,239.5	-410.8	-169.1	444.2	1.90	1.51	-2.79		
2,397.0	24.40	203.20	2,316.6	-443.5	-183.0	479.8	0.83	-0.82	0.24		
2,483.0	23.30	206.70	2,395.3	-475.0	-197.7	514.5	2.08	-1.28	4.07		
2,568.0	23.80	202.30	2,473.2	-505.9	-211.7	548.4	2.15	0.59	-5.18		
2,653.0	24.20	203.30	2,550.9	-537.8	-225.1	583.0	0.67	0.47	1.18		
2,739.0	23.80	203.00	2,629.4	-570.0	-238.9	618.0	0.49	-0.47	-0.35		
2,824.0	26.20	202.30	2,706.5	-603.1	-252.7	653.9	2.84	2.82	-0.82		
2,910.0	27.10	201.40	2,783.3	-638.9	-267.1	692.5	1.15	1.05	-1.05		
2,995.0	27.40	199.70	2,858.9	-675.4	-280.7	731.4	0.98	0.35	-2.00		
3,081.0	24.80	201.70	2,936.1	-710.8	-294.1	769.2	3.19	-3.02	2.33		
3,166.0	24.50	198.80	3,013.4	-744.0	-306.3	804.6	1.47	-0.35	-3.41		
3,252.0	25.60	198.40	3,091.3	-778.5	-317.9	840.9	1.29	1.28	-0.47		
3,337.0	25.50	197.70	3,168.0	-813.4	-329.3	877.5	0.37	-0.12	-0.82		
3,423.0	23.00	198.20	3,246.4	-847.0	-340.2	912.7	2.92	-2.91	0.58		
3,508.0	22.80	202.10	3,324.7	-878.0	-351.6	945.7	1.80	-0.24	4.59		
3,594.0	21.70	201.80	3,404.3	-908.2	-363.7	978.2	1.29	-1.28	-0.35		
3,679.0	20.70	202.80	3,483.5	-936.7	-375.4	1,009.0	1.25	-1.18	1.18		
3,765.0	20.00	208.40	3,564.2	-963.6	-388.3	1,038.8	2.41	-0.81	6.51		
3,850.0	20.70	208.70	3,643.9	-989.6	-402.4	1,068.2	0.83	0.82	0.35		
3,936.0	20.40	207.70	3,724.4	-1,016.2	-416.7	1,098.3	0.54	-0.35	-1.16		
4,021.0	20.60	207.90	3,804.0	-1,042.5	-430.6	1,127.9	0.25	0.24	0.24		
4,107.0	22.70	209.00	3,883.9	-1,070.4	-445.7	1,159.5	2.49	2.44	1.28		
4,192.0	24.40	207.40	3,961.9	-1,100.3	-461.7	1,193.3	2.14	2.00	-1.88		
4,278.0	26.00	204.70	4,039.7	-1,133.2	-477.8	1,229.8	2.29	1.86	-3.14		
4,363.0	26.40	201.30	4,116.0	-1,167.8	-492.4	1,267.3	1.83	0.47	-4.00		
4,449.0	25.10	198.70	4,193.4	-1,202.9	-505.2	1,304.6	2.00	-1.51	-3.02		
4,534.0	24.50	198.30	4,270.6	-1,236.7	-516.5	1,340.2	0.73	-0.71	-0.47		
4,620.0	25.80	200.60	4,348.4	-1,271.1	-528.7	1,376.7	1.89	1.51	2.67		
4,705.0	24.70	202.60	4,425.3	-1,304.8	-542.0	1,412.9	1.64	-1.29	2.35		
4,791.0	25.10	203.60	4,503.3	-1,338.1	-556.3	1,449.1	0.68	0.47	1.16		
4,876.0	26.20	204.10	4,579.9	-1,371.8	-571.1	1,485.9	1.32	1.29	0.59		



Directional

ENSIGN DIRECTIONAL

Survey Report



Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.29-T5N-R66W
Site: Bensler J29-27D Pad Sec.29-T5N-R66W
Well: Bensler J29-21D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Bensler J29-21D
WELL @ 4897.0ft (Original Well Elev)
WELL @ 4897.0ft (Original Well Elev)
True
Minimum Curvature
EDM den0-adp01 Server Data

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)
6,073.0	3.60	195.90	5,731.3	-1,634.9	-690.7	1,774.8	1.43	-0.47	-20.47
6,158.0	2.90	196.30	5,816.2	-1,639.5	-692.1	1,779.6	0.82	-0.82	0.47
6,242.1	1.92	196.11	5,900.2	-1,642.9	-693.0	1,783.1	1.16	-1.16	-0.23
TARGET BENSLE J29-21D BHL 2493'FNL, 2525'FEL									
6,244.0	1.90	196.10	5,902.1	-1,643.0	-693.1	1,783.2	1.16	-1.16	-0.35
6,329.0	1.20	184.10	5,987.1	-1,645.2	-693.5	1,785.4	0.90	-0.82	-14.12
6,415.0	0.70	189.60	6,073.1	-1,646.6	-693.7	1,786.8	0.59	-0.58	6.40
6,500.0	0.30	216.90	6,158.1	-1,647.3	-693.9	1,787.5	0.53	-0.47	32.12
6,671.0	0.20	219.50	6,329.1	-1,647.9	-694.3	1,788.2	0.06	-0.06	1.52
6,842.0	0.30	50.90	6,500.1	-1,647.9	-694.2	1,788.1	0.29	0.06	-98.60
7,013.0	0.90	43.90	6,671.1	-1,646.6	-692.9	1,786.5	0.35	0.35	-4.09
7,183.0	0.80	47.20	6,841.0	-1,644.9	-691.1	1,784.1	0.07	-0.06	1.94
7,354.0	0.90	36.90	7,012.0	-1,643.0	-689.4	1,781.8	0.11	0.06	-6.02
7,526.0	1.00	40.40	7,184.0	-1,640.7	-687.6	1,779.0	0.07	0.06	2.03
7,697.0	1.00	46.40	7,355.0	-1,638.6	-685.6	1,776.2	0.06	0.00	3.51
7,823.0	1.00	52.20	7,480.9	-1,637.1	-683.9	1,774.3	0.08	0.00	4.60
7,848.9	1.00	52.20	7,506.8	-1,636.9	-683.6	1,773.9	0.00	0.00	0.00
HARDLINES 90'W AND 156'S OF BHL									
7,871.0	1.00	52.20	7,528.9	-1,636.6	-683.3	1,773.5	0.00	0.00	0.00

Wellbore 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									
TARGET BENSLE J	0.00	0.00	5,900.0	-1,648.8	-691.9	1,378,731.16	3,194,168.64	40° 22' 15.327 N	104° 48' 11.244 W
- survey misses target center by 6.0ft at 6242.1ft MD (5900.2 TVD, -1642.9 N, -693.0 E)									
- Point									
HARDLINES 90'W AN	0.00	0.00	7,510.0	-1,804.8	-781.9	1,378,574.45	3,194,079.91	40° 22' 13.785 N	104° 48' 12.406 W
- survey misses target center by 194.6ft at 7848.9ft MD (7506.8 TVD, -1636.9 N, -683.6 E)									
- Polygon									
Point 1			7,510.0	0.0	0.0	1,378,574.45	3,194,079.91		
Point 2			7,510.0	0.0	300.0	1,378,576.81	3,194,379.89		
Point 3			7,510.0	0.0	0.0	1,378,574.45	3,194,079.91		
Point 4			7,510.0	300.0	0.0	1,378,874.42	3,194,077.54		

Checked By: _____

Approved By: _____

Date: _____