

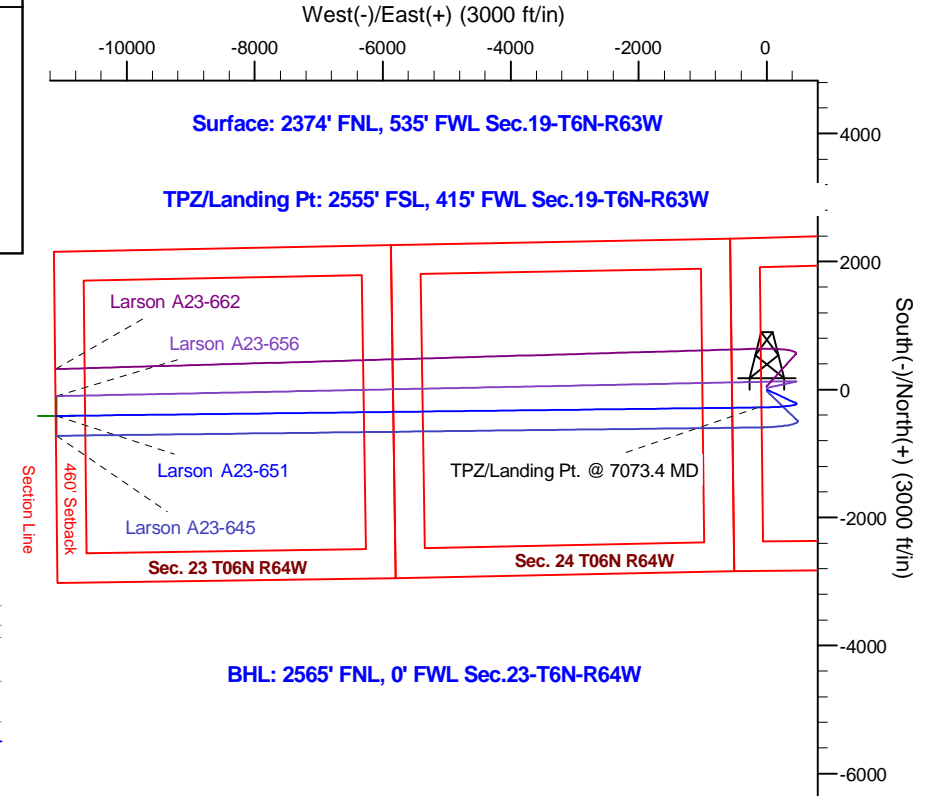
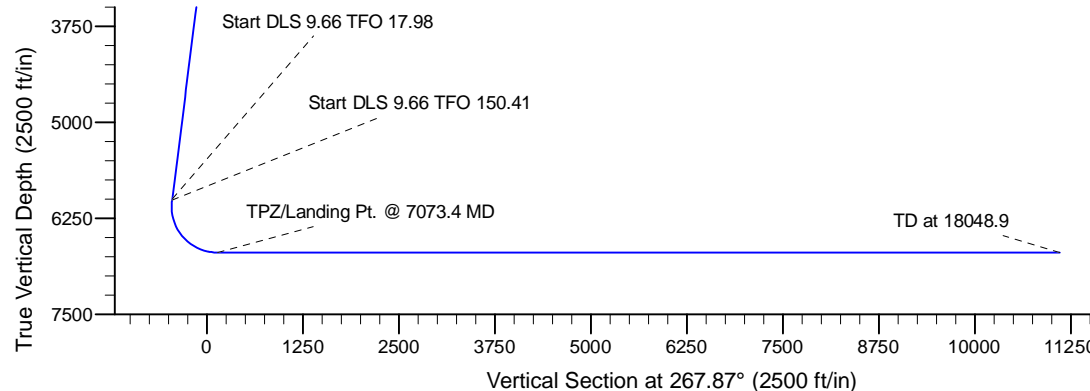
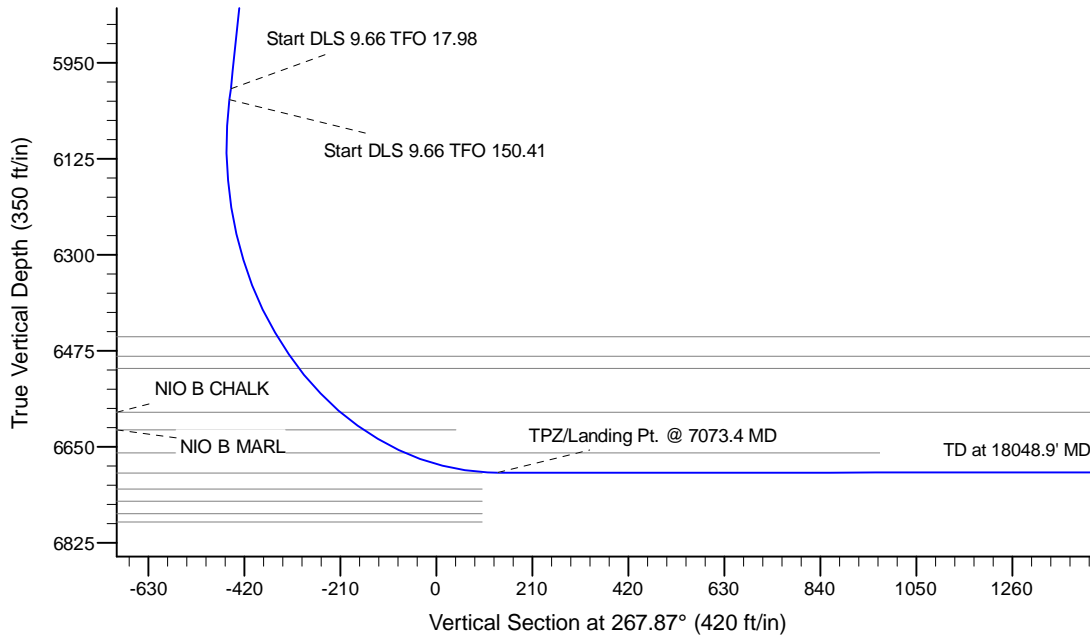
Project: Wells Ranch  
 Site: A Section 24  
 Well: Larson A23-651  
 Wellbore: Original Drilling  
 Design: APD - Rev 0

# Northern Region - DJ Basin

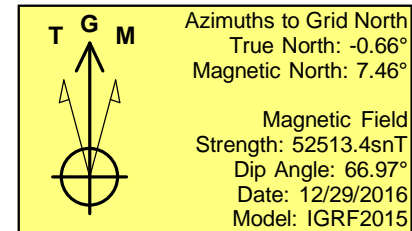
Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Northern Zone  
 System Datum: Mean Sea Level

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	0.00	0.0	
3	2600.0	8.00	115.00	2598.7	-11.8	25.3	2.00	115.00	-24.8	
4	6031.7	8.00	115.00	5997.0	-213.6	458.1	0.00	0.00	-449.9	
5	6052.1	9.89	118.54	6017.1	-215.1	460.9	9.66	17.98	-452.6	
6	7073.4	90.00	269.31	6697.0	-280.0	-125.0	9.66	150.41	135.3	
7	18048.9	90.00	269.31	6697.0	-412.1	-11099.6	0.00	0.00	11107.3	Larson A23-651 BHL 2565'FNL, 0'FWL



BHL: 2565' FNL, 0' FWL Sec.23-T6N-R64W



## WELL DETAILS: Larson A23-651

Northing		Easting		Ground Elevation: 4649.0	Longitude
Latitude		Longitude		Latitude	
0.0	0.0	1416596.91	3281864.70	40.4725399	-104.4868500

Plan: APD - Rev 0 (Larson A23-651/Original Drilling)

Created By: Tatiana Gomez Date: 15:24, October 24 2017

Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# **Northern Region - DJ Basin**

**Wells Ranch  
A Section 24  
Larson A23-651**

**Original Drilling**

**Plan: APD - Rev 0**

## **Standard Planning Report**

**24 October, 2017**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Larson A23-651
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Site:</b>	A Section 24	<b>North Reference:</b>	Grid
<b>Well:</b>	Larson A23-651	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

<b>Project</b>	Wells Ranch, 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		

<b>Site</b>	A Section 24				
<b>Site Position:</b>	<b>Northing:</b>	1,414,828.23 usft	<b>Latitude:</b>	40.4678513	
<b>From:</b> Map	<b>Easting:</b>	3,276,520.37 usft	<b>Longitude:</b>	-104.5061296	
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	0.64 °

<b>Well</b>	Larson A23-651					
<b>Well Position</b>	<b>+N/-S</b>	1,768.7 ft	<b>Northing:</b>	1,416,596.91 usft	<b>Latitude:</b>	40.4725399
	<b>+E/-W</b>	5,344.3 ft	<b>Easting:</b>	3,281,864.71 usft	<b>Longitude:</b>	-104.4868500
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	4,649.0 ft

<b>Wellbore</b>	Original Drilling				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	12/29/2016	8.12	66.97	52,513.38914770

<b>Design</b>	APD - Rev 0			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	267.87

<b>Plan Sections</b>										
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	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,600.0	8.00	115.00	2,598.7	-11.8	25.3	2.00	2.00	0.00	115.00	
6,031.7	8.00	115.00	5,997.0	-213.6	458.1	0.00	0.00	0.00	0.00	
6,052.1	9.89	118.54	6,017.1	-215.1	460.9	9.66	9.28	17.36	17.98	
7,073.4	90.00	269.31	6,697.0	-280.0	-125.0	9.66	7.84	14.76	150.41	
18,048.9	90.00	269.31	6,697.0	-412.1	-11,099.6	0.00	0.00	0.00	0.00	Larson A23-651 BHL :

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Larson A23-651
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Site:</b>	A Section 24	<b>North Reference:</b>	Grid
<b>Well:</b>	Larson A23-651	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

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
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	2.00	115.00	2,300.0	-0.7	1.6	-1.6	2.00	2.00	0.00
2,400.0	4.00	115.00	2,399.8	-2.9	6.3	-6.2	2.00	2.00	0.00
2,500.0	6.00	115.00	2,499.5	-6.6	14.2	-14.0	2.00	2.00	0.00
2,600.0	8.00	115.00	2,598.7	-11.8	25.3	-24.8	2.00	2.00	0.00
2,700.0	8.00	115.00	2,697.7	-17.7	37.9	-37.2	0.00	0.00	0.00
2,800.0	8.00	115.00	2,796.8	-23.5	50.5	-49.6	0.00	0.00	0.00
2,900.0	8.00	115.00	2,895.8	-29.4	63.1	-62.0	0.00	0.00	0.00
3,000.0	8.00	115.00	2,994.8	-35.3	75.7	-74.4	0.00	0.00	0.00
3,100.0	8.00	115.00	3,093.8	-41.2	88.3	-86.7	0.00	0.00	0.00
3,200.0	8.00	115.00	3,192.9	-47.1	100.9	-99.1	0.00	0.00	0.00
3,300.0	8.00	115.00	3,291.9	-53.0	113.6	-111.5	0.00	0.00	0.00
3,400.0	8.00	115.00	3,390.9	-58.8	126.2	-123.9	0.00	0.00	0.00
3,500.0	8.00	115.00	3,489.9	-64.7	138.8	-136.3	0.00	0.00	0.00
3,600.0	8.00	115.00	3,589.0	-70.6	151.4	-148.7	0.00	0.00	0.00
3,700.0	8.00	115.00	3,688.0	-76.5	164.0	-161.1	0.00	0.00	0.00
3,800.0	8.00	115.00	3,787.0	-82.4	176.6	-173.5	0.00	0.00	0.00
3,900.0	8.00	115.00	3,886.0	-88.2	189.2	-185.8	0.00	0.00	0.00
4,000.0	8.00	115.00	3,985.1	-94.1	201.9	-198.2	0.00	0.00	0.00
4,100.0	8.00	115.00	4,084.1	-100.0	214.5	-210.6	0.00	0.00	0.00
4,200.0	8.00	115.00	4,183.1	-105.9	227.1	-223.0	0.00	0.00	0.00
4,300.0	8.00	115.00	4,282.2	-111.8	239.7	-235.4	0.00	0.00	0.00
4,400.0	8.00	115.00	4,381.2	-117.7	252.3	-247.8	0.00	0.00	0.00
4,500.0	8.00	115.00	4,480.2	-123.5	264.9	-260.2	0.00	0.00	0.00
4,600.0	8.00	115.00	4,579.2	-129.4	277.5	-272.5	0.00	0.00	0.00
4,700.0	8.00	115.00	4,678.3	-135.3	290.1	-284.9	0.00	0.00	0.00
4,800.0	8.00	115.00	4,777.3	-141.2	302.8	-297.3	0.00	0.00	0.00
4,900.0	8.00	115.00	4,876.3	-147.1	315.4	-309.7	0.00	0.00	0.00
5,000.0	8.00	115.00	4,975.3	-152.9	328.0	-322.1	0.00	0.00	0.00
5,100.0	8.00	115.00	5,074.4	-158.8	340.6	-334.5	0.00	0.00	0.00
5,200.0	8.00	115.00	5,173.4	-164.7	353.2	-346.9	0.00	0.00	0.00
5,300.0	8.00	115.00	5,272.4	-170.6	365.8	-359.2	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Larson A23-651
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Site:</b>	A Section 24	<b>North Reference:</b>	Grid
<b>Well:</b>	Larson A23-651	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

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)
5,400.0	8.00	115.00	5,371.5	-176.5	378.4	-371.6	0.00	0.00	0.00
5,500.0	8.00	115.00	5,470.5	-182.4	391.1	-384.0	0.00	0.00	0.00
5,600.0	8.00	115.00	5,569.5	-188.2	403.7	-396.4	0.00	0.00	0.00
5,700.0	8.00	115.00	5,668.5	-194.1	416.3	-408.8	0.00	0.00	0.00
5,800.0	8.00	115.00	5,767.6	-200.0	428.9	-421.2	0.00	0.00	0.00
5,900.0	8.00	115.00	5,866.6	-205.9	441.5	-433.6	0.00	0.00	0.00
6,000.0	8.00	115.00	5,965.6	-211.8	454.1	-446.0	0.00	0.00	0.00
6,031.7	8.00	115.00	5,997.0	-213.6	458.1	-449.9	0.00	0.00	0.00
6,052.1	9.89	118.54	6,017.1	-215.1	460.9	-452.6	9.66	9.28	17.36
6,100.0	6.29	139.86	6,064.6	-219.0	466.3	-457.8	9.66	-7.51	44.49
6,200.0	7.46	228.76	6,164.1	-227.5	464.9	-456.1	9.66	1.17	88.91
6,300.0	16.06	252.10	6,262.0	-236.1	446.8	-437.7	9.66	8.59	23.34
6,400.0	25.41	258.99	6,355.4	-244.4	412.5	-403.2	9.66	9.36	6.88
6,500.0	34.93	262.31	6,441.7	-252.4	363.0	-353.3	9.66	9.51	3.32
6,600.0	44.50	264.34	6,518.6	-259.7	299.6	-289.7	9.66	9.57	2.03
6,700.0	54.09	265.78	6,583.7	-266.2	224.1	-214.1	9.66	9.59	1.44
6,800.0	63.70	266.90	6,635.3	-271.6	138.8	-128.6	9.66	9.61	1.12
6,900.0	73.32	267.85	6,671.9	-275.8	45.9	-35.7	9.66	9.62	0.95
7,000.0	82.93	268.71	6,692.5	-278.7	-51.8	62.1	9.66	9.62	0.86
7,073.4	90.00	269.31	6,697.0	-280.0	-125.0	135.3	9.66	9.62	0.82
7,100.0	90.00	269.31	6,697.0	-280.3	-151.6	161.9	0.00	0.00	0.00
7,200.0	90.00	269.31	6,697.0	-281.5	-251.5	261.8	0.00	0.00	0.00
7,300.0	90.00	269.31	6,697.0	-282.7	-351.5	361.8	0.00	0.00	0.00
7,400.0	90.00	269.31	6,697.0	-283.9	-451.5	461.8	0.00	0.00	0.00
7,500.0	90.00	269.31	6,697.0	-285.1	-551.5	561.7	0.00	0.00	0.00
7,600.0	90.00	269.31	6,697.0	-286.3	-651.5	661.7	0.00	0.00	0.00
7,700.0	90.00	269.31	6,697.0	-287.5	-751.5	761.7	0.00	0.00	0.00
7,800.0	90.00	269.31	6,697.0	-288.7	-851.5	861.6	0.00	0.00	0.00
7,900.0	90.00	269.31	6,697.0	-290.0	-951.5	961.6	0.00	0.00	0.00
8,000.0	90.00	269.31	6,697.0	-291.2	-1,051.5	1,061.6	0.00	0.00	0.00
8,100.0	90.00	269.31	6,697.0	-292.4	-1,151.5	1,161.5	0.00	0.00	0.00
8,200.0	90.00	269.31	6,697.0	-293.6	-1,251.5	1,261.5	0.00	0.00	0.00
8,300.0	90.00	269.31	6,697.0	-294.8	-1,351.5	1,361.5	0.00	0.00	0.00
8,400.0	90.00	269.31	6,697.0	-296.0	-1,451.5	1,461.4	0.00	0.00	0.00
8,500.0	90.00	269.31	6,697.0	-297.2	-1,551.5	1,561.4	0.00	0.00	0.00
8,600.0	90.00	269.31	6,697.0	-298.4	-1,651.4	1,661.4	0.00	0.00	0.00
8,700.0	90.00	269.31	6,697.0	-299.6	-1,751.4	1,761.3	0.00	0.00	0.00
8,800.0	90.00	269.31	6,697.0	-300.8	-1,851.4	1,861.3	0.00	0.00	0.00
8,900.0	90.00	269.31	6,697.0	-302.0	-1,951.4	1,961.3	0.00	0.00	0.00
9,000.0	90.00	269.31	6,697.0	-303.2	-2,051.4	2,061.3	0.00	0.00	0.00
9,100.0	90.00	269.31	6,697.0	-304.4	-2,151.4	2,161.2	0.00	0.00	0.00
9,200.0	90.00	269.31	6,697.0	-305.6	-2,251.4	2,261.2	0.00	0.00	0.00
9,300.0	90.00	269.31	6,697.0	-306.8	-2,351.4	2,361.2	0.00	0.00	0.00
9,400.0	90.00	269.31	6,697.0	-308.0	-2,451.4	2,461.1	0.00	0.00	0.00
9,500.0	90.00	269.31	6,697.0	-309.2	-2,551.4	2,561.1	0.00	0.00	0.00
9,600.0	90.00	269.31	6,697.0	-310.4	-2,651.4	2,661.1	0.00	0.00	0.00
9,700.0	90.00	269.31	6,697.0	-311.6	-2,751.4	2,761.0	0.00	0.00	0.00
9,800.0	90.00	269.31	6,697.0	-312.8	-2,851.4	2,861.0	0.00	0.00	0.00
9,900.0	90.00	269.31	6,697.0	-314.0	-2,951.4	2,961.0	0.00	0.00	0.00
10,000.0	90.00	269.31	6,697.0	-315.2	-3,051.3	3,060.9	0.00	0.00	0.00
10,100.0	90.00	269.31	6,697.0	-316.4	-3,151.3	3,160.9	0.00	0.00	0.00
10,200.0	90.00	269.31	6,697.0	-317.7	-3,251.3	3,260.9	0.00	0.00	0.00
10,300.0	90.00	269.31	6,697.0	-318.9	-3,351.3	3,360.8	0.00	0.00	0.00
10,400.0	90.00	269.31	6,697.0	-320.1	-3,451.3	3,460.8	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Larson A23-651
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Site:</b>	A Section 24	<b>North Reference:</b>	Grid
<b>Well:</b>	Larson A23-651	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

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)
10,500.0	90.00	269.31	6,697.0	-321.3	-3,551.3	3,560.8	0.00	0.00	0.00
10,600.0	90.00	269.31	6,697.0	-322.5	-3,651.3	3,660.8	0.00	0.00	0.00
10,700.0	90.00	269.31	6,697.0	-323.7	-3,751.3	3,760.7	0.00	0.00	0.00
10,800.0	90.00	269.31	6,697.0	-324.9	-3,851.3	3,860.7	0.00	0.00	0.00
10,900.0	90.00	269.31	6,697.0	-326.1	-3,951.3	3,960.7	0.00	0.00	0.00
11,000.0	90.00	269.31	6,697.0	-327.3	-4,051.3	4,060.6	0.00	0.00	0.00
11,100.0	90.00	269.31	6,697.0	-328.5	-4,151.3	4,160.6	0.00	0.00	0.00
11,200.0	90.00	269.31	6,697.0	-329.7	-4,251.3	4,260.6	0.00	0.00	0.00
11,300.0	90.00	269.31	6,697.0	-330.9	-4,351.3	4,360.5	0.00	0.00	0.00
11,400.0	90.00	269.31	6,697.0	-332.1	-4,451.2	4,460.5	0.00	0.00	0.00
11,500.0	90.00	269.31	6,697.0	-333.3	-4,551.2	4,560.5	0.00	0.00	0.00
11,600.0	90.00	269.31	6,697.0	-334.5	-4,651.2	4,660.4	0.00	0.00	0.00
11,700.0	90.00	269.31	6,697.0	-335.7	-4,751.2	4,760.4	0.00	0.00	0.00
11,800.0	90.00	269.31	6,697.0	-336.9	-4,851.2	4,860.4	0.00	0.00	0.00
11,900.0	90.00	269.31	6,697.0	-338.1	-4,951.2	4,960.3	0.00	0.00	0.00
12,000.0	90.00	269.31	6,697.0	-339.3	-5,051.2	5,060.3	0.00	0.00	0.00
12,100.0	90.00	269.31	6,697.0	-340.5	-5,151.2	5,160.3	0.00	0.00	0.00
12,200.0	90.00	269.31	6,697.0	-341.7	-5,251.2	5,260.2	0.00	0.00	0.00
12,300.0	90.00	269.31	6,697.0	-342.9	-5,351.2	5,360.2	0.00	0.00	0.00
12,400.0	90.00	269.31	6,697.0	-344.1	-5,451.2	5,460.2	0.00	0.00	0.00
12,500.0	90.00	269.31	6,697.0	-345.3	-5,551.2	5,560.2	0.00	0.00	0.00
12,600.0	90.00	269.31	6,697.0	-346.6	-5,651.2	5,660.1	0.00	0.00	0.00
12,700.0	90.00	269.31	6,697.0	-347.8	-5,751.1	5,760.1	0.00	0.00	0.00
12,800.0	90.00	269.31	6,697.0	-349.0	-5,851.1	5,860.1	0.00	0.00	0.00
12,900.0	90.00	269.31	6,697.0	-350.2	-5,951.1	5,960.0	0.00	0.00	0.00
13,000.0	90.00	269.31	6,697.0	-351.4	-6,051.1	6,060.0	0.00	0.00	0.00
13,100.0	90.00	269.31	6,697.0	-352.6	-6,151.1	6,160.0	0.00	0.00	0.00
13,200.0	90.00	269.31	6,697.0	-353.8	-6,251.1	6,259.9	0.00	0.00	0.00
13,300.0	90.00	269.31	6,697.0	-355.0	-6,351.1	6,359.9	0.00	0.00	0.00
13,400.0	90.00	269.31	6,697.0	-356.2	-6,451.1	6,459.9	0.00	0.00	0.00
13,500.0	90.00	269.31	6,697.0	-357.4	-6,551.1	6,559.8	0.00	0.00	0.00
13,600.0	90.00	269.31	6,697.0	-358.6	-6,651.1	6,659.8	0.00	0.00	0.00
13,700.0	90.00	269.31	6,697.0	-359.8	-6,751.1	6,759.8	0.00	0.00	0.00
13,800.0	90.00	269.31	6,697.0	-361.0	-6,851.1	6,859.7	0.00	0.00	0.00
13,900.0	90.00	269.31	6,697.0	-362.2	-6,951.1	6,959.7	0.00	0.00	0.00
14,000.0	90.00	269.31	6,697.0	-363.4	-7,051.1	7,059.7	0.00	0.00	0.00
14,100.0	90.00	269.31	6,697.0	-364.6	-7,151.0	7,159.7	0.00	0.00	0.00
14,200.0	90.00	269.31	6,697.0	-365.8	-7,251.0	7,259.6	0.00	0.00	0.00
14,300.0	90.00	269.31	6,697.0	-367.0	-7,351.0	7,359.6	0.00	0.00	0.00
14,400.0	90.00	269.31	6,697.0	-368.2	-7,451.0	7,459.6	0.00	0.00	0.00
14,500.0	90.00	269.31	6,697.0	-369.4	-7,551.0	7,559.5	0.00	0.00	0.00
14,600.0	90.00	269.31	6,697.0	-370.6	-7,651.0	7,659.5	0.00	0.00	0.00
14,700.0	90.00	269.31	6,697.0	-371.8	-7,751.0	7,759.5	0.00	0.00	0.00
14,800.0	90.00	269.31	6,697.0	-373.0	-7,851.0	7,859.4	0.00	0.00	0.00
14,900.0	90.00	269.31	6,697.0	-374.3	-7,951.0	7,959.4	0.00	0.00	0.00
15,000.0	90.00	269.31	6,697.0	-375.5	-8,051.0	8,059.4	0.00	0.00	0.00
15,100.0	90.00	269.31	6,697.0	-376.7	-8,151.0	8,159.3	0.00	0.00	0.00
15,200.0	90.00	269.31	6,697.0	-377.9	-8,251.0	8,259.3	0.00	0.00	0.00
15,300.0	90.00	269.31	6,697.0	-379.1	-8,351.0	8,359.3	0.00	0.00	0.00
15,400.0	90.00	269.31	6,697.0	-380.3	-8,451.0	8,459.2	0.00	0.00	0.00
15,500.0	90.00	269.31	6,697.0	-381.5	-8,550.9	8,559.2	0.00	0.00	0.00
15,600.0	90.00	269.31	6,697.0	-382.7	-8,650.9	8,659.2	0.00	0.00	0.00
15,700.0	90.00	269.31	6,697.0	-383.9	-8,750.9	8,759.1	0.00	0.00	0.00
15,800.0	90.00	269.31	6,697.0	-385.1	-8,850.9	8,859.1	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Larson A23-651
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Site:</b>	A Section 24	<b>North Reference:</b>	Grid
<b>Well:</b>	Larson A23-651	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

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)	
15,900.0	90.00	269.31	6,697.0	-386.3	-8,950.9	8,959.1	0.00	0.00	0.00	
16,000.0	90.00	269.31	6,697.0	-387.5	-9,050.9	9,059.1	0.00	0.00	0.00	
16,100.0	90.00	269.31	6,697.0	-388.7	-9,150.9	9,159.0	0.00	0.00	0.00	
16,200.0	90.00	269.31	6,697.0	-389.9	-9,250.9	9,259.0	0.00	0.00	0.00	
16,300.0	90.00	269.31	6,697.0	-391.1	-9,350.9	9,359.0	0.00	0.00	0.00	
16,400.0	90.00	269.31	6,697.0	-392.3	-9,450.9	9,458.9	0.00	0.00	0.00	
16,500.0	90.00	269.31	6,697.0	-393.5	-9,550.9	9,558.9	0.00	0.00	0.00	
16,600.0	90.00	269.31	6,697.0	-394.7	-9,650.9	9,658.9	0.00	0.00	0.00	
16,700.0	90.00	269.31	6,697.0	-395.9	-9,750.9	9,758.8	0.00	0.00	0.00	
16,800.0	90.00	269.31	6,697.0	-397.1	-9,850.9	9,858.8	0.00	0.00	0.00	
16,900.0	90.00	269.31	6,697.0	-398.3	-9,950.8	9,958.8	0.00	0.00	0.00	
17,000.0	90.00	269.31	6,697.0	-399.5	-10,050.8	10,058.7	0.00	0.00	0.00	
17,100.0	90.00	269.31	6,697.0	-400.7	-10,150.8	10,158.7	0.00	0.00	0.00	
17,200.0	90.00	269.31	6,697.0	-401.9	-10,250.8	10,258.7	0.00	0.00	0.00	
17,300.0	90.00	269.31	6,697.0	-403.2	-10,350.8	10,358.6	0.00	0.00	0.00	
17,400.0	90.00	269.31	6,697.0	-404.4	-10,450.8	10,458.6	0.00	0.00	0.00	
17,500.0	90.00	269.31	6,697.0	-405.6	-10,550.8	10,558.6	0.00	0.00	0.00	
17,600.0	90.00	269.31	6,697.0	-406.8	-10,650.8	10,658.6	0.00	0.00	0.00	
17,700.0	90.00	269.31	6,697.0	-408.0	-10,750.8	10,758.5	0.00	0.00	0.00	
17,800.0	90.00	269.31	6,697.0	-409.2	-10,850.8	10,858.5	0.00	0.00	0.00	
17,900.0	90.00	269.31	6,697.0	-410.4	-10,950.8	10,958.5	0.00	0.00	0.00	
18,000.0	90.00	269.31	6,697.0	-411.6	-11,050.8	11,058.4	0.00	0.00	0.00	
18,048.9	90.00	269.31	6,697.0	-412.1	-11,099.6	11,107.3	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Larson A23-651 BHL 25ft - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	6,697.0	-412.1	-11,099.6	1,416,184.80	3,270,765.11	40.4717500	-104.5267600	

**Noble Energy, Inc.**  
Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Larson A23-651
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	WELL @ 4679.0ft (Original Drilling)
<b>Site:</b>	A Section 24	<b>North Reference:</b>	Grid
<b>Well:</b>	Larson A23-651	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
302.0	302.0	FOX HILLS		0.00	
425.0	425.0	UPPER PIERRE AQUIFER TOP		0.00	
440.0	440.0	PIERRE		0.00	
1,496.0	1,496.0	UPPER PIERRE AQUIFER BASE		0.00	
3,550.5	3,540.0	PARKMAN		0.00	
4,244.3	4,227.0	SUSSEX		0.00	
4,832.0	4,809.0	SHANNON		0.00	
5,770.2	5,738.0	TEEPEE BUTTES		0.00	
6,508.9	6,449.0	SHARON SPRINGS		0.00	
6,554.6	6,485.0	NIO A CHALK		0.00	
6,584.0	6,507.0	NIO A MARL		0.00	
6,705.6	6,587.0	NIO B CHALK		0.00	
6,765.2	6,619.0	NIO B MARL		0.00	
6,865.3	6,661.0	NIO C CHALK		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
2,200.0	2,200.0	0.0	0.0	KOP - Start Build 2.00	
6,031.7	5,997.0	-213.6	458.1	Start DLS 9.66 TFO 17.98	
6,052.1	6,017.2	-215.1	460.9	Start DLS 9.66 TFO 150.41	
7,073.4	6,697.0	-280.0	-125.0	TPZ/Landing Pt. @ 7073.4 MD	
18,048.9	6,697.0	-412.1	-11,099.6	TD at 18048.9	