

ENSIGN

Directional

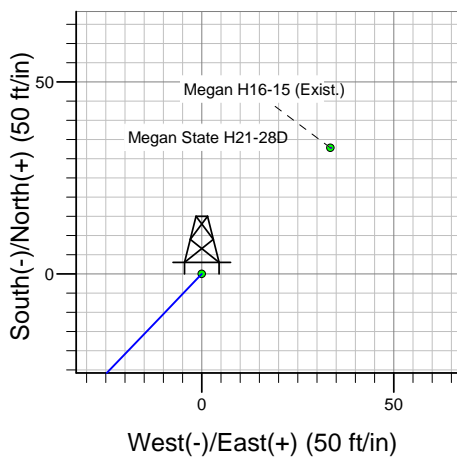
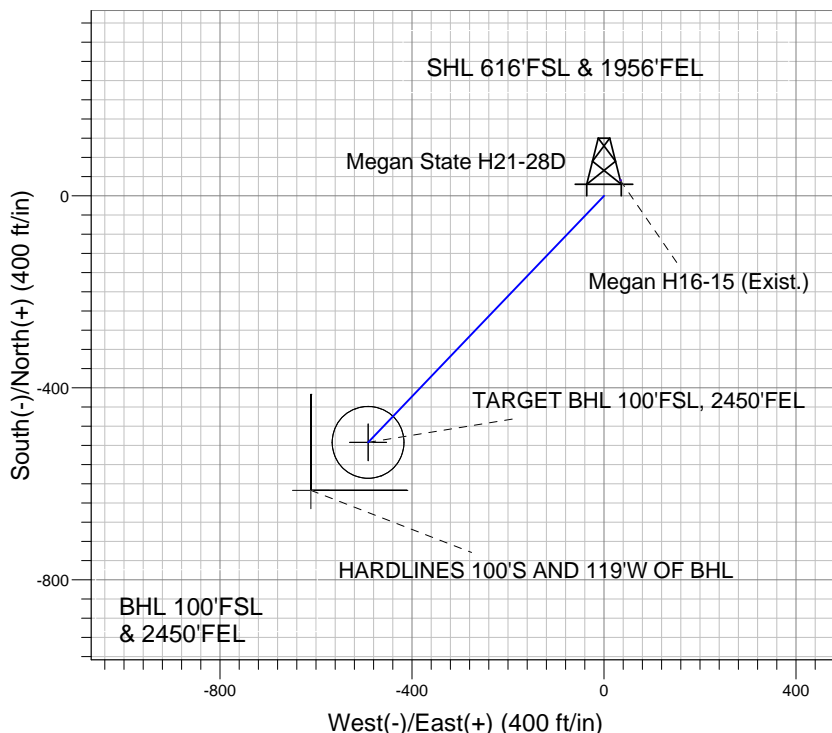
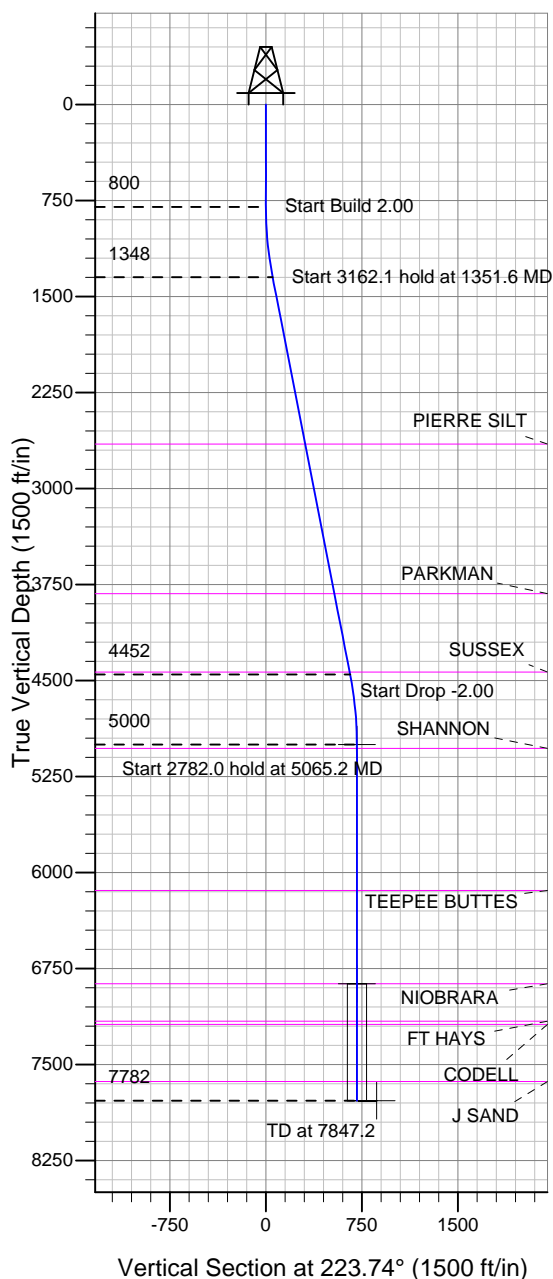
Well Name: Megan State H21-28D

Surface Location: Megan State Pad Sec.16-T3N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4834.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1324031.34 3232788.08 40° 13' 11.496 N 104° 39' 58.932 W
Original Well Elev WELL @ 4846.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Megan State H21-28D
Noble Megan State H21-28D Plan #2 (6-29-10)
15:49, June 29 2010



Azimuths to True North
Magnetic North: 9.08°
Magnetic Field
Strength: 53315.5nT
Dip Angle: 67.01°
Date: 1/28/2009
Model: IGRF200510

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 100'FSL, 2450'FEL	5000.0	-513.6	-491.5	40° 13' 6.420 N	104° 40' 5.268 W	Point
TARGET CIRCLE 100'FSL, 2450'FEL	6869.0	-513.6	-491.5	40° 13' 6.420 N	104° 40' 5.268 W	Circle (Radius: 75.0)
HARDLINES 100'S AND 119'W OF BHL	7782.0	-613.7	-610.5	40° 13' 5.431 N	104° 40' 6.802 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	1351.6	11.03	223.74	1348.2	-38.2	-36.6	2.00	223.74	52.9	
4	4513.7	11.03	223.74	4451.8	-475.4	-454.9	0.00	0.00	658.0	
5	5065.2	0.00	0.00	5000.0	-513.6	-491.5	2.00	180.00	710.9	TARGET BHL 100'FSL, 2450'FEL
6	7847.2	0.00	0.00	7782.0	-513.6	-491.5	0.00	0.00	710.9	



NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T3N-R65W

Megan State Pad Sec.16-T3N-R65W

Megan State H21-28D

Wellbore #1

Plan: Noble Megan State H21-28D Plan #2 (6-29-10)

Standard Planning Report

29 June, 2010

Database:	Landmark	Local Co-ordinate Reference:	Well Megan State H21-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	SEC.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	Megan State Pad Sec.16-T3N-R65W	North Reference:	True
Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Megan State H21-28D Plan #2 (6-29-10)		

Project	SEC.16-T3N-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

Megan State Pad Sec.16-T3N-R65W					
Site Position:		Northing:		Latitude:	
From:	Lat/Long	Easting:	1,324,031.36 ft	Longitude:	40° 13' 11.496 N
Position Uncertainty:	0.0 ft	Slot Radius:	3,232,788.08 ft		104° 39' 58.932 W
			"	Grid Convergence:	0.54 °

Well	Megan State H21-28D					
Well Position	+N-S	0.0 ft	Northing:	1,324,031.34 ft	Latitude:	40° 13' 11.496 N
	+E-W	0.0 ft	Easting:	3,232,788.08 ft	Longitude:	104° 39' 58.932 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,834.0 ft

Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	1/28/2009	9.08	67.01	53,316

Design	Noble Megan State H21-28D Plan #2 (6-29-10)			
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	223.74

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	
1,351.6	11.03	223.74	1,348.2	-38.2	-36.6	2.00	2.00	0.00	223.74	
4,513.7	11.03	223.74	4,451.8	-475.4	-454.9	0.00	0.00	0.00	0.00	
5,065.2	0.00	0.00	5,000.0	-513.6	-491.5	2.00	-2.00	0.00	180.00	TARGET BHL 100°
7,847.2	0.00	0.00	7,782.0	-513.6	-491.5	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Megan State H21-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	SEC.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	Megan State Pad Sec.16-T3N-R65W	North Reference:	True
Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Megan State H21-28D Plan #2 (6-29-10)		

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	0.80	223.74	840.0	-0.2	-0.2	0.3	2.00	2.00	0.00
880.0	1.60	223.74	880.0	-0.8	-0.8	1.1	2.00	2.00	0.00
920.0	2.40	223.74	920.0	-1.8	-1.7	2.5	2.00	2.00	0.00
960.0	3.20	223.74	959.9	-3.2	-3.1	4.5	2.00	2.00	0.00
1,000.0	4.00	223.74	999.8	-5.0	-4.8	7.0	2.00	2.00	0.00
1,040.0	4.80	223.74	1,039.7	-7.3	-6.9	10.0	2.00	2.00	0.00
1,080.0	5.60	223.74	1,079.6	-9.9	-9.5	13.7	2.00	2.00	0.00
1,120.0	6.40	223.74	1,119.3	-12.9	-12.3	17.9	2.00	2.00	0.00
1,160.0	7.20	223.74	1,159.1	-16.3	-15.6	22.6	2.00	2.00	0.00
1,200.0	8.00	223.74	1,198.7	-20.1	-19.3	27.9	2.00	2.00	0.00
1,240.0	8.80	223.74	1,238.3	-24.4	-23.3	33.7	2.00	2.00	0.00
1,280.0	9.60	223.74	1,277.8	-29.0	-27.7	40.1	2.00	2.00	0.00
1,320.0	10.40	223.74	1,317.1	-34.0	-32.5	47.1	2.00	2.00	0.00
1,351.6	11.03	223.74	1,348.2	-38.2	-36.6	52.9	2.00	2.00	0.00
1,360.0	11.03	223.74	1,356.4	-39.4	-37.7	54.5	0.00	0.00	0.00
1,400.0	11.03	223.74	1,395.7	-44.9	-43.0	62.2	0.00	0.00	0.00
1,440.0	11.03	223.74	1,435.0	-50.5	-48.3	69.9	0.00	0.00	0.00
1,480.0	11.03	223.74	1,474.2	-56.0	-53.6	77.5	0.00	0.00	0.00
1,520.0	11.03	223.74	1,513.5	-61.5	-58.9	85.2	0.00	0.00	0.00
1,560.0	11.03	223.74	1,552.7	-67.1	-64.2	92.8	0.00	0.00	0.00
1,600.0	11.03	223.74	1,592.0	-72.6	-69.5	100.5	0.00	0.00	0.00
1,640.0	11.03	223.74	1,631.3	-78.1	-74.8	108.1	0.00	0.00	0.00
1,680.0	11.03	223.74	1,670.5	-83.6	-80.0	115.8	0.00	0.00	0.00
1,720.0	11.03	223.74	1,709.8	-89.2	-85.3	123.4	0.00	0.00	0.00
1,760.0	11.03	223.74	1,749.1	-94.7	-90.6	131.1	0.00	0.00	0.00
1,800.0	11.03	223.74	1,788.3	-100.2	-95.9	138.7	0.00	0.00	0.00
1,840.0	11.03	223.74	1,827.6	-105.8	-101.2	146.4	0.00	0.00	0.00
1,880.0	11.03	223.74	1,866.8	-111.3	-106.5	154.0	0.00	0.00	0.00
1,920.0	11.03	223.74	1,906.1	-116.8	-111.8	161.7	0.00	0.00	0.00
1,960.0	11.03	223.74	1,945.4	-122.4	-117.1	169.4	0.00	0.00	0.00
2,000.0	11.03	223.74	1,984.6	-127.9	-122.4	177.0	0.00	0.00	0.00
2,040.0	11.03	223.74	2,023.9	-133.4	-127.7	184.7	0.00	0.00	0.00
2,080.0	11.03	223.74	2,063.1	-138.9	-133.0	192.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Megan State H21-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	SEC.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	Megan State Pad Sec.16-T3N-R65W	North Reference:	True
Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Megan State H21-28D Plan #2 (6-29-10)		

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)
2,120.0	11.03	223.74	2,102.4	-144.5	-138.3	200.0	0.00	0.00	0.00
2,160.0	11.03	223.74	2,141.7	-150.0	-143.5	207.6	0.00	0.00	0.00
2,200.0	11.03	223.74	2,180.9	-155.5	-148.8	215.3	0.00	0.00	0.00
2,240.0	11.03	223.74	2,220.2	-161.1	-154.1	222.9	0.00	0.00	0.00
2,280.0	11.03	223.74	2,259.4	-166.6	-159.4	230.6	0.00	0.00	0.00
2,320.0	11.03	223.74	2,298.7	-172.1	-164.7	238.2	0.00	0.00	0.00
2,360.0	11.03	223.74	2,338.0	-177.7	-170.0	245.9	0.00	0.00	0.00
2,400.0	11.03	223.74	2,377.2	-183.2	-175.3	253.5	0.00	0.00	0.00
2,440.0	11.03	223.74	2,416.5	-188.7	-180.6	261.2	0.00	0.00	0.00
2,480.0	11.03	223.74	2,455.7	-194.2	-185.9	268.9	0.00	0.00	0.00
2,520.0	11.03	223.74	2,495.0	-199.8	-191.2	276.5	0.00	0.00	0.00
2,560.0	11.03	223.74	2,534.3	-205.3	-196.5	284.2	0.00	0.00	0.00
2,600.0	11.03	223.74	2,573.5	-210.8	-201.8	291.8	0.00	0.00	0.00
2,640.0	11.03	223.74	2,612.8	-216.4	-207.0	299.5	0.00	0.00	0.00
2,679.9	11.03	223.74	2,652.0	-221.9	-212.3	307.1	0.00	0.00	0.00
PIERRE SILT									
2,680.0	11.03	223.74	2,652.1	-221.9	-212.3	307.1	0.00	0.00	0.00
2,720.0	11.03	223.74	2,691.3	-227.4	-217.6	314.8	0.00	0.00	0.00
2,760.0	11.03	223.74	2,730.6	-233.0	-222.9	322.4	0.00	0.00	0.00
2,800.0	11.03	223.74	2,769.8	-238.5	-228.2	330.1	0.00	0.00	0.00
2,840.0	11.03	223.74	2,809.1	-244.0	-233.5	337.7	0.00	0.00	0.00
2,880.0	11.03	223.74	2,848.4	-249.5	-238.8	345.4	0.00	0.00	0.00
2,920.0	11.03	223.74	2,887.6	-255.1	-244.1	353.0	0.00	0.00	0.00
2,960.0	11.03	223.74	2,926.9	-260.6	-249.4	360.7	0.00	0.00	0.00
3,000.0	11.03	223.74	2,966.1	-266.1	-254.7	368.4	0.00	0.00	0.00
3,040.0	11.03	223.74	3,005.4	-271.7	-260.0	376.0	0.00	0.00	0.00
3,080.0	11.03	223.74	3,044.7	-277.2	-265.3	383.7	0.00	0.00	0.00
3,120.0	11.03	223.74	3,083.9	-282.7	-270.5	391.3	0.00	0.00	0.00
3,160.0	11.03	223.74	3,123.2	-288.3	-275.8	399.0	0.00	0.00	0.00
3,200.0	11.03	223.74	3,162.4	-293.8	-281.1	406.6	0.00	0.00	0.00
3,240.0	11.03	223.74	3,201.7	-299.3	-286.4	414.3	0.00	0.00	0.00
3,280.0	11.03	223.74	3,241.0	-304.8	-291.7	421.9	0.00	0.00	0.00
3,320.0	11.03	223.74	3,280.2	-310.4	-297.0	429.6	0.00	0.00	0.00
3,360.0	11.03	223.74	3,319.5	-315.9	-302.3	437.2	0.00	0.00	0.00
3,400.0	11.03	223.74	3,358.7	-321.4	-307.6	444.9	0.00	0.00	0.00
3,440.0	11.03	223.74	3,398.0	-327.0	-312.9	452.5	0.00	0.00	0.00
3,480.0	11.03	223.74	3,437.3	-332.5	-318.2	460.2	0.00	0.00	0.00
3,520.0	11.03	223.74	3,476.5	-338.0	-323.5	467.9	0.00	0.00	0.00
3,560.0	11.03	223.74	3,515.8	-343.6	-328.8	475.5	0.00	0.00	0.00
3,600.0	11.03	223.74	3,555.1	-349.1	-334.0	483.2	0.00	0.00	0.00
3,640.0	11.03	223.74	3,594.3	-354.6	-339.3	490.8	0.00	0.00	0.00
3,680.0	11.03	223.74	3,633.6	-360.1	-344.6	498.5	0.00	0.00	0.00
3,720.0	11.03	223.74	3,672.8	-365.7	-349.9	506.1	0.00	0.00	0.00
3,760.0	11.03	223.74	3,712.1	-371.2	-355.2	513.8	0.00	0.00	0.00
3,800.0	11.03	223.74	3,751.4	-376.7	-360.5	521.4	0.00	0.00	0.00
3,840.0	11.03	223.74	3,790.6	-382.3	-365.8	529.1	0.00	0.00	0.00
3,869.9	11.03	223.74	3,820.0	-386.4	-369.8	534.8	0.00	0.00	0.00
PARKMAN									
3,880.0	11.03	223.74	3,829.9	-387.8	-371.1	536.7	0.00	0.00	0.00
3,920.0	11.03	223.74	3,869.1	-393.3	-376.4	544.4	0.00	0.00	0.00
3,960.0	11.03	223.74	3,908.4	-398.9	-381.7	552.0	0.00	0.00	0.00
4,000.0	11.03	223.74	3,947.7	-404.4	-387.0	559.7	0.00	0.00	0.00
4,040.0	11.03	223.74	3,986.9	-409.9	-392.3	567.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Megan State H21-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	SEC.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	Megan State Pad Sec.16-T3N-R65W	North Reference:	True
Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Megan State H21-28D Plan #2 (6-29-10)		

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)
4,080.0	11.03	223.74	4,026.2	-415.4	-397.5	575.0	0.00	0.00	0.00
4,120.0	11.03	223.74	4,065.4	-421.0	-402.8	582.7	0.00	0.00	0.00
4,160.0	11.03	223.74	4,104.7	-426.5	-408.1	590.3	0.00	0.00	0.00
4,200.0	11.03	223.74	4,144.0	-432.0	-413.4	598.0	0.00	0.00	0.00
4,240.0	11.03	223.74	4,183.2	-437.6	-418.7	605.6	0.00	0.00	0.00
4,280.0	11.03	223.74	4,222.5	-443.1	-424.0	613.3	0.00	0.00	0.00
4,320.0	11.03	223.74	4,261.7	-448.6	-429.3	620.9	0.00	0.00	0.00
4,360.0	11.03	223.74	4,301.0	-454.2	-434.6	628.6	0.00	0.00	0.00
4,400.0	11.03	223.74	4,340.3	-459.7	-439.9	636.2	0.00	0.00	0.00
4,440.0	11.03	223.74	4,379.5	-465.2	-445.2	643.9	0.00	0.00	0.00
4,480.0	11.03	223.74	4,418.8	-470.7	-450.5	651.5	0.00	0.00	0.00
4,495.5	11.03	223.74	4,434.0	-472.9	-452.5	654.5	0.00	0.00	0.00
SUSSEX									
4,513.7	11.03	223.74	4,451.8	-475.4	-454.9	658.0	0.00	0.00	0.00
4,520.0	10.90	223.74	4,458.1	-476.3	-455.7	659.2	2.00	-2.00	0.00
4,560.0	10.10	223.74	4,497.4	-481.5	-460.8	666.5	2.00	-2.00	0.00
4,600.0	9.30	223.74	4,536.8	-486.4	-465.5	673.2	2.00	-2.00	0.00
4,640.0	8.50	223.74	4,576.3	-490.9	-469.7	679.4	2.00	-2.00	0.00
4,680.0	7.70	223.74	4,615.9	-495.0	-473.6	685.1	2.00	-2.00	0.00
4,720.0	6.90	223.74	4,655.6	-498.6	-477.1	690.1	2.00	-2.00	0.00
4,760.0	6.10	223.74	4,695.3	-501.9	-480.3	694.7	2.00	-2.00	0.00
4,800.0	5.30	223.74	4,735.1	-504.8	-483.0	698.7	2.00	-2.00	0.00
4,840.0	4.50	223.74	4,775.0	-507.2	-485.4	702.1	2.00	-2.00	0.00
4,880.0	3.70	223.74	4,814.9	-509.3	-487.4	704.9	2.00	-2.00	0.00
4,920.0	2.90	223.74	4,854.8	-511.0	-489.0	707.2	2.00	-2.00	0.00
4,960.0	2.10	223.74	4,894.8	-512.2	-490.2	709.0	2.00	-2.00	0.00
5,000.0	1.30	223.74	4,934.8	-513.1	-491.0	710.2	2.00	-2.00	0.00
5,040.0	0.50	223.74	4,974.8	-513.6	-491.4	710.8	2.00	-2.00	0.00
5,065.2	0.00	0.00	5,000.0	-513.6	-491.5	710.9	2.00	-2.00	0.00
TARGET BHL 100'FSL, 2450'FEL									
5,080.0	0.00	0.00	5,014.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,094.2	0.00	0.00	5,029.0	-513.6	-491.5	710.9	0.00	0.00	0.00
SHANNON									
5,120.0	0.00	0.00	5,054.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,160.0	0.00	0.00	5,094.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,134.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,240.0	0.00	0.00	5,174.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,280.0	0.00	0.00	5,214.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,320.0	0.00	0.00	5,254.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,360.0	0.00	0.00	5,294.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,400.0	0.00	0.00	5,334.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,440.0	0.00	0.00	5,374.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,480.0	0.00	0.00	5,414.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,520.0	0.00	0.00	5,454.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,560.0	0.00	0.00	5,494.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,534.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,640.0	0.00	0.00	5,574.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,680.0	0.00	0.00	5,614.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,720.0	0.00	0.00	5,654.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,760.0	0.00	0.00	5,694.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,734.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,840.0	0.00	0.00	5,774.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,880.0	0.00	0.00	5,814.8	-513.6	-491.5	710.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Megan State H21-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	SEC.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	Megan State Pad Sec.16-T3N-R65W	North Reference:	True
Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Megan State H21-28D Plan #2 (6-29-10)		

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)
5,920.0	0.00	0.00	5,854.8	-513.6	-491.5	710.9	0.00	0.00	0.00
5,960.0	0.00	0.00	5,894.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,934.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,040.0	0.00	0.00	5,974.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,080.0	0.00	0.00	6,014.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,120.0	0.00	0.00	6,054.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,160.0	0.00	0.00	6,094.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,134.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,205.2	0.00	0.00	6,140.0	-513.6	-491.5	710.9	0.00	0.00	0.00
TEEPEE BUTTES									
6,240.0	0.00	0.00	6,174.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,280.0	0.00	0.00	6,214.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,320.0	0.00	0.00	6,254.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,360.0	0.00	0.00	6,294.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,334.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,374.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,414.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,454.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,494.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,534.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,574.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,614.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,654.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,694.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,734.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,840.0	0.00	0.00	6,774.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,814.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,920.0	0.00	0.00	6,854.8	-513.6	-491.5	710.9	0.00	0.00	0.00
6,934.2	0.00	0.00	6,869.0	-513.6	-491.5	710.9	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 100'FSL, 2450'FEL									
6,960.0	0.00	0.00	6,894.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,934.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,040.0	0.00	0.00	6,974.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,080.0	0.00	0.00	7,014.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,120.0	0.00	0.00	7,054.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,160.0	0.00	0.00	7,094.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,134.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,226.2	0.00	0.00	7,161.0	-513.6	-491.5	710.9	0.00	0.00	0.00
FT HAYS									
7,240.0	0.00	0.00	7,174.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,251.2	0.00	0.00	7,186.0	-513.6	-491.5	710.9	0.00	0.00	0.00
CODELL									
7,280.0	0.00	0.00	7,214.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,320.0	0.00	0.00	7,254.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,360.0	0.00	0.00	7,294.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,334.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,440.0	0.00	0.00	7,374.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,480.0	0.00	0.00	7,414.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,520.0	0.00	0.00	7,454.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,560.0	0.00	0.00	7,494.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,600.0	0.00	0.00	7,534.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,640.0	0.00	0.00	7,574.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,680.0	0.00	0.00	7,614.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,697.2	0.00	0.00	7,632.0	-513.6	-491.5	710.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Megan State H21-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	SEC.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	Megan State Pad Sec.16-T3N-R65W	North Reference:	True
Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Megan State H21-28D Plan #2 (6-29-10)		

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)
J SAND									
7,720.0	0.00	0.00	7,654.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,760.0	0.00	0.00	7,694.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,734.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,840.0	0.00	0.00	7,774.8	-513.6	-491.5	710.9	0.00	0.00	0.00
7,847.2	0.00	0.00	7,782.0	-513.6	-491.5	710.9	0.00	0.00	0.00
HARDLINES 100'S AND 119'W OF BHL									

Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
HARDLINES 100'S AI	0.00	0.00	7,782.0	-613.7	-610.5	1,323,411.97	3,232,183.41	40° 13' 5.431 N	104° 40' 6.802 W
- plan misses by 155.5ft at 7847.2ft MD (7782.0 TVD, -513.6 N, -491.5 E)									
- Polygon									
Point 1			7,782.0	0.0	0.0	1,323,411.97	3,232,183.41		
Point 2			7,782.0	0.0	200.0	1,323,413.85	3,232,383.39		
Point 3			7,782.0	0.0	0.0	1,323,411.97	3,232,183.41		
Point 4			7,782.0	200.0	0.0	1,323,611.95	3,232,181.53		
TARGET BHL 100'FS	0.00	0.00	5,000.0	-513.6	-491.5	1,323,513.13	3,232,301.44	40° 13' 6.420 N	104° 40' 5.268 W
- plan hits target									
- Point									
TARGET CIRCLE 100'	0.00	0.00	6,869.0	-513.6	-491.5	1,323,513.17	3,232,301.45	40° 13' 6.420 N	104° 40' 5.268 W
- plan hits target									
- Circle (radius 75.0)									

Formations

	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	2,679.9	2,652.0	PIERRE SILT		0.00	
	3,869.9	3,820.0	PARKMAN		0.00	
	4,495.5	4,434.0	SUSSEX		0.00	
	5,094.2	5,029.0	SHANNON		0.00	
	6,205.2	6,140.0	TEEPEE BUTTES		0.00	
	6,934.2	6,869.0	NIOBRARA		0.00	
	7,226.2	7,161.0	FT HAYS		0.00	
	7,251.2	7,186.0	CODELL		0.00	
	7,697.2	7,632.0	J SAND		0.00	



NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T3N-R65W

Megan State Pad Sec.16-T3N-R65W

Megan State H21-28D

Wellbore #1

Noble Megan State H21-28D Plan #2 (6-29-10)

Anticollision Report

29 June, 2010

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Megan State H21-28D
Project:	SEC.16-T3N-R65W	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	Megan State Pad Sec.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Megan State H21-28D Plan #2 (6-29-10)	Offset TVD Reference:	Offset Datum

Reference	Noble Megan State H21-28D Plan #.		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	6/29/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,847.2	Noble Megan State H21-28D Plan #2 (6-29-10)	MWD	MWD - Standard

Summary							
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning	
Offset Well - Wellbore - Design							
Megan State Pad Sec.16-T3N-R65W							
Megan H16-15 (Exist.) - Wellbore #1 - Design #1	800.0	800.0	46.9	43.5	13.907	CC, ES	
Megan H16-15 (Exist.) - Wellbore #1 - Design #1	900.0	900.0	48.6	44.8	12.808	SF	

Offset Design	Megan State Pad Sec.16-T3N-R65W - Megan H16-15 (Exist.) - Wellbore #1 - Design #1												Offset Site Error:	0.0 ft
Survey Program:	0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	45.62	32.8	33.5	46.9					
100.0	100.0	100.0	100.0	0.1	0.1	45.62	32.8	33.5	46.9	46.7	0.22	208.612		
200.0	200.0	200.0	200.0	0.3	0.3	45.62	32.8	33.5	46.9	46.2	0.67	69.537		
300.0	300.0	300.0	300.0	0.6	0.6	45.62	32.8	33.5	46.9	45.8	1.12	41.722		
400.0	400.0	400.0	400.0	0.8	0.8	45.62	32.8	33.5	46.9	45.3	1.57	29.802		
500.0	500.0	500.0	500.0	1.0	1.0	45.62	32.8	33.5	46.9	44.9	2.02	23.179		
600.0	600.0	600.0	600.0	1.2	1.2	45.62	32.8	33.5	46.9	44.4	2.47	18.965		
700.0	700.0	700.0	700.0	1.5	1.5	45.62	32.8	33.5	46.9	44.0	2.92	16.047		
800.0	800.0	800.0	800.0	1.7	1.7	45.62	32.8	33.5	46.9	43.5	3.37	13.907	CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	-178.19	32.8	33.5	48.6	44.8	3.80	12.808	SF	
1,000.0	999.8	999.8	999.8	2.1	2.1	-178.36	32.8	33.5	53.9	49.7	4.20	12.812		
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.4	-178.58	32.8	33.5	62.6	58.0	4.62	13.559		
1,200.0	1,198.7	1,198.7	1,198.7	2.5	2.6	-178.81	32.8	33.5	74.8	69.7	5.03	14.868		
1,300.0	1,297.5	1,297.5	1,297.5	2.8	2.8	-179.01	32.8	33.5	90.4	85.0	5.44	16.611		
1,351.6	1,348.2	1,348.2	1,348.2	2.9	2.9	-179.10	32.8	33.5	99.8	94.2	5.66	17.647		
1,400.0	1,395.7	1,395.7	1,395.7	3.1	3.0	-179.18	32.8	33.5	109.1	103.2	5.87	18.593		
1,500.0	1,493.9	1,493.9	1,493.9	3.4	3.2	-179.30	32.8	33.5	128.2	121.9	6.31	20.329		
1,600.0	1,592.0	1,592.0	1,592.0	3.8	3.5	-179.39	32.8	33.5	147.3	140.6	6.75	21.820		
1,700.0	1,690.2	1,690.2	1,690.2	4.2	3.7	-179.46	32.8	33.5	166.5	159.3	7.20	23.111		
1,800.0	1,788.3	1,788.3	1,788.3	4.6	3.9	-179.52	32.8	33.5	185.6	178.0	7.66	24.238		
1,900.0	1,886.5	1,886.5	1,886.5	5.0	4.1	-179.56	32.8	33.5	204.7	196.6	8.12	25.229		
2,000.0	1,984.6	1,984.6	1,984.6	5.4	4.3	-179.60	32.8	33.5	223.9	215.3	8.58	26.107		
2,100.0	2,082.8	2,082.8	2,082.8	5.8	4.6	-179.63	32.8	33.5	243.0	234.0	9.04	26.888		
2,200.0	2,180.9	2,180.9	2,180.9	6.2	4.8	-179.66	32.8	33.5	262.1	252.6	9.50	27.588		
2,300.0	2,279.1	2,279.1	2,279.1	6.6	5.0	-179.68	32.8	33.5	281.3	271.3	9.97	28.219		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Megan State H21-28D
Project:	SEC.16-T3N-R65W	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	Megan State Pad Sec.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Megan State H21-28D Plan #2 (6-29-10)	Offset TVD Reference:	Offset Datum

Offset Design		Megan State Pad Sec.16-T3N-R65W - Megan H16-15 (Exist.) - Wellbore #1 - Design #1											Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,400.0	2,377.2	2,377.2	2,377.2	7.0	5.2	-179.70	32.8	33.5	300.4	290.0	10.44	28.789		
2,500.0	2,475.4	2,475.4	2,475.4	7.4	5.5	-179.72	32.8	33.5	319.5	308.6	10.90	29.307		
2,600.0	2,573.5	2,573.5	2,573.5	7.9	5.7	-179.73	32.8	33.5	338.7	327.3	11.37	29.780		
2,700.0	2,671.7	2,671.7	2,671.7	8.3	5.9	-179.75	32.8	33.5	357.8	346.0	11.84	30.213		
2,800.0	2,769.8	2,769.8	2,769.8	8.7	6.1	-179.76	32.8	33.5	377.0	364.6	12.31	30.611		
2,900.0	2,868.0	2,868.0	2,868.0	9.1	6.3	-179.77	32.8	33.5	396.1	383.3	12.79	30.978		
3,000.0	2,966.1	2,966.1	2,966.1	9.5	6.6	-179.78	32.8	33.5	415.2	402.0	13.26	31.317		
3,100.0	3,064.3	3,064.3	3,064.3	10.0	6.8	-179.79	32.8	33.5	434.4	420.6	13.73	31.632		
3,200.0	3,162.4	3,162.4	3,162.4	10.4	7.0	-179.80	32.8	33.5	453.5	439.3	14.21	31.925		
3,300.0	3,260.6	3,260.6	3,260.6	10.8	7.2	-179.81	32.8	33.5	472.6	457.9	14.68	32.197		
3,400.0	3,358.7	3,358.7	3,358.7	11.3	7.4	-179.82	32.8	33.5	491.8	476.6	15.15	32.452		
3,500.0	3,456.9	3,456.9	3,456.9	11.7	7.7	-179.82	32.8	33.5	510.9	495.3	15.63	32.691		
3,600.0	3,555.1	3,555.1	3,555.1	12.1	7.9	-179.83	32.8	33.5	530.0	513.9	16.10	32.914		
3,700.0	3,653.2	3,653.2	3,653.2	12.5	8.1	-179.84	32.8	33.5	549.2	532.6	16.58	33.124		
3,800.0	3,751.4	3,751.4	3,751.4	13.0	8.3	-179.84	32.8	33.5	568.3	551.2	17.05	33.322		
3,900.0	3,849.5	3,849.5	3,849.5	13.4	8.5	-179.85	32.8	33.5	587.4	569.9	17.53	33.509		
4,000.0	3,947.7	3,947.7	3,947.7	13.8	8.8	-179.85	32.8	33.5	606.6	588.6	18.01	33.685		
4,100.0	4,045.8	4,045.8	4,045.8	14.3	9.0	-179.86	32.8	33.5	625.7	607.2	18.48	33.852		
4,200.0	4,144.0	4,144.0	4,144.0	14.7	9.2	-179.86	32.8	33.5	644.8	625.9	18.96	34.010		
4,300.0	4,242.1	4,242.1	4,242.1	15.1	9.4	-179.86	32.8	33.5	664.0	644.5	19.44	34.159		
4,400.0	4,340.3	4,340.3	4,340.3	15.6	9.6	-179.87	32.8	33.5	683.1	663.2	19.91	34.302		
4,500.0	4,438.4	4,438.4	4,438.4	16.0	9.9	-179.87	32.8	33.5	702.2	681.8	20.39	34.437		
4,513.7	4,451.8	4,451.8	4,451.8	16.0	9.9	-179.87	32.8	33.5	704.9	684.4	20.46	34.455		
4,600.0	4,536.8	4,536.8	4,536.8	16.4	10.1	-179.88	32.8	33.5	720.1	699.2	20.90	34.454		
4,700.0	4,635.8	4,635.8	4,635.8	16.6	10.3	-179.88	32.8	33.5	734.5	713.2	21.37	34.375		
4,800.0	4,735.1	4,735.1	4,735.1	16.8	10.5	-179.88	32.8	33.5	745.5	723.7	21.81	34.187		
4,900.0	4,834.9	4,834.9	4,834.9	17.0	10.8	-179.88	32.8	33.5	753.0	730.8	22.22	33.896		
5,000.0	4,934.8	4,934.8	4,934.8	17.2	11.0	-179.88	32.8	33.5	757.0	734.5	22.59	33.509		
5,065.2	5,000.0	5,000.0	5,000.0	17.3	11.1	43.86	32.8	33.5	757.8	735.0	22.83	33.195		
5,100.0	5,034.8	5,034.8	5,034.8	17.3	11.2	43.86	32.8	33.5	757.8	734.8	22.97	32.990		
5,200.0	5,134.8	5,134.8	5,134.8	17.4	11.4	43.86	32.8	33.5	757.8	734.4	23.37	32.425		
5,300.0	5,234.8	5,234.8	5,234.8	17.6	11.7	43.86	32.8	33.5	757.8	734.0	23.77	31.876		
5,400.0	5,334.8	5,334.8	5,334.8	17.7	11.9	43.86	32.8	33.5	757.8	733.6	24.18	31.344		
5,500.0	5,434.8	5,434.8	5,434.8	17.8	12.1	43.86	32.8	33.5	757.8	733.2	24.58	30.827		
5,600.0	5,534.8	5,534.8	5,534.8	17.9	12.3	43.86	32.8	33.5	757.8	732.8	24.99	30.325		
5,700.0	5,634.8	5,634.8	5,634.8	18.1	12.6	43.86	32.8	33.5	757.8	732.4	25.40	29.838		
5,800.0	5,734.8	5,734.8	5,734.8	18.2	12.8	43.86	32.8	33.5	757.8	732.0	25.81	29.365		
5,900.0	5,834.8	5,834.8	5,834.8	18.3	13.0	43.86	32.8	33.5	757.8	731.6	26.22	28.905		
6,000.0	5,934.8	5,934.8	5,934.8	18.5	13.2	43.86	32.8	33.5	757.8	731.2	26.63	28.458		
6,100.0	6,034.8	6,034.8	6,034.8	18.6	13.5	43.86	32.8	33.5	757.8	730.7	27.04	28.023		
6,200.0	6,134.8	6,134.8	6,134.8	18.7	13.7	43.86	32.8	33.5	757.8	730.3	27.46	27.601		
6,300.0	6,234.8	6,234.8	6,234.8	18.9	13.9	43.86	32.8	33.5	757.8	729.9	27.87	27.190		
6,400.0	6,334.8	6,334.8	6,334.8	19.0	14.1	43.86	32.8	33.5	757.8	729.5	28.29	26.790		
6,500.0	6,434.8	6,434.8	6,434.8	19.2	14.4	43.86	32.8	33.5	757.8	729.1	28.70	26.400		
6,600.0	6,534.8	6,534.8	6,534.8	19.3	14.6	43.86	32.8	33.5	757.8	728.7	29.12	26.021		
6,700.0	6,634.8	6,634.8	6,634.8	19.5	14.8	43.86	32.8	33.5	757.8	728.2	29.54	25.652		
6,800.0	6,734.8	6,734.8	6,734.8	19.6	15.0	43.86	32.8	33.5	757.8	727.8	29.96	25.293		
6,900.0	6,834.8	6,834.8	6,834.8	19.8	15.2	43.86	32.8	33.5	757.8	727.4	30.38	24.943		
7,000.0	6,934.8	6,934.8	6,934.8	19.9	15.5	43.86	32.8	33.5	757.8	727.0	30.80	24.602		
7,048.9	6,983.7	6,983.7	6,983.7	20.0	15.6	43.86	32.8	33.5	757.8	726.8	31.01	24.438		
7,100.0	7,034.8	7,000.0	7,000.0	20.1	15.6	43.86	32.8	33.5	758.6	727.4	31.15	24.356		

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Megan State H21-28D
Project:	SEC.16-T3N-R65W	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	Megan State Pad Sec.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Landmark
Reference Design:	Noble Megan State H21-28D Plan #2 (6-29-10)	Offset TVD Reference:	Offset Datum

Offset Design Megan State Pad Sec.16-T3N-R65W - Megan H16-15 (Exist.) - Wellbore #1 - Design #1												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
7,200.0	7,134.8	7,000.0	7,000.0	20.2	15.6	43.86	32.8	33.5	769.7	738.3	31.34	24.556		
7,300.0	7,234.8	7,000.0	7,000.0	20.4	15.6	43.86	32.8	33.5	793.3	761.8	31.54	25.150		
7,400.0	7,334.8	7,000.0	7,000.0	20.5	15.6	43.86	32.8	33.5	828.4	796.7	31.74	26.099		
7,500.0	7,434.8	7,000.0	7,000.0	20.7	15.6	43.86	32.8	33.5	873.7	841.7	31.94	27.350		
7,600.0	7,534.8	7,000.0	7,000.0	20.8	15.6	43.86	32.8	33.5	927.5	895.3	32.14	28.854		
7,700.0	7,634.8	7,000.0	7,000.0	21.0	15.6	43.86	32.8	33.5	988.5	956.2	32.35	30.562		
7,800.0	7,734.8	7,000.0	7,000.0	21.2	15.6	43.86	32.8	33.5	1,055.5	1,023.0	32.55	32.431		
7,847.2	7,782.0	7,000.0	7,000.0	21.2	15.6	43.86	32.8	33.5	1,088.9	1,056.3	32.64	33.359		

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Megan State H21-28D
Project:	SEC.16-T3N-R65W	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	Megan State Pad Sec.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Megan State H21-28D Plan #2 (6-29-10)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4846.0ft (Original Well Elev) Coordinates are relative to: Megan State H21-28D
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.54°



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Megan State H21-28D
Project:	SEC.16-T3N-R65W	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	Megan State Pad Sec.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Megan State H21-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Megan State H21-28D Plan #2 (6-29-10)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4846.0ft (Original Well Elev)Coordinates are relative to: Megan State H21-28D
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.54°

