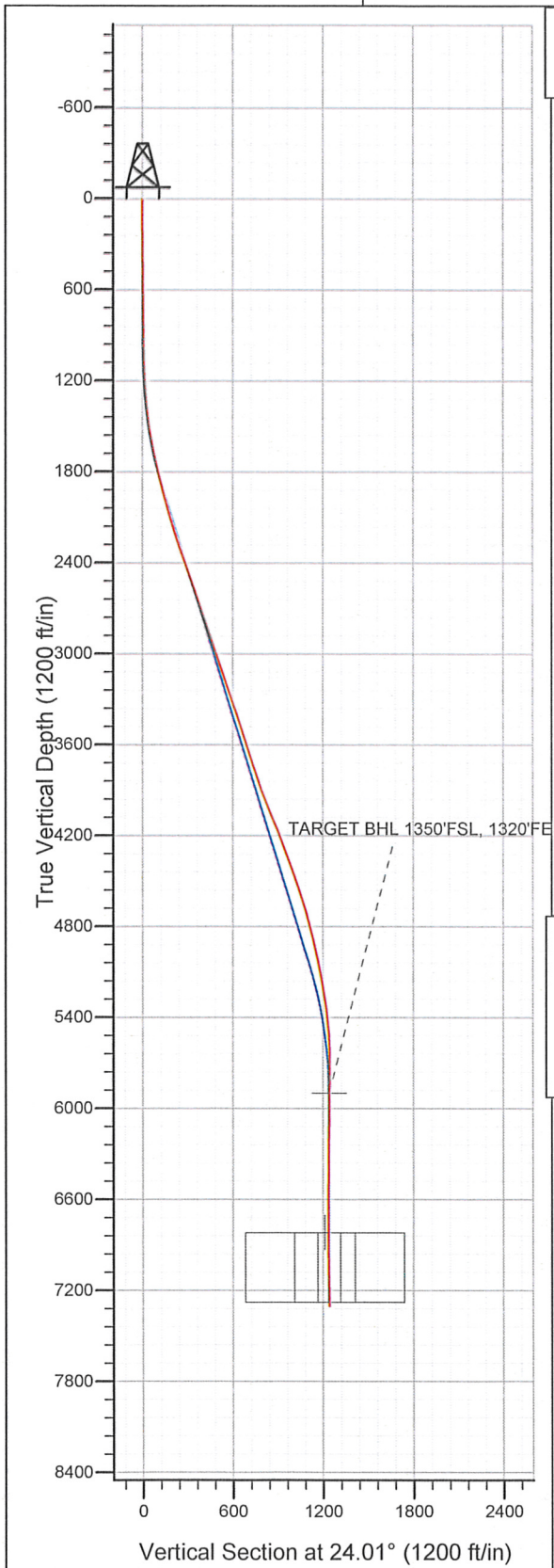
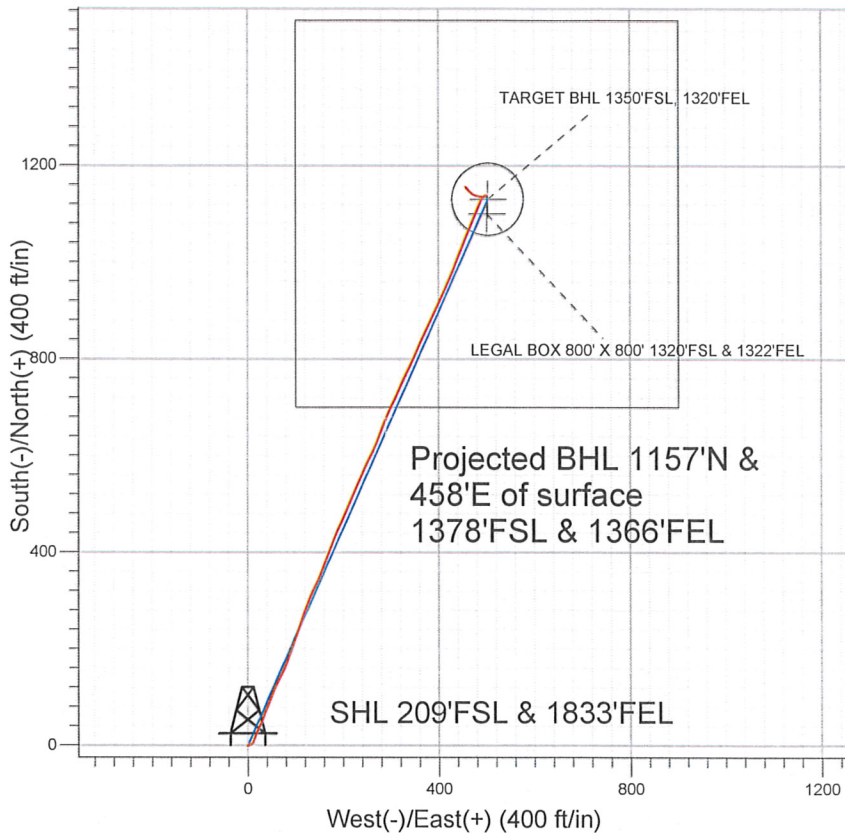


Well Name: **Johnson PC EE33-23D**  
 Surface Location: Johnson PC EE33-09D Pad Sec.33-T7N-R65W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4781.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1434880.53 3232035.09 40.524150 -104.665330  
 Original Well Elev WELL @ 4794.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- ◆ Johnson PC EE33-23D, Wellbore #1, Noble Johnson EE33-23D Plan #2 (3-10-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7490'MD & 7302'TVD @ 1243'VS  
 2.7 deg Inc 319.5 deg AZ

Project: SEC.33-T7N-R65W  
 Site: Johnson PC EE33-09D Pad Sec.33-T7N-R65W  
 Well: Johnson PC EE33-23D  
 Plan: Wellbore #1

Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.33-T7N-R65W  
 Site: Johnson PC EE33-09D Pad Sec.33-T7N-R65W  
 Well: Johnson PC EE33-23D  
 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well Johnson PC EE33-23D  
 TVD Reference: WELL @ 4794.0ft (Original Well Elev)  
 MD Reference: WELL @ 4794.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature  
 Database: Landmark

Project SEC.33-T7N-R65W, Weld County, Colorado,

Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site Johnson PC EE33-09D Pad Sec.33-T7N-R65W

Site Position:		Northing:	1,434,880.73 ft	Latitude:	40.524150
From:	Lat/Long	Easting:	3,232,054.55 ft	Longitude:	-104.665260
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.54 °

Well Johnson PC EE33-23D

Well Position	+N/-S	0.0 ft	Northing:	1,434,880.53 ft	Latitude:	40.524150
	+E/-W	0.0 ft	Easting:	3,232,035.09 ft	Longitude:	-104.665330
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,781.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/10/2011	8.86	67.18	53,236

Design Wellbore #1

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	24.01

Survey Program Date 5/12/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
829.0	7,490.0	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	0.0	0.0	0.0	0.00	0.00	0.00
829.0	1.20	65.90	828.9	3.5	7.9	6.5	0.14	0.14	0.00
910.0	0.70	87.10	909.9	3.9	9.2	7.3	0.74	-0.62	26.17
991.0	0.70	39.30	990.9	4.3	10.0	8.0	0.70	0.00	-59.01
1,072.0	1.60	23.40	1,071.9	5.7	10.8	9.6	1.17	1.11	-19.63
1,153.0	2.90	21.40	1,152.8	8.7	12.0	12.8	1.61	1.60	-2.47
1,234.0	4.00	20.50	1,233.7	13.2	13.7	17.7	1.36	1.36	-1.11
1,315.0	4.90	21.50	1,314.4	19.1	16.0	23.9	1.12	1.11	1.23
1,396.0	6.00	23.90	1,395.1	26.2	18.9	31.6	1.39	1.36	2.96
1,477.0	7.80	26.70	1,475.5	35.0	23.1	41.4	2.26	2.22	3.46
1,558.0	10.00	22.40	1,555.5	46.4	28.3	53.9	2.84	2.72	-5.31
1,639.0	10.70	21.10	1,635.2	59.9	33.7	68.4	0.91	0.86	-1.60
1,729.0	12.70	22.50	1,723.3	76.8	40.5	86.7	2.24	2.22	1.56



**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.33-T7N-R65W  
**Site:** Johnson PC EE33-09D Pad Sec.33-T7N-R65W  
**Well:** Johnson PC EE33-23D  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Johnson PC EE33-23D  
**TVD Reference:** WELL @ 4794.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4794.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**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)
1,811.0	13.80	22.60	1,803.1	94.2	47.7	105.4	1.34	1.34	0.12
1,893.0	14.50	21.50	1,882.6	112.8	55.2	125.5	0.91	0.85	-1.34
1,975.0	15.10	27.00	1,961.9	131.9	63.8	146.4	1.86	0.73	6.71
2,056.0	16.00	25.70	2,040.0	151.3	73.4	168.1	1.19	1.11	-1.60
2,138.0	17.10	21.70	2,118.6	172.7	82.8	191.4	1.93	1.34	-4.88
2,220.0	18.10	19.20	2,196.7	195.9	91.4	216.2	1.53	1.22	-3.05
2,301.0	18.10	20.60	2,273.7	219.6	100.0	241.3	0.54	0.00	1.73
2,383.0	19.50	17.80	2,351.3	244.5	108.7	267.6	2.03	1.71	-3.41
2,465.0	19.50	19.60	2,428.6	270.5	117.4	294.9	0.73	0.00	2.20
2,547.0	18.90	21.50	2,506.1	295.7	126.9	321.8	1.06	-0.73	2.32
2,628.0	19.30	24.50	2,582.6	320.1	137.3	348.3	1.31	0.49	3.70
2,710.0	19.50	25.00	2,660.0	344.8	148.7	375.5	0.32	0.24	0.61
2,792.0	19.10	21.10	2,737.4	369.8	159.3	402.6	1.65	-0.49	-4.76
2,873.0	18.90	21.50	2,814.0	394.3	168.9	428.9	0.29	-0.25	0.49
2,955.0	18.50	20.70	2,891.6	418.9	178.3	455.2	0.58	-0.49	-0.98
3,037.0	18.90	23.80	2,969.3	443.2	188.3	481.4	1.31	0.49	3.78
3,119.0	18.40	24.50	3,047.0	467.1	199.0	507.7	0.67	-0.61	0.85
3,200.0	18.10	23.20	3,123.9	490.3	209.3	533.0	0.62	-0.37	-1.60
3,282.0	18.50	23.10	3,201.8	514.0	219.4	558.8	0.49	0.49	-0.12
3,363.0	19.40	24.10	3,278.4	538.1	229.9	585.1	1.18	1.11	1.23
3,445.0	18.90	24.50	3,355.8	562.6	241.0	612.0	0.63	-0.61	0.49
3,527.0	18.50	25.50	3,433.5	586.4	252.1	638.3	0.63	-0.49	1.22
3,608.0	18.20	25.30	3,510.4	609.5	263.0	663.8	0.38	-0.37	-0.25
3,690.0	17.60	21.30	3,588.4	632.6	273.0	688.9	1.67	-0.73	-4.88
3,771.0	17.90	20.40	3,665.6	655.7	281.8	713.6	0.50	0.37	-1.11
3,853.0	17.60	24.10	3,743.7	678.8	291.3	738.6	1.42	-0.37	4.51
3,935.0	19.30	25.50	3,821.5	702.3	302.1	764.5	2.14	2.07	1.71
4,016.0	20.40	23.80	3,897.6	727.3	313.6	792.0	1.53	1.36	-2.10
4,098.0	21.90	23.60	3,974.1	754.4	325.5	821.6	1.83	1.83	-0.24
4,180.0	21.90	25.80	4,050.2	782.2	338.3	852.2	1.00	0.00	2.68
4,262.0	22.50	24.60	4,126.1	810.3	351.5	883.2	0.92	0.73	-1.46
4,344.0	20.80	24.30	4,202.3	837.8	364.0	913.4	2.08	-2.07	-0.37
4,425.0	19.50	25.70	4,278.4	863.1	375.8	941.3	1.71	-1.60	1.73
4,507.0	21.00	23.90	4,355.3	888.8	387.7	969.7	1.98	1.83	-2.20
4,588.0	20.40	26.20	4,431.1	914.8	399.8	998.3	1.25	-0.74	2.84
4,670.0	18.20	25.00	4,508.5	939.2	411.5	1,025.4	2.73	-2.68	-1.46
4,752.0	18.70	22.50	4,586.2	963.0	421.9	1,051.3	1.14	0.61	-3.05
4,833.0	17.30	22.10	4,663.3	986.1	431.4	1,076.4	1.74	-1.73	-0.49
4,915.0	15.40	21.30	4,742.0	1,007.6	440.0	1,099.4	2.33	-2.32	-0.98
4,997.0	14.90	21.20	4,821.1	1,027.5	447.7	1,120.8	0.61	-0.61	-0.12
5,079.0	13.90	21.00	4,900.5	1,046.6	455.1	1,141.2	1.22	-1.22	-0.24
5,160.0	11.70	23.10	4,979.5	1,063.2	461.8	1,159.1	2.78	-2.72	2.59
5,242.0	10.90	22.30	5,059.9	1,078.0	468.0	1,175.2	0.99	-0.98	-0.98
5,324.0	10.70	24.10	5,140.5	1,092.1	474.1	1,190.5	0.48	-0.24	2.20
5,405.0	9.30	22.80	5,220.2	1,105.0	479.7	1,204.6	1.75	-1.73	-1.60
5,487.0	7.80	20.80	5,301.3	1,116.4	484.2	1,216.8	1.86	-1.83	-2.44
5,569.0	6.00	21.10	5,382.7	1,125.6	487.7	1,226.6	2.20	-2.20	0.37
5,650.0	5.10	33.30	5,463.4	1,132.5	491.2	1,234.4	1.83	-1.11	15.06
5,732.0	4.00	49.20	5,545.1	1,137.4	495.4	1,240.6	2.03	-1.34	19.39
5,814.0	2.80	77.60	5,627.0	1,139.7	499.5	1,244.4	2.48	-1.46	34.63
5,895.0	1.50	154.60	5,707.9	1,139.2	501.9	1,244.9	3.53	-1.60	95.06
5,977.0	1.00	234.80	5,789.9	1,137.8	501.8	1,243.5	2.02	-0.61	97.81
6,059.0	0.80	243.30	5,871.9	1,137.1	500.7	1,242.5	0.29	-0.24	10.37
6,087.1	0.81	260.19	5,900.0	1,137.0	500.3	1,242.2	0.84	0.03	60.15

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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 1350'FSL, 1320'FEL</b>									
6,141.0	1.00	286.70	5,953.9	1,137.1	499.5	1,241.9	0.84	0.35	49.16
6,222.0	1.10	266.20	6,034.9	1,137.2	498.0	1,241.5	0.48	0.12	-25.31
6,304.0	1.20	271.30	6,116.8	1,137.2	496.4	1,240.8	0.17	0.12	6.22
6,386.0	1.40	265.40	6,198.8	1,137.2	494.5	1,240.0	0.29	0.24	-7.20
6,468.0	1.60	269.50	6,280.8	1,137.1	492.4	1,239.0	0.28	0.24	5.00
6,549.0	1.50	274.70	6,361.8	1,137.1	490.2	1,238.2	0.21	-0.12	6.42
6,631.0	1.80	285.40	6,443.7	1,137.6	487.9	1,237.7	0.52	0.37	13.05
6,712.0	1.90	286.50	6,524.7	1,138.3	485.4	1,237.3	0.13	0.12	1.36
6,794.0	2.10	282.10	6,606.6	1,139.0	482.6	1,236.8	0.31	0.24	-5.37
6,876.0	1.90	281.40	6,688.6	1,139.6	479.8	1,236.2	0.25	-0.24	-0.85
6,957.0	2.10	284.40	6,769.5	1,140.2	477.0	1,235.7	0.28	0.25	3.70
7,005.1	2.09	291.67	6,817.6	1,140.8	475.4	1,235.5	0.55	-0.02	15.13
<b>LEGAL BOX 800' X 800' 1320'FSL &amp; 1322'FEL</b>									
7,005.4	2.09	291.72	6,817.9	1,140.8	475.4	1,235.5	0.55	0.01	15.18
<b>TARGET CIRCLE 1350'FSL &amp; 1320'FEL</b>									
7,039.0	2.10	296.80	6,851.5	1,141.3	474.3	1,235.5	0.55	0.04	15.11
7,121.0	2.40	309.10	6,933.4	1,143.0	471.6	1,236.0	0.69	0.37	15.00
7,203.0	3.10	312.40	7,015.3	1,145.6	468.6	1,237.1	0.87	0.85	4.02
7,285.0	3.70	316.70	7,097.2	1,149.0	465.2	1,238.9	0.79	0.73	5.24
7,366.0	3.30	317.60	7,178.0	1,152.6	461.8	1,240.8	0.50	-0.49	1.11
7,428.0	2.60	314.80	7,240.0	1,155.0	459.6	1,242.0	1.15	-1.13	-4.52
7,440.0	2.70	319.50	7,251.9	1,155.4	459.2	1,242.2	1.99	0.83	39.17
7,490.0	2.70	319.50	7,301.9	1,157.1	457.7	1,243.3	0.00	0.00	0.00

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_