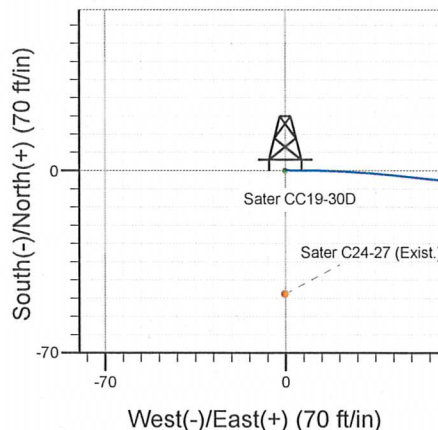
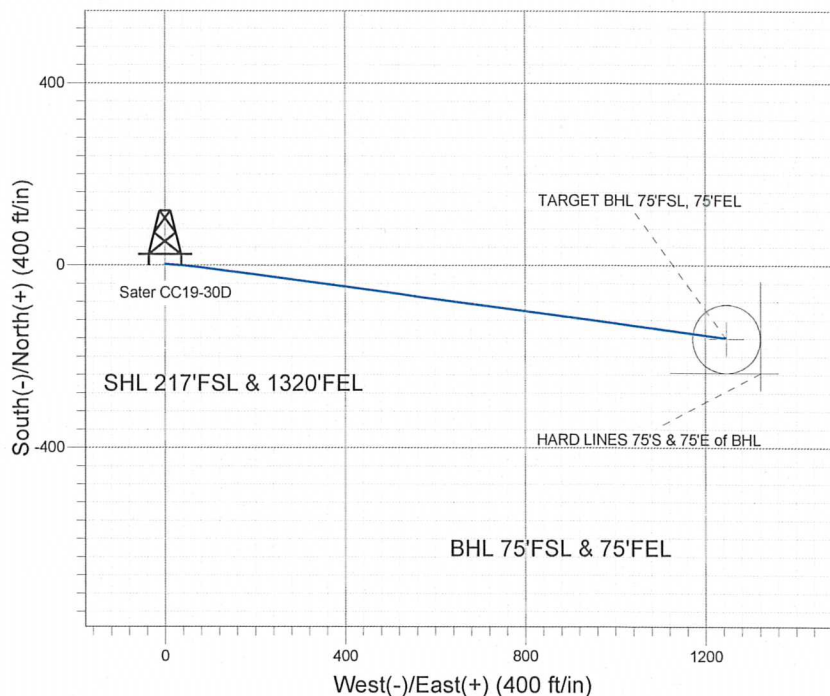
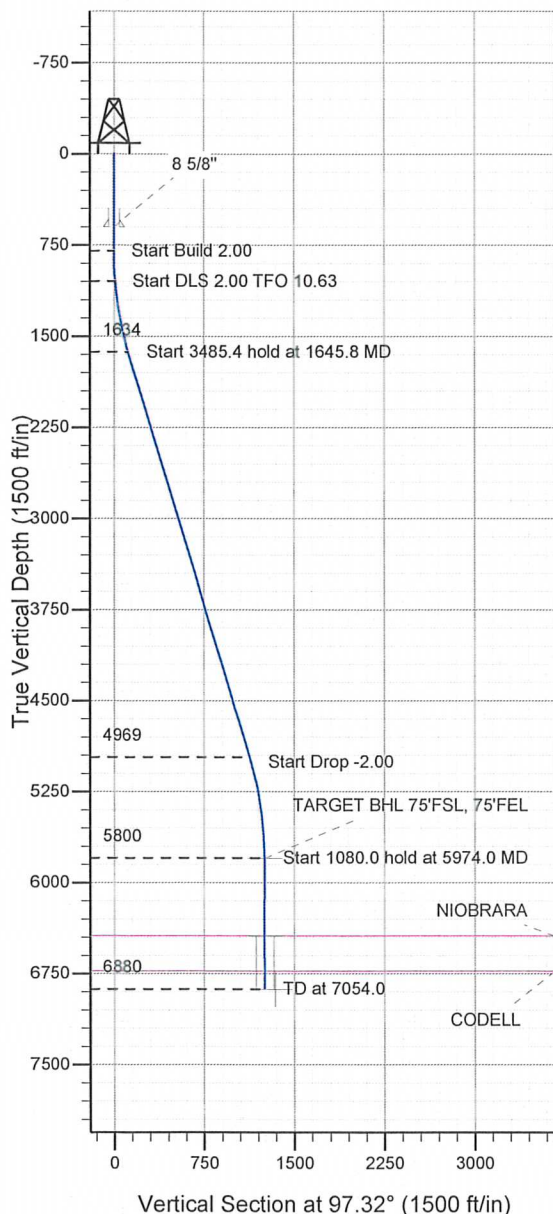


### Well Name: Sater CC19-30D

Surface Location: Sater CC19-30D Pad Sec.13-T4N-R64W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4662.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1355746.70 3280448.58 40° 18' 20.016 N 104° 29' 39.912 W  
 Original Well Elev WELL @ 4675.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Sater CC19-30D Pad Sec.13-T4N-R64W  
 Sater CC19-30D  
 Noble Sater CC19-30D Plan #1 (2-01-11)  
 12:10, February 01 2011



Azimuths to True North  
 Magnetic North: 8.76°  
 Magnetic Field  
 Strength: 53151.1snT  
 Dip Angle: 67.03°  
 Date: 2/1/2011  
 Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 75'FSL, 75'FEL	5800.0	-160.3	1246.7	40° 18' 18.432 N	104° 29' 23.820 W	Point
TARGET CIRCLE 75'FSL & 75'FEL	6440.0	-160.3	1246.7	40° 18' 18.432 N	104° 29' 23.820 W	Circle (Radius: 75.0)
HARD LINES 75'S & 75'E of BHL	6880.0	-235.3	1321.7	40° 18' 17.690 N	104° 29' 22.853 W	Polygon

### SECTION DETAILS

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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1050.0	5.00	90.00	1049.7	0.0	10.9	2.00	90.00	10.8	
4	1645.8	16.85	97.55	1633.6	-11.4	122.9	2.00	10.63	123.3	
5	5131.2	16.85	97.55	4969.4	-144.1	1124.7	0.00	0.00	1133.9	
6	5974.0	0.00	0.00	5800.0	-160.3	1246.7	2.00	180.00	1257.0	TARGET BHL 75'FSL, 75'FEL
7	7054.0	0.00	0.00	6880.0	-160.3	1246.7	0.00	0.00	1257.0	



## **Directional**

### **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.13-T4N-R64W**

**Sater CC19-30D Pad Sec.13-T4N-R64W**

**Sater CC19-30D**

**Wellbore #1**

**Plan: Noble Sater CC19-30D Plan #1 (2-01-11)**

### **Standard Planning Report**

**01 February, 2011**





Database:	Landmark	Local Co-ordinate Reference:	Well Sater CC19-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4675.0ft (Original Well Elev)
Project:	SEC.13-T4N-R64W	MD Reference:	WELL @ 4675.0ft (Original Well Elev)
Site:	Sater CC19-30D Pad Sec.13-T4N-R64W	North Reference:	True
Well:	Sater CC19-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Sater CC19-30D Plan #1 (2-01-11)		

Project	SEC.13-T4N-R64W, 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	Sater CC19-30D Pad Sec.13-T4N-R64W				
Site Position:		Northing:	1,355,746.71 ft	Latitude:	40° 18' 20.016 N
From:	Lat/Long	Easting:	3,280,448.58 ft	Longitude:	104° 29' 39.912 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.65 °

Well	Sater CC19-30D					
Well Position	+N/-S	0.0 ft	Northing:	1,355,746.70 ft	Latitude:	40° 18' 20.016 N
	+E/-W	0.0 ft	Easting:	3,280,448.58 ft	Longitude:	104° 29' 39.912 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,662.0 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/1/2011	8.76	67.03	53,151

Design	Noble Sater CC19-30D Plan #1 (2-01-11)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	97.32

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,050.0	5.00	90.00	1,049.7	0.0	10.9	2.00	2.00	0.00	90.00	
1,645.8	16.85	97.55	1,633.6	-11.4	122.9	2.00	1.99	1.27	10.63	
5,131.2	16.85	97.55	4,969.4	-144.1	1,124.7	0.00	0.00	0.00	0.00	
5,974.0	0.00	0.00	5,800.0	-160.3	1,246.7	2.00	-2.00	0.00	180.00	TARGET BHL 75°F:
7,054.0	0.00	0.00	6,880.0	-160.3	1,246.7	0.00	0.00	0.00	0.00	

Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.13-T4N-R64W  
 Site: Sater CC19-30D Pad Sec.13-T4N-R64W  
 Well: Sater CC19-30D  
 Wellbore: Wellbore #1  
 Design: Noble Sater CC19-30D Plan #1 (2-01-11)

Local Co-ordinate Reference: Well Sater CC19-30D  
 TVD Reference: WELL @ 4675.0ft (Original Well Elev)  
 MD Reference: WELL @ 4675.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

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
8 5/8"									
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	0.80	90.00	840.0	0.0	0.3	0.3	2.00	2.00	0.00
880.0	1.60	90.00	880.0	0.0	1.1	1.1	2.00	2.00	0.00
920.0	2.40	90.00	920.0	0.0	2.5	2.5	2.00	2.00	0.00
960.0	3.20	90.00	959.9	0.0	4.5	4.4	2.00	2.00	0.00
1,000.0	4.00	90.00	999.8	0.0	7.0	6.9	2.00	2.00	0.00
1,040.0	4.80	90.00	1,039.7	0.0	10.0	10.0	2.00	2.00	0.00
1,050.0	5.00	90.00	1,049.7	0.0	10.9	10.8	2.00	2.00	0.00
1,080.0	5.59	91.14	1,079.6	0.0	13.7	13.6	2.00	1.97	3.79
1,120.0	6.38	92.32	1,119.3	-0.2	17.8	17.7	2.00	1.98	2.97
1,160.0	7.17	93.25	1,159.1	-0.4	22.6	22.4	2.00	1.98	2.32
1,200.0	7.97	93.99	1,198.7	-0.7	27.8	27.7	2.00	1.99	1.86
1,240.0	8.76	94.60	1,238.3	-1.2	33.6	33.5	2.00	1.99	1.52
1,280.0	9.56	95.11	1,277.8	-1.7	40.0	39.9	2.00	1.99	1.27
1,320.0	10.36	95.54	1,317.2	-2.3	46.8	46.8	2.00	1.99	1.08
1,360.0	11.15	95.91	1,356.5	-3.1	54.3	54.2	2.00	1.99	0.92
1,400.0	11.95	96.23	1,395.7	-3.9	62.2	62.2	2.00	1.99	0.80
1,440.0	12.75	96.51	1,434.7	-4.9	70.7	70.8	2.00	1.99	0.70
1,480.0	13.55	96.76	1,473.7	-5.9	79.8	79.9	2.00	1.99	0.62
1,520.0	14.34	96.98	1,512.5	-7.1	89.3	89.5	2.00	2.00	0.55
1,560.0	15.14	97.18	1,551.2	-8.3	99.4	99.7	2.00	2.00	0.50
1,600.0	15.94	97.36	1,589.7	-9.7	110.1	110.4	2.00	2.00	0.45
1,640.0	16.74	97.52	1,628.1	-11.2	121.2	121.7	2.00	2.00	0.41
1,645.8	16.85	97.55	1,633.6	-11.4	122.9	123.3	2.00	2.00	0.38
1,680.0	16.85	97.55	1,666.4	-12.7	132.7	133.3	0.00	0.00	0.00
1,720.0	16.85	97.55	1,704.7	-14.2	144.2	144.9	0.00	0.00	0.00
1,760.0	16.85	97.55	1,743.0	-15.7	155.7	156.5	0.00	0.00	0.00
1,800.0	16.85	97.55	1,781.2	-17.3	167.2	168.1	0.00	0.00	0.00
1,840.0	16.85	97.55	1,819.5	-18.8	178.7	179.7	0.00	0.00	0.00
1,880.0	16.85	97.55	1,857.8	-20.3	190.2	191.3	0.00	0.00	0.00
1,920.0	16.85	97.55	1,896.1	-21.8	201.7	202.8	0.00	0.00	0.00
1,960.0	16.85	97.55	1,934.4	-23.3	213.2	214.4	0.00	0.00	0.00
2,000.0	16.85	97.55	1,972.6	-24.9	224.7	226.0	0.00	0.00	0.00



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 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.13-T4N-R64W  
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 Well: Sater CC19-30D  
 Wellbore: Wellbore #1  
 Design: Noble Sater CC19-30D Plan #1 (2-01-11)

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 TVD Reference: WELL @ 4675.0ft (Original Well Elev)  
 MD Reference: WELL @ 4675.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

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)
2,040.0	16.85	97.55	2,010.9	-26.4	236.2	237.6	0.00	0.00	0.00
2,080.0	16.85	97.55	2,049.2	-27.9	247.7	249.2	0.00	0.00	0.00
2,120.0	16.85	97.55	2,087.5	-29.4	259.2	260.8	0.00	0.00	0.00
2,160.0	16.85	97.55	2,125.8	-31.0	270.7	272.4	0.00	0.00	0.00
2,200.0	16.85	97.55	2,164.1	-32.5	282.2	284.0	0.00	0.00	0.00
2,240.0	16.85	97.55	2,202.3	-34.0	293.7	295.6	0.00	0.00	0.00
2,280.0	16.85	97.55	2,240.6	-35.5	305.2	307.2	0.00	0.00	0.00
2,320.0	16.85	97.55	2,278.9	-37.1	316.7	318.8	0.00	0.00	0.00
2,360.0	16.85	97.55	2,317.2	-38.6	328.2	330.4	0.00	0.00	0.00
2,400.0	16.85	97.55	2,355.5	-40.1	339.7	342.0	0.00	0.00	0.00
2,440.0	16.85	97.55	2,393.7	-41.6	351.2	353.6	0.00	0.00	0.00
2,480.0	16.85	97.55	2,432.0	-43.1	362.7	365.2	0.00	0.00	0.00
2,520.0	16.85	97.55	2,470.3	-44.7	374.2	376.8	0.00	0.00	0.00
2,560.0	16.85	97.55	2,508.6	-46.2	385.7	388.4	0.00	0.00	0.00
2,600.0	16.85	97.55	2,546.9	-47.7	397.2	400.0	0.00	0.00	0.00
2,640.0	16.85	97.55	2,585.1	-49.2	408.7	411.6	0.00	0.00	0.00
2,680.0	16.85	97.55	2,623.4	-50.8	420.2	423.2	0.00	0.00	0.00
2,720.0	16.85	97.55	2,661.7	-52.3	431.7	434.8	0.00	0.00	0.00
2,760.0	16.85	97.55	2,700.0	-53.8	443.2	446.4	0.00	0.00	0.00
2,800.0	16.85	97.55	2,738.3	-55.3	454.7	458.0	0.00	0.00	0.00
2,840.0	16.85	97.55	2,776.6	-56.9	466.2	469.6	0.00	0.00	0.00
2,880.0	16.85	97.55	2,814.8	-58.4	477.7	481.2	0.00	0.00	0.00
2,920.0	16.85	97.55	2,853.1	-59.9	489.2	492.8	0.00	0.00	0.00
2,960.0	16.85	97.55	2,891.4	-61.4	500.6	504.4	0.00	0.00	0.00
3,000.0	16.85	97.55	2,929.7	-62.9	512.1	516.0	0.00	0.00	0.00
3,040.0	16.85	97.55	2,968.0	-64.5	523.6	527.6	0.00	0.00	0.00
3,080.0	16.85	97.55	3,006.2	-66.0	535.1	539.2	0.00	0.00	0.00
3,120.0	16.85	97.55	3,044.5	-67.5	546.6	550.8	0.00	0.00	0.00
3,160.0	16.85	97.55	3,082.8	-69.0	558.1	562.4	0.00	0.00	0.00
3,200.0	16.85	97.55	3,121.1	-70.6	569.6	574.0	0.00	0.00	0.00
3,240.0	16.85	97.55	3,159.4	-72.1	581.1	585.6	0.00	0.00	0.00
3,280.0	16.85	97.55	3,197.7	-73.6	592.6	597.2	0.00	0.00	0.00
3,320.0	16.85	97.55	3,235.9	-75.1	604.1	608.8	0.00	0.00	0.00
3,360.0	16.85	97.55	3,274.2	-76.7	615.6	620.4	0.00	0.00	0.00
3,400.0	16.85	97.55	3,312.5	-78.2	627.1	632.0	0.00	0.00	0.00
3,440.0	16.85	97.55	3,350.8	-79.7	638.6	643.6	0.00	0.00	0.00
3,480.0	16.85	97.55	3,389.1	-81.2	650.1	655.2	0.00	0.00	0.00
3,520.0	16.85	97.55	3,427.3	-82.7	661.6	666.8	0.00	0.00	0.00
3,560.0	16.85	97.55	3,465.6	-84.3	673.1	678.4	0.00	0.00	0.00
3,600.0	16.85	97.55	3,503.9	-85.8	684.6	690.0	0.00	0.00	0.00
3,640.0	16.85	97.55	3,542.2	-87.3	696.1	701.6	0.00	0.00	0.00
3,680.0	16.85	97.55	3,580.5	-88.8	707.6	713.2	0.00	0.00	0.00
3,720.0	16.85	97.55	3,618.8	-90.4	719.1	724.8	0.00	0.00	0.00
3,760.0	16.85	97.55	3,657.0	-91.9	730.6	736.4	0.00	0.00	0.00
3,800.0	16.85	97.55	3,695.3	-93.4	742.1	747.9	0.00	0.00	0.00
3,840.0	16.85	97.55	3,733.6	-94.9	753.6	759.5	0.00	0.00	0.00
3,880.0	16.85	97.55	3,771.9	-96.5	765.1	771.1	0.00	0.00	0.00
3,920.0	16.85	97.55	3,810.2	-98.0	776.6	782.7	0.00	0.00	0.00
3,960.0	16.85	97.55	3,848.4	-99.5	788.1	794.3	0.00	0.00	0.00
4,000.0	16.85	97.55	3,886.7	-101.0	799.6	805.9	0.00	0.00	0.00
4,040.0	16.85	97.55	3,925.0	-102.5	811.1	817.5	0.00	0.00	0.00
4,080.0	16.85	97.55	3,963.3	-104.1	822.6	829.1	0.00	0.00	0.00
4,120.0	16.85	97.55	4,001.6	-105.6	834.1	840.7	0.00	0.00	0.00
4,160.0	16.85	97.55	4,039.9	-107.1	845.6	852.3	0.00	0.00	0.00

Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
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 TVD Reference: WELL @ 4675.0ft (Original Well Elev)  
 MD Reference: WELL @ 4675.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

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)
4,200.0	16.85	97.55	4,078.1	-108.6	857.1	863.9	0.00	0.00	0.00
4,240.0	16.85	97.55	4,116.4	-110.2	868.6	875.5	0.00	0.00	0.00
4,280.0	16.85	97.55	4,154.7	-111.7	880.1	887.1	0.00	0.00	0.00
4,320.0	16.85	97.55	4,193.0	-113.2	891.6	898.7	0.00	0.00	0.00
4,360.0	16.85	97.55	4,231.3	-114.7	903.1	910.3	0.00	0.00	0.00
4,400.0	16.85	97.55	4,269.5	-116.3	914.6	921.9	0.00	0.00	0.00
4,440.0	16.85	97.55	4,307.8	-117.8	926.1	933.5	0.00	0.00	0.00
4,480.0	16.85	97.55	4,346.1	-119.3	937.6	945.1	0.00	0.00	0.00
4,520.0	16.85	97.55	4,384.4	-120.8	949.1	956.7	0.00	0.00	0.00
4,560.0	16.85	97.55	4,422.7	-122.3	960.5	968.3	0.00	0.00	0.00
4,600.0	16.85	97.55	4,461.0	-123.9	972.0	979.9	0.00	0.00	0.00
4,640.0	16.85	97.55	4,499.2	-125.4	983.5	991.5	0.00	0.00	0.00
4,680.0	16.85	97.55	4,537.5	-126.9	995.0	1,003.1	0.00	0.00	0.00
4,720.0	16.85	97.55	4,575.8	-128.4	1,006.5	1,014.7	0.00	0.00	0.00
4,760.0	16.85	97.55	4,614.1	-130.0	1,018.0	1,026.3	0.00	0.00	0.00
4,800.0	16.85	97.55	4,652.4	-131.5	1,029.5	1,037.9	0.00	0.00	0.00
4,840.0	16.85	97.55	4,690.6	-133.0	1,041.0	1,049.5	0.00	0.00	0.00
4,880.0	16.85	97.55	4,728.9	-134.5	1,052.5	1,061.1	0.00	0.00	0.00
4,920.0	16.85	97.55	4,767.2	-136.1	1,064.0	1,072.7	0.00	0.00	0.00
4,960.0	16.85	97.55	4,805.5	-137.6	1,075.5	1,084.3	0.00	0.00	0.00
5,000.0	16.85	97.55	4,843.8	-139.1	1,087.0	1,095.9	0.00	0.00	0.00
5,040.0	16.85	97.55	4,882.1	-140.6	1,098.5	1,107.5	0.00	0.00	0.00
5,080.0	16.85	97.55	4,920.3	-142.1	1,110.0	1,119.1	0.00	0.00	0.00
5,120.0	16.85	97.55	4,958.6	-143.7	1,121.5	1,130.7	0.00	0.00	0.00
5,131.2	16.85	97.55	4,969.4	-144.1	1,124.7	1,133.9	0.00	0.00	0.00
5,160.0	16.28	97.55	4,996.9	-145.2	1,132.9	1,142.1	2.00	-2.00	0.00
5,200.0	15.48	97.55	5,035.4	-146.6	1,143.7	1,153.1	2.00	-2.00	0.00
5,240.0	14.68	97.55	5,074.0	-148.0	1,154.0	1,163.5	2.00	-2.00	0.00
5,280.0	13.88	97.55	5,112.8	-149.3	1,163.8	1,173.4	2.00	-2.00	0.00
5,320.0	13.08	97.55	5,151.7	-150.5	1,173.1	1,182.7	2.00	-2.00	0.00
5,360.0	12.28	97.55	5,190.7	-151.6	1,181.8	1,191.5	2.00	-2.00	0.00
5,400.0	11.48	97.55	5,229.9	-152.7	1,189.9	1,199.7	2.00	-2.00	0.00
5,440.0	10.68	97.55	5,269.1	-153.7	1,197.5	1,207.4	2.00	-2.00	0.00
5,480.0	9.88	97.55	5,308.5	-154.7	1,204.6	1,214.5	2.00	-2.00	0.00
5,520.0	9.08	97.55	5,347.9	-155.5	1,211.2	1,221.1	2.00	-2.00	0.00
5,560.0	8.28	97.55	5,387.5	-156.3	1,217.1	1,227.1	2.00	-2.00	0.00
5,600.0	7.48	97.55	5,427.1	-157.1	1,222.6	1,232.6	2.00	-2.00	0.00
5,640.0	6.68	97.55	5,466.8	-157.7	1,227.5	1,237.6	2.00	-2.00	0.00
5,680.0	5.88	97.55	5,506.5	-158.3	1,231.8	1,241.9	2.00	-2.00	0.00
5,720.0	5.08	97.55	5,546.4	-158.8	1,235.6	1,245.7	2.00	-2.00	0.00
5,760.0	4.28	97.55	5,586.2	-159.2	1,238.8	1,249.0	2.00	-2.00	0.00
5,800.0	3.48	97.55	5,626.1	-159.6	1,241.5	1,251.7	2.00	-2.00	0.00
5,840.0	2.68	97.55	5,666.1	-159.8	1,243.6	1,253.9	2.00	-2.00	0.00
5,880.0	1.88	97.55	5,706.0	-160.1	1,245.2	1,255.5	2.00	-2.00	0.00
5,920.0	1.08	97.55	5,746.0	-160.2	1,246.2	1,256.5	2.00	-2.00	0.00
5,960.0	0.28	97.55	5,786.0	-160.3	1,246.7	1,257.0	2.00	-2.00	0.00
5,974.0	0.00	0.00	5,800.0	-160.3	1,246.7	1,257.0	2.00	-2.00	0.00
TARGET BHL 75°FSL, 75°FEL									
6,000.0	0.00	0.00	5,826.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,866.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,906.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,120.0	0.00	0.00	5,946.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,160.0	0.00	0.00	5,986.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,026.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00



Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.13-T4N-R64W  
 Site: Sater CC19-30D Pad Sec.13-T4N-R64W  
 Well: Sater CC19-30D  
 Wellbore: Wellbore #1  
 Design: Noble Sater CC19-30D Plan #1 (2-01-11)

Local Co-ordinate Reference: Well Sater CC19-30D  
 TVD Reference: WELL @ 4675.0ft (Original Well Elev)  
 MD Reference: WELL @ 4675.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

**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	6,066.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,106.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,146.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,186.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,226.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,266.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,306.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,346.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,386.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,426.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,614.0	0.00	0.00	6,440.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
<b>NIOBRARA - TARGET CIRCLE 75'FSL &amp; 75'FEL</b>									
6,640.0	0.00	0.00	6,466.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,506.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,546.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,586.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,626.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,666.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,706.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,904.0	0.00	0.00	6,730.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
<b>CODELL</b>									
6,920.0	0.00	0.00	6,746.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,786.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,826.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,866.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
7,054.0	0.00	0.00	6,880.0	-160.3	1,246.7	1,257.0	0.00	0.00	0.00
<b>HARD LINES 75'S &amp; 75'E of BHL</b>									

**Targets**

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET CIRCLE 75' - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,440.0	-160.3	1,246.7	1,355,600.60	3,281,697.00	40° 18' 18.432 N	104° 29' 23.820 W
TARGET BHL 75'FSL - plan hits target center - Point	0.00	0.00	5,800.0	-160.3	1,246.7	1,355,600.60	3,281,697.00	40° 18' 18.432 N	104° 29' 23.820 W
HARD LINES 75'S & 75'E - plan misses target center by 106.1ft at 7054.0ft MD (6880.0 TVD, -160.3 N, 1246.7 E) - Polygon	0.00	0.00	6,880.0	-235.3	1,321.7	1,355,526.41	3,281,772.80	40° 18' 17.690 N	104° 29' 22.853 W
Point 1			6,880.0	0.0	0.0	1,355,526.41	3,281,772.80		
Point 2			6,880.0	200.0	0.0	1,355,726.39	3,281,770.53		
Point 3			6,880.0	0.0	0.0	1,355,526.41	3,281,772.80		
Point 4			6,880.0	0.0	-200.0	1,355,524.14	3,281,572.82		

Database: Landmark  
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Local Co-ordinate Reference: Well Sater CC19-30D  
TVD Reference: WELL @ 4675.0ft (Original Well Elev)  
MD Reference: WELL @ 4675.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

**Casing Points**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
600.0	600.0	8 5/8"	8-5/8	12-1/4

**Formations**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,614.0	6,440.0	NIOBRARA		0.00	
6,904.0	6,730.0	CODELL		0.00	