

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1250.0	5.00	330.00	1249.7	9.4	-5.5	2.00	330.00	10.2	
4	1849.1	16.51	308.87	1837.4	85.8	-85.1	2.00	-29.58	120.2	
5	4819.9	16.51	308.87	4685.8	615.7	-742.5	0.00	0.00	964.5	
6	5645.6	0.00	0.00	5500.0	689.8	-834.5	2.00	180.00	1082.7	TARGET BHL 75'FNL, 2570'FEL
7	7035.6	0.00	0.00	6890.0	689.8	-834.5	0.00	0.00	1082.7	



NOBLE ENERGY INC WELD COUNTY CO

SEC.23-T4N-R64W

Sater C23-28D Pad Sec.23-T4N-R64W

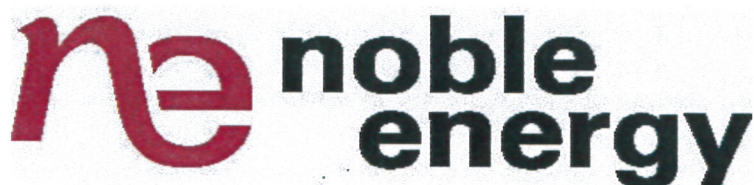
Sater C23-28D

Wellbore #1

Plan: Plan #1 (06-25-09)

Standard Planning Report

25 June, 2009



Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Sater C23-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4663.0ft (Original Well Elev)
Project:	SEC.23-T4N-R64W	MD Reference:	WELL @ 4663.0ft (Original Well Elev)
Site:	Sater C23-28D Pad Sec.23-T4N-R64W	North Reference:	True
Well:	Sater C23-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (06-25-09)		

Project	SEC.23-T4N-R64W, 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	Sater C23-28D Pad Sec.23-T4N-R64W		
Site Position:		Northing:	1,354,787.24 ft
From:	Lat/Long	Easting:	3,274,813.99 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 18' 11.160 N
		Longitude:	104° 30' 52.776 W
		Grid Convergence:	0.64 °

Well		Sater C23-28D				
Well Position	+N/-S	0.0 ft	Northing:	1,354,787.23 ft	Latitude:	40° 18' 11.160 N
	+E/-W	0.0 ft	Easting:	3,274,813.99 ft	Longitude:	104° 30' 52.776 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,650.0 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/25/2009	8.95	67.09	53,335

Design	Plan #1 (06-25-09)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	309.58

Plan Sections										
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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,250.0	5.00	330.00	1,249.7	9.4	-5.5	2.00	2.00	0.00	330.00	
1,849.1	16.51	308.87	1,837.4	85.8	-85.1	2.00	1.92	-3.53	-29.58	
4,819.9	16.51	308.87	4,685.8	615.7	-742.5	0.00	0.00	0.00	0.00	
5,645.6	0.00	0.00	5,500.0	689.8	-834.5	2.00	-2.00	0.00	180.00	TARGET BHL 75'FI
7,035.6	0.00	0.00	6,890.0	689.8	-834.5	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Sater C23-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4663.0ft (Original Well Elev)
Project:	SEC.23-T4N-R64W	MD Reference:	WELL @ 4663.0ft (Original Well Elev)
Site:	Sater C23-28D Pad Sec.23-T4N-R64W	North Reference:	True
Well:	Sater C23-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (06-25-09)		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.80	330.00	1,040.0	0.2	-0.1	0.3	2.00	2.00	0.00
1,080.0	1.60	330.00	1,080.0	1.0	-0.6	1.0	2.00	2.00	0.00
1,120.0	2.40	330.00	1,120.0	2.2	-1.3	2.4	2.00	2.00	0.00
1,160.0	3.20	330.00	1,159.9	3.9	-2.2	4.2	2.00	2.00	0.00
1,200.0	4.00	330.00	1,199.8	6.0	-3.5	6.5	2.00	2.00	0.00
1,240.0	4.80	330.00	1,239.7	8.7	-5.0	9.4	2.00	2.00	0.00
1,250.0	5.00	330.00	1,249.7	9.4	-5.5	10.2	2.00	2.00	0.00
1,280.0	5.53	326.93	1,279.6	11.8	-6.9	12.8	2.00	1.77	-10.25
1,320.0	6.26	323.65	1,319.3	15.2	-9.2	16.8	2.00	1.82	-8.20
1,360.0	7.00	321.05	1,359.1	18.8	-12.1	21.3	2.00	1.86	-6.48
1,400.0	7.75	318.96	1,398.7	22.7	-15.4	26.3	2.00	1.88	-5.24
1,440.0	8.51	317.23	1,438.3	26.9	-19.1	31.9	2.00	1.91	-4.31
1,480.0	9.28	315.79	1,477.9	31.4	-23.4	38.1	2.00	1.92	-3.60
1,520.0	10.06	314.57	1,517.3	36.2	-28.1	44.7	2.00	1.93	-3.06
1,560.0	10.83	313.52	1,556.6	41.2	-33.4	52.0	2.00	1.94	-2.62
1,600.0	11.61	312.61	1,595.9	46.5	-39.0	59.7	2.00	1.95	-2.27
1,640.0	12.40	311.82	1,635.0	52.1	-45.2	68.1	2.00	1.96	-1.99
1,680.0	13.18	311.11	1,674.0	58.0	-51.8	76.9	2.00	1.96	-1.76
1,720.0	13.97	310.49	1,712.9	64.1	-58.9	86.3	2.00	1.97	-1.56
1,760.0	14.75	309.93	1,751.6	70.5	-66.5	96.2	2.00	1.97	-1.40
1,800.0	15.54	309.42	1,790.2	77.2	-74.6	106.7	2.00	1.97	-1.26
1,840.0	16.33	308.97	1,828.7	84.1	-83.1	117.6	2.00	1.98	-1.14
1,849.1	16.51	308.87	1,837.4	85.8	-85.1	120.2	2.00	1.98	-1.08
1,880.0	16.51	308.87	1,867.1	91.3	-91.9	129.0	0.00	0.00	0.00
1,920.0	16.51	308.87	1,905.4	98.4	-100.8	140.4	0.00	0.00	0.00
1,960.0	16.51	308.87	1,943.8	105.5	-109.6	151.7	0.00	0.00	0.00
2,000.0	16.51	308.87	1,982.1	112.7	-118.5	163.1	0.00	0.00	0.00
2,040.0	16.51	308.87	2,020.5	119.8	-127.3	174.5	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Sater C23-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4663.0ft (Original Well Elev)
Project:	SEC.23-T4N-R64W	MD Reference:	WELL @ 4663.0ft (Original Well Elev)
Site:	Sater C23-28D Pad Sec.23-T4N-R64W	North Reference:	True
Well:	Sater C23-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (06-25-09)		

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)	
2,080.0	16.51	308.87	2,058.8	126.9	-136.2	185.8	0.00	0.00	0.00	
2,120.0	16.51	308.87	2,097.2	134.1	-145.0	197.2	0.00	0.00	0.00	
2,160.0	16.51	308.87	2,135.5	141.2	-153.9	208.6	0.00	0.00	0.00	
2,200.0	16.51	308.87	2,173.9	148.3	-162.7	219.9	0.00	0.00	0.00	
2,240.0	16.51	308.87	2,212.2	155.5	-171.6	231.3	0.00	0.00	0.00	
2,280.0	16.51	308.87	2,250.6	162.6	-180.4	242.7	0.00	0.00	0.00	
2,320.0	16.51	308.87	2,288.9	169.8	-189.3	254.1	0.00	0.00	0.00	
2,360.0	16.51	308.87	2,327.3	176.9	-198.1	265.4	0.00	0.00	0.00	
2,400.0	16.51	308.87	2,365.6	184.0	-207.0	276.8	0.00	0.00	0.00	
2,440.0	16.51	308.87	2,404.0	191.2	-215.8	288.2	0.00	0.00	0.00	
2,480.0	16.51	308.87	2,442.3	198.3	-224.7	299.5	0.00	0.00	0.00	
2,520.0	16.51	308.87	2,480.7	205.4	-233.6	310.9	0.00	0.00	0.00	
2,560.0	16.51	308.87	2,519.0	212.6	-242.4	322.3	0.00	0.00	0.00	
2,600.0	16.51	308.87	2,557.4	219.7	-251.3	333.6	0.00	0.00	0.00	
2,640.0	16.51	308.87	2,595.7	226.8	-260.1	345.0	0.00	0.00	0.00	
2,680.0	16.51	308.87	2,634.1	234.0	-269.0	356.4	0.00	0.00	0.00	
2,720.0	16.51	308.87	2,672.4	241.1	-277.8	367.7	0.00	0.00	0.00	
2,760.0	16.51	308.87	2,710.8	248.2	-286.7	379.1	0.00	0.00	0.00	
2,800.0	16.51	308.87	2,749.1	255.4	-295.5	390.5	0.00	0.00	0.00	
2,840.0	16.51	308.87	2,787.5	262.5	-304.4	401.8	0.00	0.00	0.00	
2,880.0	16.51	308.87	2,825.8	269.6	-313.2	413.2	0.00	0.00	0.00	
2,920.0	16.51	308.87	2,864.2	276.8	-322.1	424.6	0.00	0.00	0.00	
2,960.0	16.51	308.87	2,902.5	283.9	-330.9	435.9	0.00	0.00	0.00	
3,000.0	16.51	308.87	2,940.9	291.0	-339.8	447.3	0.00	0.00	0.00	
3,040.0	16.51	308.87	2,979.2	298.2	-348.6	458.7	0.00	0.00	0.00	
3,080.0	16.51	308.87	3,017.6	305.3	-357.5	470.0	0.00	0.00	0.00	
3,120.0	16.51	308.87	3,055.9	312.4	-366.3	481.4	0.00	0.00	0.00	
3,160.0	16.51	308.87	3,094.3	319.6	-375.2	492.8	0.00	0.00	0.00	
3,200.0	16.51	308.87	3,132.6	326.7	-384.0	504.2	0.00	0.00	0.00	
3,240.0	16.51	308.87	3,171.0	333.8	-392.9	515.5	0.00	0.00	0.00	
3,280.0	16.51	308.87	3,209.3	341.0	-401.7	526.9	0.00	0.00	0.00	
3,320.0	16.51	308.87	3,247.7	348.1	-410.6	538.3	0.00	0.00	0.00	
3,360.0	16.51	308.87	3,286.0	355.2	-419.4	549.6	0.00	0.00	0.00	
3,400.0	16.51	308.87	3,324.4	362.4	-428.3	561.0	0.00	0.00	0.00	
3,440.0	16.51	308.87	3,362.7	369.5	-437.1	572.4	0.00	0.00	0.00	
3,480.0	16.51	308.87	3,401.1	376.7	-446.0	583.7	0.00	0.00	0.00	
3,520.0	16.51	308.87	3,439.4	383.8	-454.8	595.1	0.00	0.00	0.00	
3,560.0	16.51	308.87	3,477.8	390.9	-463.7	606.5	0.00	0.00	0.00	
3,600.0	16.51	308.87	3,516.1	398.1	-472.5	617.8	0.00	0.00	0.00	
3,640.0	16.51	308.87	3,554.5	405.2	-481.4	629.2	0.00	0.00	0.00	
3,680.0	16.51	308.87	3,592.8	412.3	-490.3	640.6	0.00	0.00	0.00	
3,720.0	16.51	308.87	3,631.2	419.5	-499.1	651.9	0.00	0.00	0.00	
3,760.0	16.51	308.87	3,669.5	426.6	-508.0	663.3	0.00	0.00	0.00	
3,800.0	16.51	308.87	3,707.9	433.7	-516.8	674.7	0.00	0.00	0.00	
3,840.0	16.51	308.87	3,746.2	440.9	-525.7	686.0	0.00	0.00	0.00	
3,880.0	16.51	308.87	3,784.6	448.0	-534.5	697.4	0.00	0.00	0.00	
3,920.0	16.51	308.87	3,822.9	455.1	-543.4	708.8	0.00	0.00	0.00	
3,960.0	16.51	308.87	3,861.3	462.3	-552.2	720.1	0.00	0.00	0.00	
4,000.0	16.51	308.87	3,899.6	469.4	-561.1	731.5	0.00	0.00	0.00	
4,040.0	16.51	308.87	3,938.0	476.5	-569.9	742.9	0.00	0.00	0.00	
4,080.0	16.51	308.87	3,976.3	483.7	-578.8	754.3	0.00	0.00	0.00	
4,120.0	16.51	308.87	4,014.7	490.8	-587.6	765.6	0.00	0.00	0.00	
4,160.0	16.51	308.87	4,053.0	497.9	-596.5	777.0	0.00	0.00	0.00	
4,200.0	16.51	308.87	4,091.4	505.1	-605.3	788.4	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Sater C23-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4663.0ft (Original Well Elev)
Project:	SEC.23-T4N-R64W	MD Reference:	WELL @ 4663.0ft (Original Well Elev)
Site:	Sater C23-28D Pad Sec.23-T4N-R64W	North Reference:	True
Well:	Sater C23-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (06-25-09)		

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)
4,240.0	16.51	308.87	4,129.7	512.2	-614.2	799.7	0.00	0.00	0.00
4,280.0	16.51	308.87	4,168.1	519.3	-623.0	811.1	0.00	0.00	0.00
4,320.0	16.51	308.87	4,206.4	526.5	-631.9	822.5	0.00	0.00	0.00
4,360.0	16.51	308.87	4,244.8	533.6	-640.7	833.8	0.00	0.00	0.00
4,400.0	16.51	308.87	4,283.1	540.7	-649.6	845.2	0.00	0.00	0.00
4,440.0	16.51	308.87	4,321.5	547.9	-658.4	856.6	0.00	0.00	0.00
4,480.0	16.51	308.87	4,359.8	555.0	-667.3	867.9	0.00	0.00	0.00
4,520.0	16.51	308.87	4,398.2	562.2	-676.1	879.3	0.00	0.00	0.00
4,560.0	16.51	308.87	4,436.5	569.3	-685.0	890.7	0.00	0.00	0.00
4,600.0	16.51	308.87	4,474.9	576.4	-693.8	902.0	0.00	0.00	0.00
4,640.0	16.51	308.87	4,513.2	583.6	-702.7	913.4	0.00	0.00	0.00
4,680.0	16.51	308.87	4,551.6	590.7	-711.5	924.8	0.00	0.00	0.00
4,720.0	16.51	308.87	4,589.9	597.8	-720.4	936.1	0.00	0.00	0.00
4,760.0	16.51	308.87	4,628.3	605.0	-729.2	947.5	0.00	0.00	0.00
4,800.0	16.51	308.87	4,666.6	612.1	-738.1	958.9	0.00	0.00	0.00
4,819.9	16.51	308.87	4,685.8	615.7	-742.5	964.5	0.00	0.00	0.00
4,840.0	16.11	308.87	4,705.0	619.2	-746.9	970.2	2.00	-2.00	0.00
4,880.0	15.31	308.87	4,743.5	626.0	-755.3	981.0	2.00	-2.00	0.00
4,920.0	14.51	308.87	4,782.2	632.4	-763.3	991.3	2.00	-2.00	0.00
4,960.0	13.71	308.87	4,820.9	638.6	-770.9	1,001.1	2.00	-2.00	0.00
5,000.0	12.91	308.87	4,859.9	644.3	-778.1	1,010.3	2.00	-2.00	0.00
5,040.0	12.11	308.87	4,898.9	649.8	-784.9	1,018.9	2.00	-2.00	0.00
5,080.0	11.31	308.87	4,938.1	654.9	-791.2	1,027.0	2.00	-2.00	0.00
5,120.0	10.51	308.87	4,977.4	659.6	-797.1	1,034.6	2.00	-2.00	0.00
5,160.0	9.71	308.87	5,016.7	664.0	-802.5	1,041.6	2.00	-2.00	0.00
5,200.0	8.91	308.87	5,056.2	668.1	-807.6	1,048.1	2.00	-2.00	0.00
5,240.0	8.11	308.87	5,095.8	671.8	-812.2	1,054.0	2.00	-2.00	0.00
5,280.0	7.31	308.87	5,135.4	675.2	-816.4	1,059.4	2.00	-2.00	0.00
5,320.0	6.51	308.87	5,175.1	678.2	-820.1	1,064.2	2.00	-2.00	0.00
5,360.0	5.71	308.87	5,214.9	680.9	-823.4	1,068.5	2.00	-2.00	0.00
5,400.0	4.91	308.87	5,254.7	683.2	-826.3	1,072.2	2.00	-2.00	0.00
5,440.0	4.11	308.87	5,294.6	685.2	-828.8	1,075.3	2.00	-2.00	0.00
5,480.0	3.31	308.87	5,334.5	686.8	-830.8	1,077.9	2.00	-2.00	0.00
5,520.0	2.51	308.87	5,374.5	688.1	-832.4	1,079.9	2.00	-2.00	0.00
5,560.0	1.71	308.87	5,414.4	689.0	-833.5	1,081.4	2.00	-2.00	0.00
5,600.0	0.91	308.87	5,454.4	689.6	-834.2	1,082.3	2.00	-2.00	0.00
5,640.0	0.11	308.87	5,494.4	689.8	-834.5	1,082.7	2.00	-2.00	0.00
5,645.6	0.00	0.00	5,500.0	689.8	-834.5	1,082.7	2.00	-2.00	0.00
TARGET BHL 75'FNL, 2570'FEL									
5,680.0	0.00	0.00	5,534.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
5,720.0	0.00	0.00	5,574.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
5,760.0	0.00	0.00	5,614.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,654.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
5,840.0	0.00	0.00	5,694.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,734.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,774.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
5,960.0	0.00	0.00	5,814.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,854.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,894.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,080.0	0.00	0.00	5,934.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,120.0	0.00	0.00	5,974.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,160.0	0.00	0.00	6,014.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,054.4	689.8	-834.5	1,082.7	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Sater C23-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4663.0ft (Original Well Elev)
Project:	SEC.23-T4N-R64W	MD Reference:	WELL @ 4663.0ft (Original Well Elev)
Site:	Sater C23-28D Pad Sec.23-T4N-R64W	North Reference:	True
Well:	Sater C23-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (06-25-09)		

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)
6,240.0	0.00	0.00	6,094.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,280.0	0.00	0.00	6,134.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,174.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,214.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,254.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,294.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,334.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,374.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,414.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,454.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,603.6	0.00	0.00	6,458.0	689.8	-834.5	1,082.7	0.00	0.00	0.00
NIOBRARA									
6,640.0	0.00	0.00	6,494.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,534.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,574.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,614.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,654.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,694.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,734.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,885.6	0.00	0.00	6,740.0	689.8	-834.5	1,082.7	0.00	0.00	0.00
CODELL									
6,920.0	0.00	0.00	6,774.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,814.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,854.4	689.8	-834.5	1,082.7	0.00	0.00	0.00
7,035.6	0.00	0.00	6,890.0	689.8	-834.5	1,082.7	0.00	0.00	0.00
HARDLINES 75°N & 78°W OF BHL									

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									
HARDLINES 75°N & 7	0.00	0.00	6,890.0	764.8	-912.5	1,355,541.81	3,273,893.09	40° 18' 18.717 N	104° 31' 4.554 W
- plan misses target center by 108.2ft at 7035.6ft MD (6890.0 TVD, 689.8 N, -834.5 E)									
- Polygon									
Point 1			6,890.0	0.0	0.0	1,355,541.81	3,273,893.09		
Point 2			6,890.0	0.0	200.0	1,355,544.03	3,274,093.07		
Point 3			6,890.0	0.0	0.0	1,355,541.81	3,273,893.09		
Point 4			6,890.0	-200.0	0.0	1,355,341.83	3,273,895.31		
TARGET BHL 75°FNL	0.00	0.00	5,500.0	689.8	-834.5	1,355,467.68	3,273,971.91	40° 18' 17.976 N	104° 31' 3.547 W
- plan hits target center									
- Point									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,603.6	6,458.0	NIOBRARA		0.00	
6,885.6	6,740.0	CODELL		0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Sater C23-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4663.0ft (Original Well Elev)
Project:	SEC.23-T4N-R64W	MD Reference:	WELL @ 4663.0ft (Original Well Elev)
Site:	Sater C23-28D Pad Sec.23-T4N-R64W	North Reference:	True
Well:	Sater C23-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (06-25-09)		