

Well Name: **Schmidt K23-24D**

Surface Location: Schmidt K23-24D Pad Sec.23-T4N-R66W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

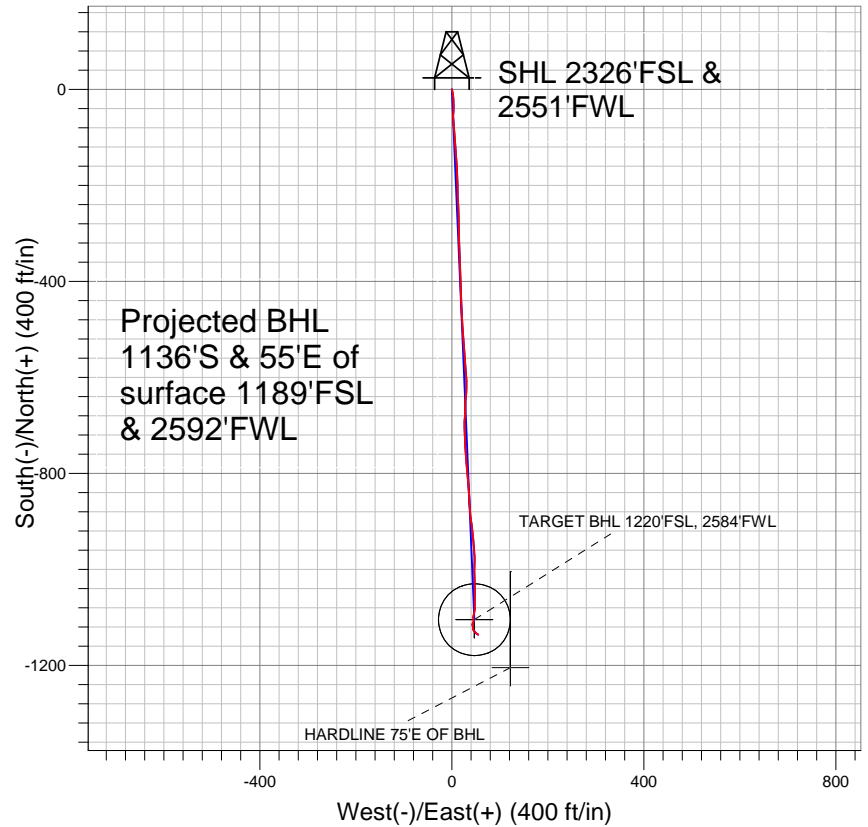
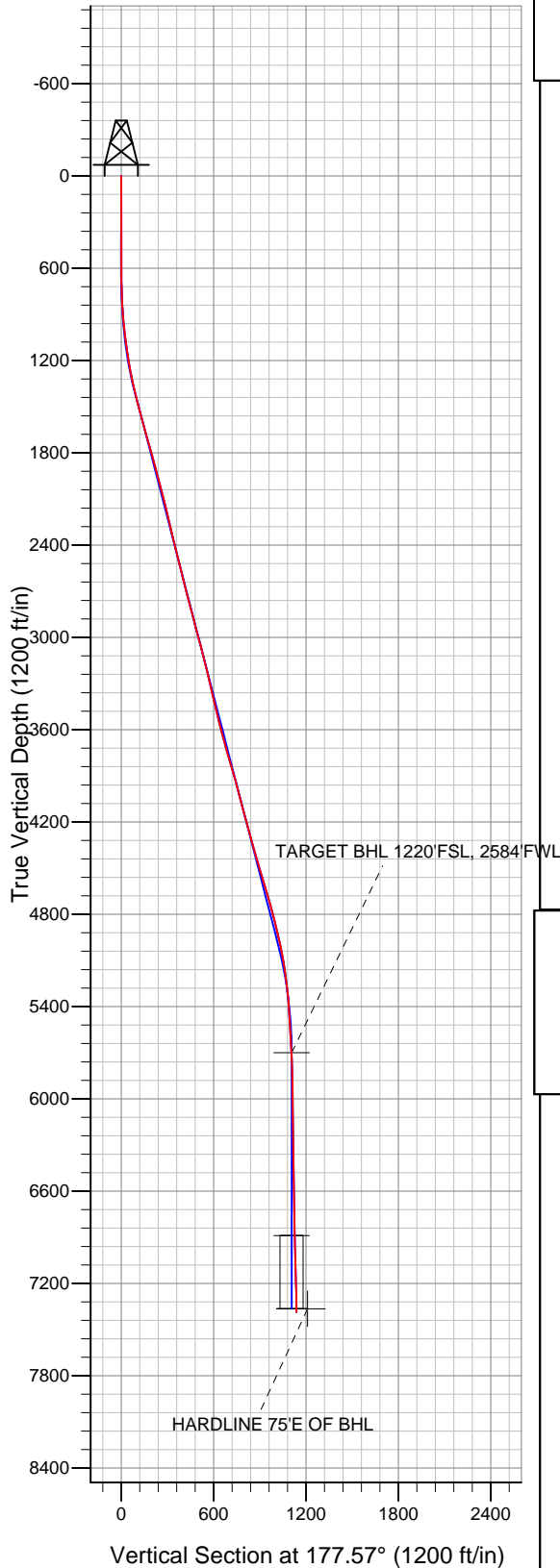
Ground Elevation: 4726.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1351771.21	3210641.06	40° 17' 47.580 N	104° 44' 41.388 W

Original Well Elev WELL @ 4739.0ft (Original Well Elev)

Slot

## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- + Schmidt K23-24D, Wellbore #1, Noble Schmidt K23-24D Plan #3 (3-22-11) V0
- + Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7522'MD & 7387'TVD @ 1137'VS  
 1.0 deg Inc 120.0 deg AZ

Project: SEC.23-T4N-R66W  
 Site: Schmidt K23-24D Pad Sec.23-T4N-R66W  
 Well: Schmidt K23-24D  
 Plan: Wellbore #1



## **Directional**

# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.23-T4N-R66W**

**Schmidt K23-24D Pad Sec.23-T4N-R66W**

**Schmidt K23-24D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**07 April, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Site Schmidt K23-24D Pad Sec.23-T4N-R66W
<b>Project:</b>	SEC.23-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4739.0ft (Original Well Elev)
<b>Site:</b>	Schmidt K23-24D Pad Sec.23-T4N-R66W	<b>MD Reference:</b>	WELL @ 4739.0ft (Original Well Elev)
<b>Well:</b>	Schmidt K23-24D	<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.23-T4N-R66W, 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		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Schmidt K23-24D Pad Sec.23-T4N-R66W		
<b>Site Position:</b>		<b>Northing:</b>	1,351,771.22 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,210,641.06 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 17' 47.580 N
		<b>Longitude:</b>	104° 44' 41.388 W
		<b>Grid Convergence:</b>	0.49 °

<b>Well</b>	Schmidt K23-24D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,351,771.21 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,210,641.06 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 17' 47.580 N
		<b>Longitude:</b>	104° 44' 41.388 W
		<b>Ground Level:</b>	4,726.0 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	3/22/2011	8.88	66.98	53,105

<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	177.57

<b>Survey Program</b>	<b>Date</b> 4/7/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
644.0	7,522.0	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
644.0	0.10	180.60	644.0	-0.6	0.0	0.6	0.02	0.02	0.00
729.0	1.40	162.20	729.0	-1.6	0.3	1.6	1.54	1.53	-21.65
815.0	2.80	167.40	814.9	-4.7	1.1	4.7	1.64	1.63	6.05
900.0	4.60	172.10	899.8	-10.1	2.0	10.2	2.15	2.12	5.53
986.0	5.90	175.20	985.4	-17.9	2.9	18.0	1.55	1.51	3.60
1,071.0	7.50	178.20	1,069.8	-27.8	3.4	27.9	1.93	1.88	3.53
1,157.0	8.80	183.00	1,154.9	-40.0	3.2	40.1	1.70	1.51	5.58
1,242.0	9.90	181.80	1,238.8	-53.8	2.7	53.8	1.31	1.29	-1.41
1,328.0	12.10	174.80	1,323.2	-70.2	3.2	70.2	2.99	2.56	-8.14
1,413.0	13.50	175.70	1,406.1	-88.9	4.8	89.0	1.66	1.65	1.06
1,499.0	14.10	174.70	1,489.6	-109.4	6.5	109.5	0.75	0.70	-1.16
1,585.0	15.20	175.20	1,572.8	-131.0	8.4	131.3	1.29	1.28	0.58

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Site Schmidt K23-24D Pad Sec.23-T4N-R66W
<b>Project:</b>	SEC.23-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4739.0ft (Original Well Elev)
<b>Site:</b>	Schmidt K23-24D Pad Sec.23-T4N-R66W	<b>MD Reference:</b>	WELL @ 4739.0ft (Original Well Elev)
<b>Well:</b>	Schmidt K23-24D	<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)	
1,670.0	15.70	176.60	1,654.8	-153.6	10.0	153.9	0.73	0.59	1.65	
1,756.0	15.50	180.50	1,737.6	-176.7	10.6	177.0	1.24	-0.23	4.53	
1,841.0	15.40	177.50	1,819.5	-199.3	11.0	199.6	0.95	-0.12	-3.53	
1,927.0	15.50	177.50	1,902.4	-222.2	12.0	222.5	0.12	0.12	0.00	
2,012.0	14.60	177.00	1,984.5	-244.3	13.1	244.6	1.07	-1.06	-0.59	
2,098.0	14.70	178.30	2,067.7	-266.0	14.0	266.4	0.40	0.12	1.51	
2,183.0	14.20	179.70	2,150.0	-287.2	14.3	287.6	0.72	-0.59	1.65	
2,269.0	13.20	178.90	2,233.6	-307.6	14.6	307.9	1.18	-1.16	-0.93	
2,354.0	12.80	178.20	2,316.4	-326.7	15.1	327.0	0.51	-0.47	-0.82	
2,440.0	13.20	177.30	2,400.2	-346.0	15.8	346.4	0.52	0.47	-1.05	
2,525.0	13.30	178.20	2,482.9	-365.5	16.6	365.9	0.27	0.12	1.06	
2,611.0	14.90	177.00	2,566.3	-386.4	17.5	386.8	1.89	1.86	-1.40	
2,696.0	14.80	177.90	2,648.5	-408.2	18.5	408.6	0.30	-0.12	1.06	
2,782.0	14.70	178.80	2,731.7	-430.1	19.1	430.5	0.29	-0.12	1.05	
2,867.0	14.70	178.30	2,813.9	-451.6	19.6	452.1	0.15	0.00	-0.59	
2,953.0	13.90	176.40	2,897.2	-472.9	20.6	473.3	1.08	-0.93	-2.21	
3,038.0	15.40	176.10	2,979.4	-494.3	22.0	494.8	1.77	1.76	-0.35	
3,124.0	15.10	176.00	3,062.4	-516.9	23.6	517.4	0.35	-0.35	-0.12	
3,209.0	14.50	174.90	3,144.6	-538.5	25.3	539.1	0.78	-0.71	-1.29	
3,295.0	13.10	178.00	3,228.1	-559.0	26.6	559.6	1.84	-1.63	3.60	
3,380.0	12.20	172.60	3,311.0	-577.5	28.1	578.2	1.75	-1.06	-6.35	
3,466.0	13.30	176.80	3,394.9	-596.4	29.8	597.1	1.67	1.28	4.88	
3,551.0	14.00	181.10	3,477.5	-616.4	30.2	617.2	1.45	0.82	5.06	
3,637.0	14.40	185.20	3,560.9	-637.5	29.0	638.1	1.26	0.47	4.77	
3,723.0	14.40	180.60	3,644.2	-658.8	27.9	659.4	1.33	0.00	-5.35	
3,808.0	15.40	184.10	3,726.3	-680.7	27.0	681.2	1.58	1.18	4.12	
3,894.0	16.80	179.20	3,809.0	-704.5	26.3	705.0	2.27	1.63	-5.70	
3,979.0	16.30	178.00	3,890.5	-728.7	26.9	729.2	0.71	-0.59	-1.41	
4,065.0	15.30	176.00	3,973.2	-752.1	28.1	752.6	1.32	-1.16	-2.33	
4,150.0	14.30	174.10	4,055.4	-773.7	30.0	774.3	1.31	-1.18	-2.24	
4,236.0	14.70	176.40	4,138.6	-795.2	31.8	795.8	0.82	0.47	2.67	
4,321.0	16.10	174.60	4,220.6	-817.7	33.6	818.3	1.74	1.65	-2.12	
4,407.0	15.20	175.40	4,303.4	-840.8	35.6	841.5	1.08	-1.05	0.93	
4,492.0	15.80	178.40	4,385.3	-863.4	36.8	864.2	1.18	0.71	3.53	
4,578.0	16.40	173.90	4,467.9	-887.2	38.4	888.0	1.61	0.70	-5.23	
4,663.0	17.00	172.40	4,549.4	-911.5	41.3	912.4	0.87	0.71	-1.76	
4,749.0	16.70	174.00	4,631.7	-936.2	44.3	937.2	0.64	-0.35	1.86	
4,834.0	15.90	176.00	4,713.2	-960.0	46.4	961.1	1.15	-0.94	2.35	
4,920.0	14.10	181.40	4,796.3	-982.2	47.0	983.3	2.65	-2.09	6.28	
5,005.0	13.90	179.60	4,878.8	-1,002.8	46.8	1,003.8	0.56	-0.24	-2.12	
5,091.0	13.10	178.50	4,962.4	-1,022.8	47.1	1,023.9	0.98	-0.93	-1.28	
5,176.0	11.30	179.40	5,045.5	-1,040.8	47.4	1,041.9	2.13	-2.12	1.06	
5,262.0	9.00	180.10	5,130.1	-1,055.9	47.5	1,057.0	2.68	-2.67	0.81	
5,347.0	7.40	180.70	5,214.3	-1,068.1	47.4	1,069.1	1.89	-1.88	0.71	
5,433.0	5.80	179.80	5,299.7	-1,078.0	47.4	1,079.0	1.86	-1.86	-1.05	
5,518.0	4.50	184.70	5,384.4	-1,085.6	47.1	1,086.6	1.61	-1.53	5.76	
5,604.0	3.60	193.60	5,470.1	-1,091.6	46.2	1,092.5	1.27	-1.05	10.35	
5,689.0	2.80	193.50	5,555.0	-1,096.2	45.1	1,097.1	0.94	-0.94	-0.12	
5,775.0	2.70	179.80	5,640.9	-1,100.2	44.6	1,101.1	0.77	-0.12	-15.93	
5,834.3	3.32	174.49	5,700.1	-1,103.3	44.8	1,104.2	1.14	1.04	-8.95	
TARGET BHL 1220'FSL, 2584'FWL										
5,861.0	3.60	172.70	5,726.8	-1,104.9	45.0	1,105.8	1.14	1.06	-6.71	
5,946.0	1.90	189.00	5,811.7	-1,109.0	45.1	1,109.9	2.18	-2.00	19.18	
6,032.0	0.70	227.50	5,897.7	-1,110.7	44.5	1,111.6	1.65	-1.40	44.77	

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<b>Well:</b>	Schmidt K23-24D	<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)
6,117.0	0.70	210.70	5,982.6	-1,111.5	43.8	1,112.4	0.24	0.00	-19.76
6,203.0	0.90	197.10	6,068.6	-1,112.6	43.4	1,113.5	0.32	0.23	-15.81
6,288.0	0.70	187.20	6,153.6	-1,113.8	43.1	1,114.6	0.29	-0.24	-11.65
6,374.0	0.90	192.80	6,239.6	-1,115.0	42.9	1,115.8	0.25	0.23	6.51
6,459.0	0.70	170.30	6,324.6	-1,116.1	42.8	1,116.9	0.43	-0.24	-26.47
6,545.0	0.80	161.50	6,410.6	-1,117.2	43.1	1,118.0	0.18	0.12	-10.23
6,630.0	0.90	162.00	6,495.6	-1,118.4	43.5	1,119.3	0.12	0.12	0.59
6,716.0	1.00	165.10	6,581.6	-1,119.8	43.9	1,120.6	0.13	0.12	3.60
6,801.0	1.20	181.00	6,666.6	-1,121.4	44.1	1,122.2	0.43	0.24	18.71
6,887.0	1.00	172.40	6,752.6	-1,123.0	44.2	1,123.9	0.30	-0.23	-10.00
6,972.0	0.90	196.80	6,837.5	-1,124.4	44.1	1,125.3	0.49	-0.12	28.71
7,023.1	0.95	168.19	6,888.7	-1,125.2	44.0	1,126.1	0.90	0.10	-55.94
<b>TARGET CIRCLE 1220'FSL, 2584'FWL</b>									
7,058.0	1.10	152.70	6,923.5	-1,125.8	44.2	1,126.6	0.90	0.43	-44.43
7,143.0	2.00	139.70	7,008.5	-1,127.7	45.6	1,128.6	1.13	1.06	-15.29
7,229.0	2.70	139.20	7,094.4	-1,130.3	47.9	1,131.3	0.81	0.81	-0.58
7,314.0	2.10	130.20	7,179.4	-1,132.8	50.4	1,134.0	0.83	-0.71	-10.59
7,400.0	1.60	130.30	7,265.3	-1,134.6	52.5	1,135.8	0.58	-0.58	0.12
7,476.0	1.00	121.60	7,341.3	-1,135.7	53.9	1,136.9	0.83	-0.79	-11.45
7,500.3	1.00	120.75	7,365.6	-1,135.9	54.2	1,137.2	0.06	0.00	-3.48
<b>HARDLINE 75'E OF BHL</b>									
7,522.0	1.00	120.00	7,387.3	-1,136.1	54.6	1,137.4	0.06	0.00	-3.48

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