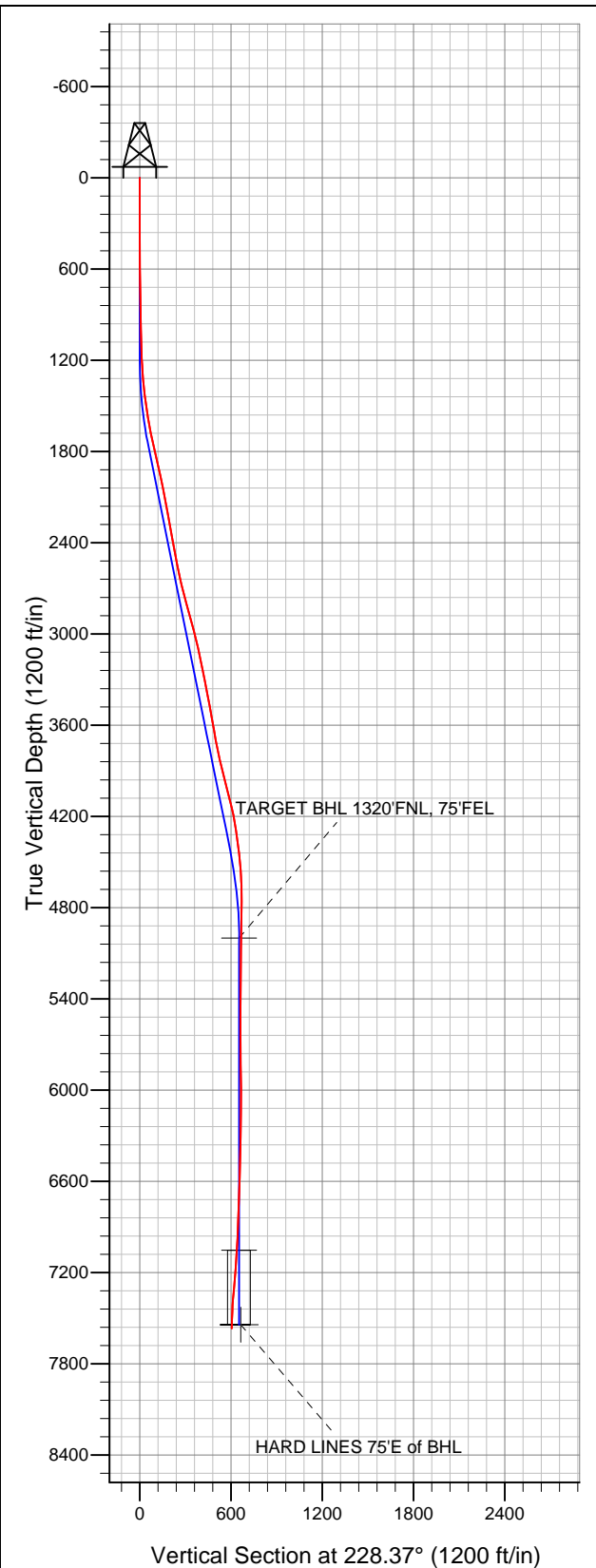




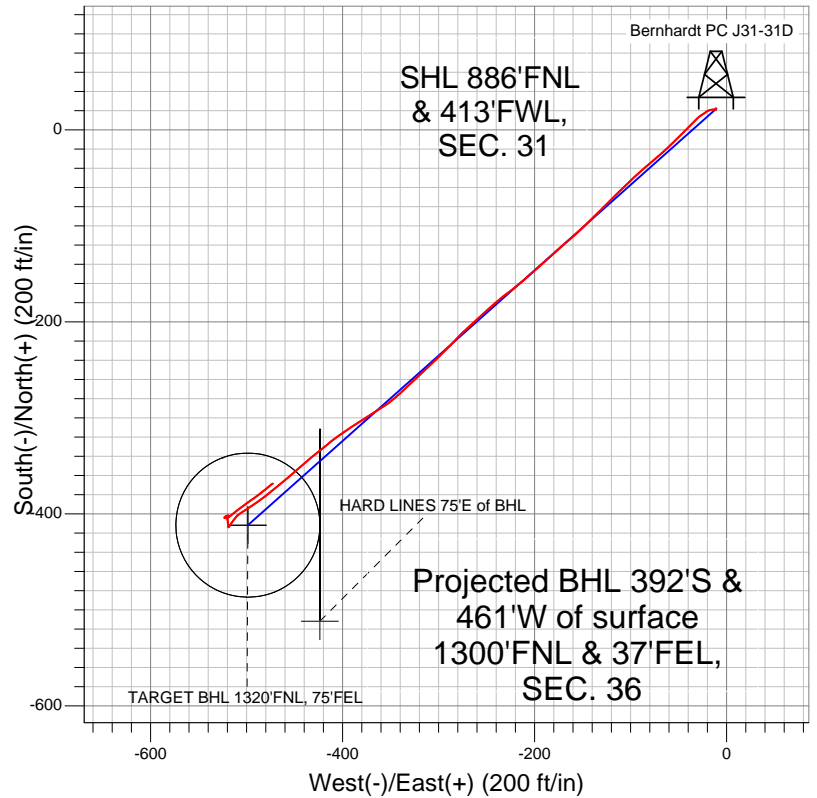
Well Name: Bernhardt PC J31-31D

Surface Location: Bernhardt PC J31-32D Pad Sec.31-T5N-R66W
North American Datum 1983 US State Plane 1983Colorado Northern Zone
Ground Elevation: 4900.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
21.8	-11.1	1375016.99	3186554.55	40.360890	-104.830550	
Original Well Elev						WELL @ 4913.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Survey #1
- Bernhardt PC J31-31D, Wellbore #1, Noble Bernhardt PC J31-31D Plan #1 (01-09-12) R V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7635'MD & 7566'TVD @ 605'VS
1.50 deg Inc 58.60 deg AZ

Project: SEC.31-T5N-R66W
Site: Bernhardt PC J31-32D Pad Sec.31-T5N-R66W
Well: Bernhardt PC J31-31D
Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.31-T5N-R66W

Bernhardt PC J31-32D Pad Sec.31-T5N-R66W

Bernhardt PC J31-31D

Wellbore #1

Survey: Survey #1

Standard Survey Report

16 January, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Site Bernhardt PC J31-32D Pad Sec.31-T5N-R66W
Project:	SEC.31-T5N-R66W	TVD Reference:	WELL @ 4913.0ft (Original Well Elev)
Site:	Bernhardt PC J31-32D Pad Sec.31-T5N-R66W	MD Reference:	WELL @ 4913.0ft (Original Well Elev)
Well:	Bernhardt PC J31-31D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.31-T5N-R66W, WELD COUNTY, cOLORADO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		Bernhardt PC J31-32D Pad Sec.31-T5N-R66W			
Site Position:		Northing:	1,374,995.23ft	Latitude:	40.360830
From:	Lat/Long	Easting:	3,186,565.86ft	Longitude:	-104.830510
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.43 °

Well	Bernhardt PC J31-31D					
Well Position	+N-S	21.8 ft	Northing:	1,375,016.99 ft	Latitude:	40.360890
	+E-W	-11.1 ft	Easting:	3,186,554.55 ft	Longitude:	-104.830550
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,900.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/19/2011	8.83	66.99	53,049

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	21.8	-11.1	228.37	

Survey Program	Date	1/16/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
111.0	7,635.0	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	21.8	-11.1	0.0	0.00	0.00	0.00	
111.0	0.10	168.60	111.0	21.8	-11.1	0.0	0.09	0.09	0.00	
203.0	0.10	147.00	203.0	21.6	-11.1	0.1	0.04	0.00	-23.48	
295.0	0.00	189.00	295.0	21.5	-11.0	0.1	0.11	-0.11	0.00	
388.0	0.30	189.00	388.0	21.3	-11.1	0.3	0.32	0.32	0.00	
483.0	0.20	295.00	483.0	21.1	-11.3	0.6	0.43	-0.11	111.58	
575.0	0.20	295.90	575.0	21.3	-11.5	0.7	0.00	0.00	0.98	
660.0	0.70	264.80	660.0	21.3	-12.2	1.2	0.63	0.59	-36.59	
742.0	1.10	270.40	742.0	21.2	-13.5	2.1	0.50	0.49	6.83	
824.0	1.40	266.00	824.0	21.2	-15.3	3.5	0.38	0.37	-5.37	
906.0	1.50	253.20	905.9	20.8	-17.3	5.3	0.41	0.12	-15.61	
988.0	1.50	249.10	987.9	20.1	-19.3	7.3	0.13	0.00	-5.00	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Site Bernhardt PC J31-32D Pad Sec.31-T5N-R66W
Project:	SEC.31-T5N-R66W	TVD Reference:	WELL @ 4913.0ft (Original Well Elev)
Site:	Bernhardt PC J31-32D Pad Sec.31-T5N-R66W	MD Reference:	WELL @ 4913.0ft (Original Well Elev)
Well:	Bernhardt PC J31-31D	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)
1,069.0	1.50	231.20	1,068.9	19.1	-21.1	9.3	0.58	0.00	-22.10
1,151.0	2.00	232.20	1,150.8	17.5	-23.1	11.8	0.61	0.61	1.22
1,233.0	3.20	238.60	1,232.8	15.4	-26.2	15.5	1.50	1.46	7.80
1,314.0	4.40	229.40	1,313.6	12.2	-30.5	20.8	1.66	1.48	-11.36
1,396.0	6.00	222.60	1,395.2	7.0	-35.8	28.2	2.09	1.95	-8.29
1,478.0	8.10	225.20	1,476.6	-0.2	-42.8	38.3	2.59	2.56	3.17
1,560.0	9.10	224.90	1,557.7	-8.9	-51.4	50.5	1.22	1.22	-0.37
1,641.0	10.50	226.80	1,637.5	-18.4	-61.3	64.3	1.77	1.73	2.35
1,723.0	12.40	229.30	1,717.9	-29.3	-73.5	80.6	2.39	2.32	3.05
1,805.0	12.80	229.60	1,797.9	-40.9	-87.1	98.4	0.49	0.49	0.37
1,886.0	12.60	226.10	1,876.9	-52.9	-100.3	116.2	0.98	-0.25	-4.32
1,968.0	12.00	225.90	1,957.0	-65.0	-112.8	133.7	0.73	-0.73	-0.24
2,050.0	11.40	225.40	2,037.3	-76.6	-124.7	150.3	0.74	-0.73	-0.61
2,132.0	10.90	224.90	2,117.8	-87.8	-136.0	166.1	0.62	-0.61	-0.61
2,213.0	11.30	225.20	2,197.3	-98.8	-147.0	181.7	0.50	0.49	0.37
2,295.0	9.80	227.90	2,277.9	-109.2	-157.9	196.7	1.93	-1.83	3.29
2,377.0	10.00	230.30	2,358.7	-118.4	-168.5	210.8	0.56	0.24	2.93
2,458.0	10.30	227.20	2,438.4	-127.8	-179.3	225.1	0.77	0.37	-3.83
2,540.0	11.70	228.60	2,518.9	-138.3	-190.9	240.7	1.74	1.71	1.71
2,622.0	11.40	227.70	2,599.2	-149.2	-203.1	257.1	0.43	-0.37	-1.10
2,704.0	13.50	231.40	2,679.3	-160.7	-216.6	274.8	2.74	2.56	4.51
2,785.0	14.90	232.20	2,757.8	-172.9	-232.2	294.6	1.75	1.73	0.99
2,867.0	16.00	227.30	2,836.9	-187.1	-248.8	316.4	2.08	1.34	-5.98
2,949.0	15.40	228.00	2,915.8	-202.0	-265.2	338.6	0.77	-0.73	0.85
3,031.0	13.60	224.00	2,995.2	-216.2	-280.0	359.1	2.51	-2.20	-4.88
3,112.0	13.30	225.00	3,074.0	-229.7	-293.2	377.9	0.47	-0.37	1.23
3,194.0	12.10	225.40	3,154.0	-242.4	-306.0	395.9	1.47	-1.46	0.49
3,276.0	11.30	228.70	3,234.3	-253.7	-318.2	412.6	1.27	-0.98	4.02
3,357.0	10.70	226.40	3,313.8	-264.1	-329.6	428.0	0.92	-0.74	-2.84
3,439.0	11.30	226.30	3,394.3	-274.9	-340.9	443.6	0.73	0.73	-0.12
3,521.0	10.60	235.10	3,474.8	-284.8	-352.9	459.2	2.21	-0.85	10.73
3,603.0	10.40	238.00	3,555.4	-293.1	-365.4	473.9	0.69	-0.24	3.54
3,684.0	10.70	238.40	3,635.0	-300.9	-378.0	488.6	0.38	0.37	0.49
3,766.0	10.00	236.10	3,715.7	-308.8	-390.4	503.1	0.99	-0.85	-2.80
3,848.0	11.50	233.80	3,796.3	-317.6	-402.9	518.3	1.90	1.83	-2.80
3,929.0	13.80	231.50	3,875.3	-328.4	-416.9	536.0	2.91	2.84	-2.84
4,011.0	14.60	230.80	3,954.8	-341.0	-432.6	556.1	1.00	0.98	-0.85
4,093.0	15.10	228.20	4,034.0	-354.7	-448.6	577.1	1.02	0.61	-3.17
4,175.0	14.00	230.30	4,113.4	-368.1	-464.2	597.7	1.49	-1.34	2.56
4,256.0	11.10	231.50	4,192.5	-379.3	-477.8	615.3	3.59	-3.58	1.48
4,338.0	8.70	235.40	4,273.2	-387.7	-489.1	629.3	3.04	-2.93	4.76
4,420.0	7.90	237.50	4,354.4	-394.2	-499.0	641.0	1.04	-0.98	2.56
4,501.0	7.00	233.70	4,434.7	-400.1	-507.6	651.4	1.27	-1.11	-4.69
4,583.0	5.30	212.20	4,516.2	-406.3	-513.7	660.0	3.46	-2.07	-26.22
4,665.0	3.20	216.80	4,598.0	-411.4	-517.1	665.9	2.59	-2.56	5.61
4,747.0	0.80	219.90	4,679.9	-413.6	-518.8	668.7	2.93	-2.93	3.78
4,828.0	0.70	5.50	4,760.9	-413.6	-519.1	668.9	1.77	-0.12	179.75
4,910.0	1.60	345.80	4,842.9	-412.0	-519.3	668.0	1.18	1.10	-24.02
4,992.0	1.30	356.70	4,924.9	-409.9	-519.7	666.9	0.50	-0.37	13.29
5,067.0	1.12	356.25	4,999.9	-408.3	-519.8	666.0	0.24	-0.24	-0.60
TARGET BHL 1320'FNL, 75'FEL									
5,074.0	1.10	356.20	5,006.9	-408.2	-519.8	665.9	0.24	-0.24	-0.71
5,237.0	0.90	348.00	5,169.9	-405.4	-520.2	664.3	0.15	-0.12	-5.03

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Site Bernhardt PC J31-32D Pad Sec.31-T5N-R66W
Project:	SEC.31-T5N-R66W	TVD Reference:	WELL @ 4913.0ft (Original Well Elev)
Site:	Bernhardt PC J31-32D Pad Sec.31-T5N-R66W	MD Reference:	WELL @ 4913.0ft (Original Well Elev)
Well:	Bernhardt PC J31-31D	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)
5,400.0	0.40	32.70	5,332.8	-403.7	-520.1	663.1	0.42	-0.31	27.42
5,564.0	0.70	33.40	5,496.8	-402.3	-519.3	661.6	0.18	0.18	0.43
5,727.0	0.40	274.20	5,659.8	-401.5	-519.3	661.0	0.59	-0.18	-73.13
5,891.0	1.60	239.50	5,823.8	-402.6	-521.8	663.7	0.79	0.73	-21.16
6,054.0	0.50	128.70	5,986.8	-404.2	-523.2	665.8	1.13	-0.67	-67.98
6,218.0	0.90	82.70	6,150.8	-404.5	-521.4	664.6	0.40	0.24	-28.05
6,381.0	0.80	53.00	6,313.8	-403.6	-519.2	662.4	0.27	-0.06	-18.22
6,544.0	1.40	50.50	6,476.7	-401.7	-516.8	659.3	0.37	0.37	-1.53
6,708.0	1.90	50.70	6,640.7	-398.7	-513.1	654.6	0.30	0.30	0.12
6,871.0	2.10	57.50	6,803.6	-395.4	-508.5	648.9	0.19	0.12	4.17
7,035.0	2.60	49.30	6,967.4	-391.3	-503.2	642.2	0.37	0.30	-5.00
7,117.0	3.20	51.50	7,049.3	-388.7	-500.0	638.1	0.74	0.73	2.68
7,119.9	3.22	51.74	7,052.2	-388.6	-499.8	637.9	0.75	0.59	8.22
TARGET CIRCLE 1320'FNL, 75'FEL									
7,198.0	3.70	57.30	7,130.2	-385.9	-496.0	633.2	0.75	0.62	7.12
7,362.0	5.90	52.40	7,293.6	-377.9	-484.8	619.6	1.36	1.34	-2.99
7,525.0	2.40	47.20	7,456.1	-370.4	-475.7	607.8	2.16	-2.15	-3.19
7,585.0	1.50	58.60	7,516.1	-369.2	-474.1	605.8	1.63	-1.50	19.00
7,611.1	1.50	58.60	7,542.2	-368.8	-473.5	605.1	0.00	0.00	0.00
HARD LINES 75'E of BHL									
7,635.0	1.50	58.60	7,566.1	-368.5	-473.0	604.5	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____