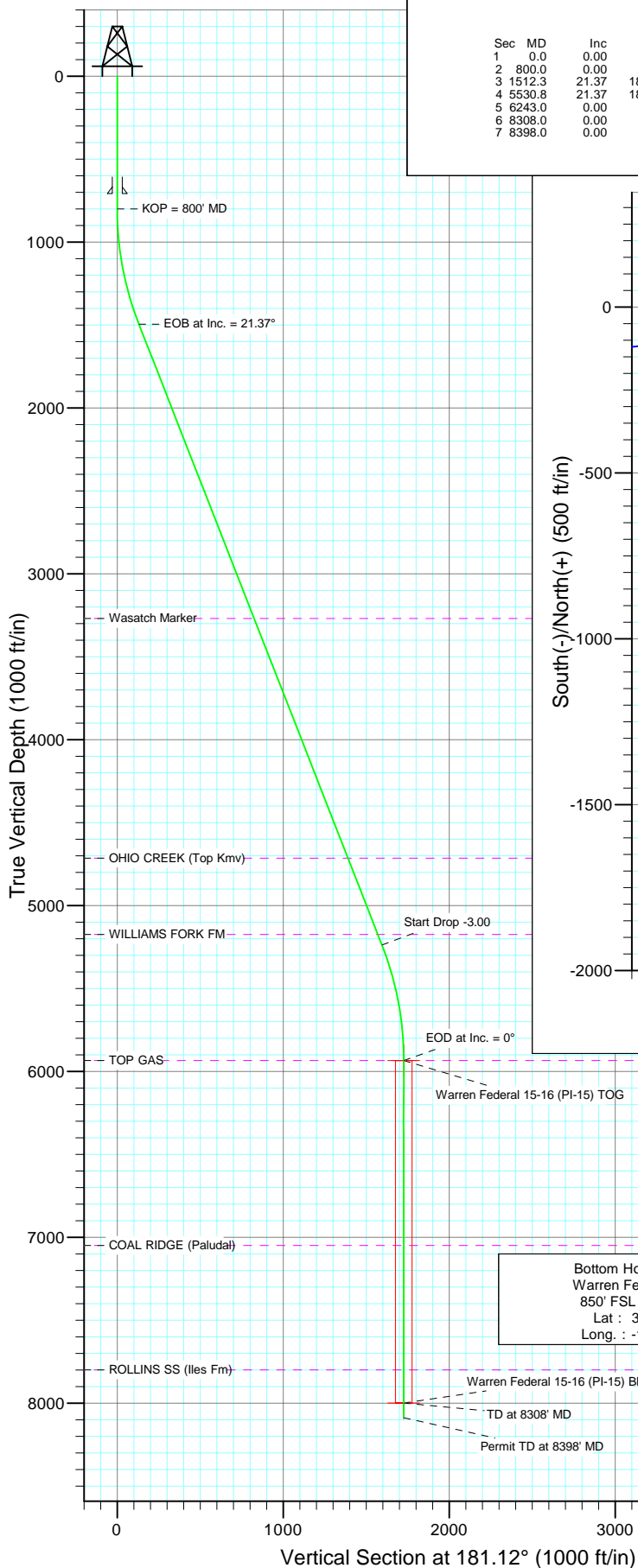
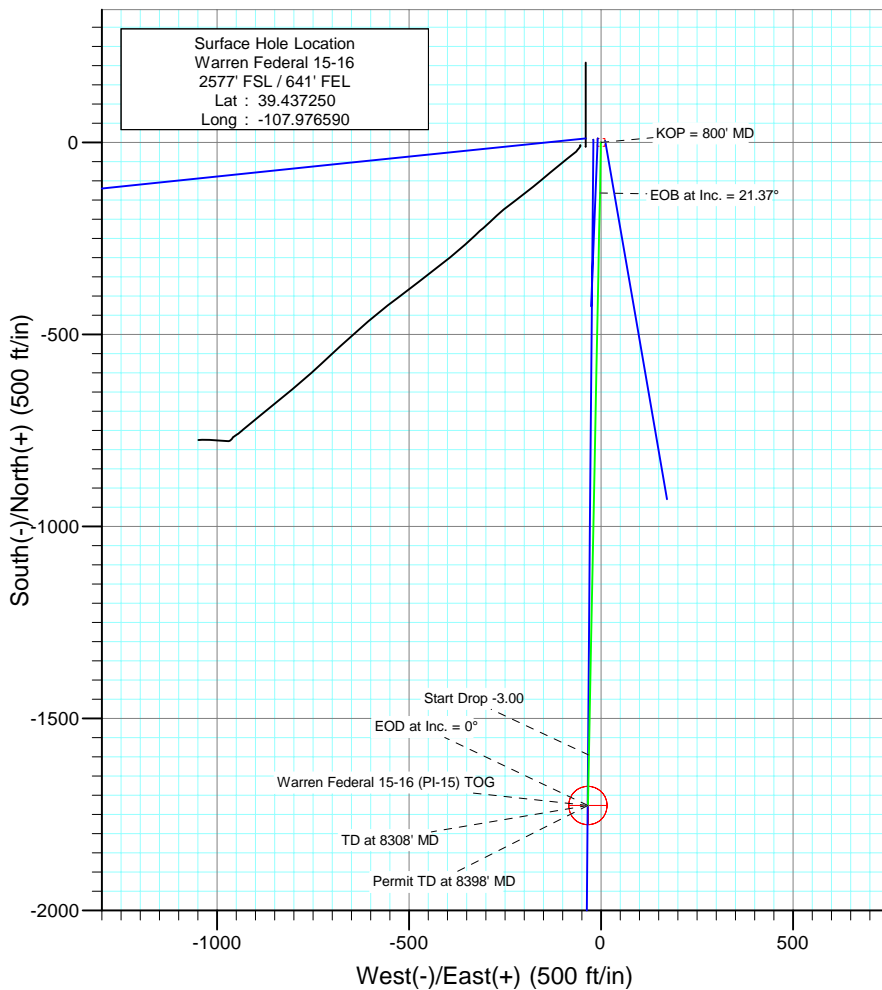




Project: S. Piceance
Site: NESE S15-T7S-R95W (PI 15 Pad)
Well: Warren Federal 15-16
Wellbore: DD
Design: Plan #2



SECTION DETAILS											Target
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec		
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	1512.3	21.37	181.12	1495.9	-131.3	-2.6	3.00	181.12	131.3		
4	5530.8	21.37	181.12	5238.1	-1595.2	-31.3	0.00	0.00	1595.5		
5	6243.0	0.00	0.00	5934.0	-1726.5	-33.9	3.00	180.00	1726.8		Warren Federal 15-16 (PI-15) TOG
6	8308.0	0.00	0.00	7999.0	-1726.5	-33.9	0.00	0.00	1726.8		Warren Federal 15-16 (PI-15) BHL
7	8398.0	0.00	0.00	8089.0	-1726.5	-33.9	0.00	0.00	1726.8		



Azimuths to True North
Magnetic North: 10.52°

Magnetic Field
Strength: 52407.3snT
Dip Angle: 65.75°
Date: 10/27/2009
Model: IGRF200510

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3269.0	3416.3	Wasatch Marker
4714.0	4968.0	OHIO CREEK (Top Kmv)
5174.0	5461.9	WILLIAMS FORK FM
5934.0	6243.1	TOP GAS
7049.0	7358.1	COAL RIDGE (Paludal)
7799.0	8108.1	ROLLINS SS (Iles Fm)

DESIGN DETAILS: Plan #2

95XXX; KR
KBE @ 6689.0ft (Nabors M11)

Target	Azimuth	Origin	N/S	E/W	From TVD
Warren Federal 15-16 (PI-15) BHL	181.12	Slot	0.0	0.0	0.0

Planning Report

Database:	US EDM 2003.21 Multi User Db	Local Co-ordinate Reference:	Well Warren Federal 15-16
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	MD Reference:	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	North Reference:	True
Well:	Warren Federal 15-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Project	S. Piceance, Garfield County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	NESE S15-T7S-R95W (PI 15 Pad)			
Site Position:		Northing:	1,593,681.40 ft	Latitude: 39.437240
From:	Lat/Long	Easting:	2,300,607.26 ft	Longitude: -107.976610
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence: -1.56 °

Well	Warren Federal 15-16			
Well Position	+N/-S	0.0 ft	Northing:	1,593,684.88 ft
	+E/-W	0.0 ft	Easting:	2,300,613.01 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft
			Ground Level:	6,676.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/27/2009	10.52	65.75	52,407

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	181.12

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	
1,512.3	21.37	181.12	1,495.9	-131.3	-2.6	3.00	3.00	0.00	181.12	
5,530.8	21.37	181.12	5,238.1	-1,595.2	-31.3	0.00	0.00	0.00	0.00	
6,243.0	0.00	0.00	5,934.0	-1,726.5	-33.9	3.00	-3.00	0.00	180.00	Warren Federal 15-16
8,308.0	0.00	0.00	7,999.0	-1,726.5	-33.9	0.00	0.00	0.00	0.00	Warren Federal 15-16
8,398.0	0.00	0.00	8,089.0	-1,726.5	-33.9	0.00	0.00	0.00	0.00	

Planning Report

Database:	US EDM 2003.21 Multi User Db	Local Co-ordinate Reference:	Well Warren Federal 15-16
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	MD Reference:	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	North Reference:	True
Well:	Warren Federal 15-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
708.0	0.00	0.00	708.0	0.0	0.0	0.0	0.00	0.00	Surface Casing
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	KOP = 800' MD
900.0	3.00	181.12	900.0	-2.6	-0.1	2.6	3.00	3.00	
1,000.0	6.00	181.12	999.6	-10.5	-0.2	10.5	3.00	3.00	
1,100.0	9.00	181.12	1,098.8	-23.5	-0.5	23.5	3.00	3.00	
1,200.0	12.00	181.12	1,197.1	-41.7	-0.8	41.7	3.00	3.00	
1,300.0	15.00	181.12	1,294.3	-65.1	-1.3	65.1	3.00	3.00	
1,400.0	18.00	181.12	1,390.2	-93.5	-1.8	93.5	3.00	3.00	
1,500.0	21.00	181.12	1,484.4	-126.8	-2.5	126.9	3.00	3.00	
1,512.3	21.37	181.12	1,495.9	-131.3	-2.6	131.3	3.00	3.00	EOB at Inc. = 21.37°
1,600.0	21.37	181.12	1,577.6	-163.2	-3.2	163.3	0.00	0.00	
1,700.0	21.37	181.12	1,670.7	-199.7	-3.9	199.7	0.00	0.00	
1,800.0	21.37	181.12	1,763.8	-236.1	-4.6	236.1	0.00	0.00	
1,900.0	21.37	181.12	1,856.9	-272.5	-5.4	272.6	0.00	0.00	
2,000.0	21.37	181.12	1,950.1	-308.9	-6.1	309.0	0.00	0.00	
2,100.0	21.37	181.12	2,043.2	-345.4	-6.8	345.4	0.00	0.00	
2,200.0	21.37	181.12	2,136.3	-381.8	-7.5	381.9	0.00	0.00	
2,300.0	21.37	181.12	2,229.5	-418.2	-8.2	418.3	0.00	0.00	
2,400.0	21.37	181.12	2,322.6	-454.7	-8.9	454.7	0.00	0.00	
2,500.0	21.37	181.12	2,415.7	-491.1	-9.6	491.2	0.00	0.00	
2,600.0	21.37	181.12	2,508.8	-527.5	-10.4	527.6	0.00	0.00	
2,700.0	21.37	181.12	2,602.0	-563.9	-11.1	564.1	0.00	0.00	
2,800.0	21.37	181.12	2,695.1	-600.4	-11.8	600.5	0.00	0.00	
2,900.0	21.37	181.12	2,788.2	-636.8	-12.5	636.9	0.00	0.00	
3,000.0	21.37	181.12	2,881.3	-673.2	-13.2	673.4	0.00	0.00	
3,100.0	21.37	181.12	2,974.5	-709.7	-13.9	709.8	0.00	0.00	
3,200.0	21.37	181.12	3,067.6	-746.1	-14.6	746.2	0.00	0.00	
3,300.0	21.37	181.12	3,160.7	-782.5	-15.4	782.7	0.00	0.00	
3,400.0	21.37	181.12	3,253.8	-819.0	-16.1	819.1	0.00	0.00	
3,416.3	21.37	181.12	3,269.0	-824.9	-16.2	825.1	0.00	0.00	Wasatch Marker
3,500.0	21.37	181.12	3,347.0	-855.4	-16.8	855.6	0.00	0.00	
3,600.0	21.37	181.12	3,440.1	-891.8	-17.5	892.0	0.00	0.00	
3,700.0	21.37	181.12	3,533.2	-928.2	-18.2	928.4	0.00	0.00	
3,800.0	21.37	181.12	3,626.3	-964.7	-18.9	964.9	0.00	0.00	
3,900.0	21.37	181.12	3,719.5	-1,001.1	-19.7	1,001.3	0.00	0.00	
4,000.0	21.37	181.12	3,812.6	-1,037.5	-20.4	1,037.7	0.00	0.00	
4,100.0	21.37	181.12	3,905.7	-1,074.0	-21.1	1,074.2	0.00	0.00	
4,200.0	21.37	181.12	3,998.8	-1,110.4	-21.8	1,110.6	0.00	0.00	
4,300.0	21.37	181.12	4,092.0	-1,146.8	-22.5	1,147.0	0.00	0.00	
4,400.0	21.37	181.12	4,185.1	-1,183.3	-23.2	1,183.5	0.00	0.00	
4,500.0	21.37	181.12	4,278.2	-1,219.7	-23.9	1,219.9	0.00	0.00	
4,600.0	21.37	181.12	4,371.3	-1,256.1	-24.7	1,256.4	0.00	0.00	
4,700.0	21.37	181.12	4,464.5	-1,292.5	-25.4	1,292.8	0.00	0.00	
4,800.0	21.37	181.12	4,557.6	-1,329.0	-26.1	1,329.2	0.00	0.00	

Planning Report

Database:	US EDM 2003.21 Multi User Db	Local Co-ordinate Reference:	Well Warren Federal 15-16
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	MD Reference:	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	North Reference:	True
Well:	Warren Federal 15-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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)	Comments / Formations
4,900.0	21.37	181.12	4,650.7	-1,365.4	-26.8	1,365.7	0.00	0.00	
4,968.0	21.37	181.12	4,714.0	-1,390.2	-27.3	1,390.4	0.00	0.00	OHIO CREEK (Top Kmv)
5,000.0	21.37	181.12	4,743.8	-1,401.8	-27.5	1,402.1	0.00	0.00	
5,100.0	21.37	181.12	4,837.0	-1,438.3	-28.2	1,438.5	0.00	0.00	
5,200.0	21.37	181.12	4,930.1	-1,474.7	-29.0	1,475.0	0.00	0.00	
5,300.0	21.37	181.12	5,023.2	-1,511.1	-29.7	1,511.4	0.00	0.00	
5,400.0	21.37	181.12	5,116.3	-1,547.6	-30.4	1,547.9	0.00	0.00	
5,461.9	21.37	181.12	5,174.0	-1,570.1	-30.8	1,570.4	0.00	0.00	WILLIAMS FORK FM
5,500.0	21.37	181.12	5,209.5	-1,584.0	-31.1	1,584.3	0.00	0.00	
5,530.8	21.37	181.12	5,238.1	-1,595.2	-31.3	1,595.5	0.00	0.00	Start Drop -3.00
5,600.0	19.29	181.12	5,303.0	-1,619.2	-31.8	1,619.6	3.00	-3.00	
5,700.0	16.29	181.12	5,398.2	-1,649.8	-32.4	1,650.1	3.00	-3.00	
5,800.0	13.29	181.12	5,494.9	-1,675.3	-32.9	1,675.6	3.00	-3.00	
5,900.0	10.29	181.12	5,592.8	-1,695.7	-33.3	1,696.1	3.00	-3.00	
6,000.0	7.29	181.12	5,691.6	-1,711.0	-33.6	1,711.3	3.00	-3.00	
6,100.0	4.29	181.12	5,791.1	-1,721.1	-33.8	1,721.4	3.00	-3.00	
6,200.0	1.29	181.12	5,891.0	-1,726.0	-33.9	1,726.3	3.00	-3.00	
6,243.0	0.00	181.12	5,934.0	-1,726.5	-33.9	1,726.8	3.00	-3.00	EOD at Inc. = 0° - TOP GAS - Warren Federal
6,300.0	0.00	0.00	5,991.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
6,400.0	0.00	0.00	6,091.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
6,500.0	0.00	0.00	6,191.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
6,600.0	0.00	0.00	6,291.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
6,700.0	0.00	0.00	6,391.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
6,800.0	0.00	0.00	6,491.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
6,900.0	0.00	0.00	6,591.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,000.0	0.00	0.00	6,691.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,100.0	0.00	0.00	6,791.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,200.0	0.00	0.00	6,891.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,300.0	0.00	0.00	6,991.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,358.1	0.00	0.00	7,049.0	-1,726.5	-33.9	1,726.8	0.00	0.00	COAL RIDGE (Paludal)
7,400.0	0.00	0.00	7,091.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,500.0	0.00	0.00	7,191.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,600.0	0.00	0.00	7,291.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,700.0	0.00	0.00	7,391.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,800.0	0.00	0.00	7,491.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
7,900.0	0.00	0.00	7,591.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
8,000.0	0.00	0.00	7,691.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
8,100.0	0.00	0.00	7,791.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
8,108.1	0.00	0.00	7,799.0	-1,726.5	-33.9	1,726.8	0.00	0.00	ROLLINS SS (Iles Fm)
8,200.0	0.00	0.00	7,891.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
8,300.0	0.00	0.00	7,991.0	-1,726.5	-33.9	1,726.8	0.00	0.00	
8,308.0	0.00	0.00	7,999.0	-1,726.5	-33.9	1,726.8	0.00	0.00	TD at 8308' MD - Warren Federal 15-16 (PI-15)
8,398.0	0.00	0.00	8,089.0	-1,726.5	-33.9	1,726.8	0.00	0.00	Permit TD at 8398' MD

Planning Report

Database:	US EDM 2003.21 Multi User Db	Local Co-ordinate Reference:	Well Warren Federal 15-16
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6689.0ft (Nabors M11)
Project:	S. Piceance	MD Reference:	KBE @ 6689.0ft (Nabors M11)
Site:	NESE S15-T7S-R95W (PI 15 Pad)	North Reference:	True
Well:	Warren Federal 15-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Warren Federal 15-16 (F - plan hits target center - Circle (radius 50.0))		0.00	7,999.0	-1,726.5	-33.9	1,591,959.98	2,300,532.07	39.432510	-107.976710
Warren Federal 15-16 (F - plan hits target center - Point		0.00	5,934.0	-1,726.5	-33.9	1,591,959.98	2,300,532.07	39.432510	-107.976710

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(ft)	(ft)	Name		(in)	(in)
708.0	708.0	Surface Casing		0.000	0.000

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
3,416.3	3,269.0	Wasatch Marker				
4,968.0	4,714.0	OHIO CREEK (Top Kmv)				
5,461.9	5,174.0	WILLIAMS FORK FM				
6,243.1	5,934.0	TOP GAS				
7,358.1	7,049.0	COAL RIDGE (Paludal)				
8,108.1	7,799.0	ROLLINS SS (Iles Fm)				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
800.0	800.0	0.0	0.0	KOP = 800' MD	
1,512.3	1,495.9	-131.3	-2.6	EOB at Inc. = 21.37°	
5,530.8	5,238.1	-1,595.2	-31.3	Start Drop -3.00	
6,243.0	5,934.0	-1,726.5	-33.9	EOD at Inc. = 0°	
8,308.0	7,999.0	-1,726.5	-33.9	TD at 8308' MD	
8,398.0	8,089.0	-1,726.5	-33.9	Permit TD at 8398' MD	