

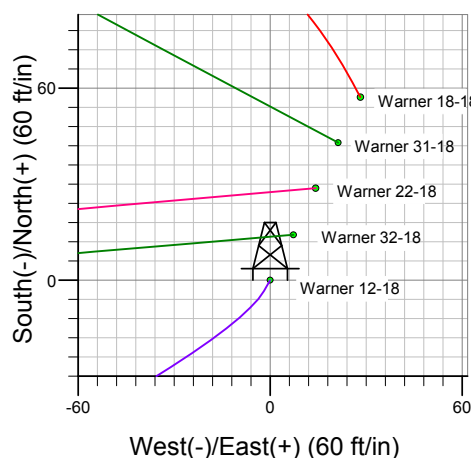
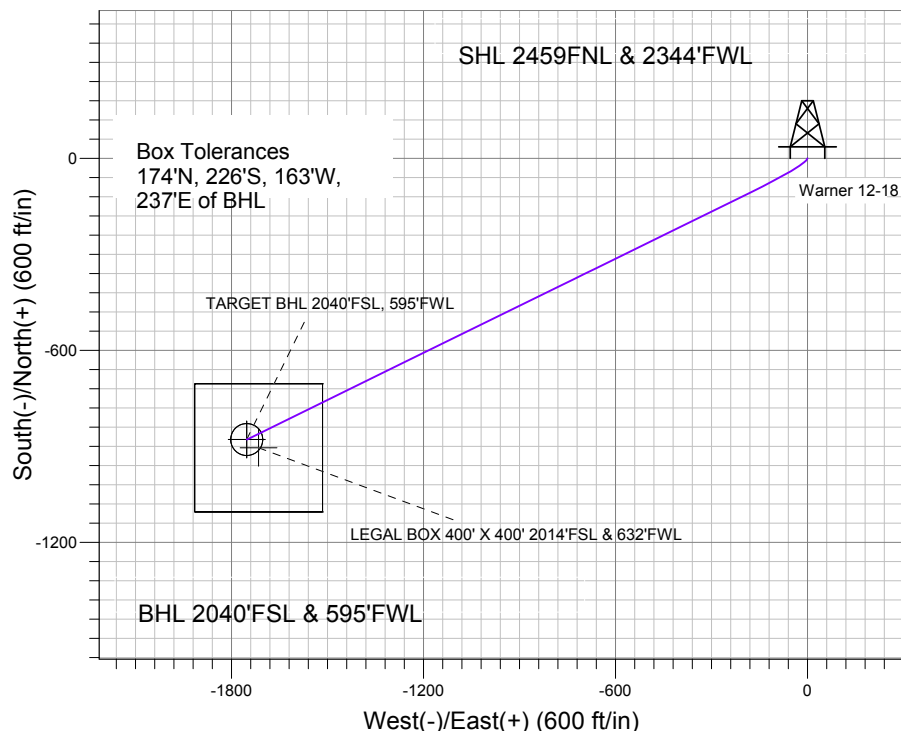
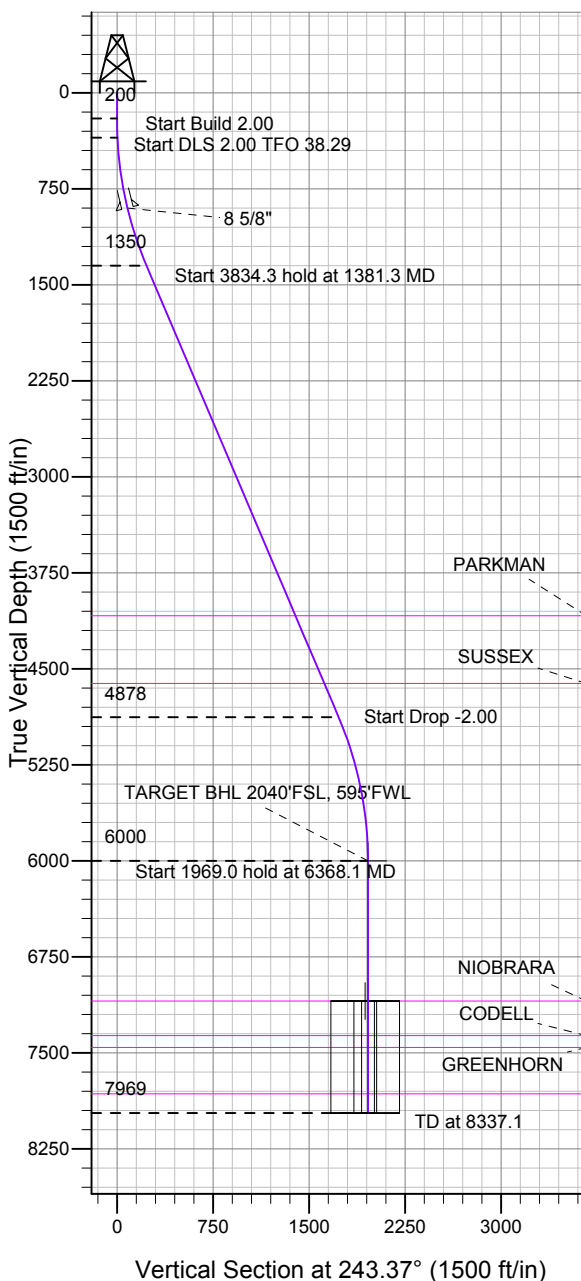
# ENSIGN

## Directional

### Well Name: Warner 12-18

Surface Location: Warner 25-18 Pad Sec.18-T2N-R65W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4984.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1294536.85 3221556.15 40.139180 -104.707534  
 Original Well Elev WELL @ 4998.0ft (Original Well Elev)

### Anadarko, Weld County CO



#### FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation
4084.0	4352.4	PARKMAN
4614.0	4928.4	SUSSEX
7094.0	7462.1	NIOBRARA
7364.0	7732.1	CODELL
7457.0	7825.1	GREENHORN
7819.0	8187.1	J-SAND



Azimuths to True North  
 Magnetic North: 8.85°

Magnetic Field  
 Strength: 53028.0nT  
 Dip Angle: 66.86°  
 Date: 3/7/2011  
 Model: IGRF2010

Well Name: Warner 12-18 Lat/Long: 40.139180 -104.707534

#### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2040'FSL, 595'FWL	6000.0	-878.6	-1752.3	40.136768	-104.713801	Point
LEGAL BOX 400' X 400' 2014'FSL & 632'FWL	7094.0	-904.6	-1715.3	40.136697	-104.713669	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 2040'FSL & 595'FWL	7094.0	-878.6	-1752.3	40.136768	-104.713801	Circle (Radius: 50.0)

#### 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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	350.0	3.00	210.00	349.9	-3.4	-2.0	2.00	210.00	3.3	
4	1381.3	23.05	243.88	1350.1	-116.9	-198.9	2.00	38.29	230.2	
5	5215.5	23.05	243.88	4878.2	-777.9	-1546.9	0.00	0.00	1731.5	
6	6368.1	0.00	0.00	6000.0	-878.6	-1752.3	2.00	180.00	1960.2	TARGET BHL 2040'FSL, 595'FWL
7	8337.1	0.00	0.00	7969.0	-878.6	-1752.3	0.00	0.00	1960.2	

#### CASING DETAILS

TVD	MD	Name	Size
900.0	906.5	8 5/8"	8-5/8

Warner 25-18 Pad Sec.18-T2N-R65W  
 Warner 12-18  
 Plan #1 (3-07-11)  
 15:17, March 17 2011



## **Directional**

### **Anadarko, Weld County CO**

**SEC.18-T2N-R65W**

**Warner 25-18 Pad Sec.18-T2N-R65W**

**Warner 12-18**

**Wellbore #1**

**Plan: Plan #1 (3-07-11)**

### **Standard Planning Report**

**17 March, 2011**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Company:</b>	Anadarko, Weld County CO	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-11)		

<b>Project</b>	SEC.18-T2N-R65W, 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		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Warner 25-18 Pad Sec.18-T2N-R65W			
Site Position:		Northing:	1,294,594.31 ft	Latitude:	40.139337
From:	Lat/Long	Easting:	3,221,583.88 ft	Longitude:	-104.707433
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.51 °

Well	Warner 12-18					
Well Position	+N/-S	-57.2 ft	Northing:	1,294,536.85 ft	Latitude:	40.139180
	+E/-W	-28.2 ft	Easting:	3,221,556.15 ft	Longitude:	-104.707534
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,984.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	3/7/2011	8.85	66.86	53,028

<b>Design</b>	Plan #1 (3-07-11)			
<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	243.37

<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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
350.0	3.00	210.00	349.9	-3.4	-2.0	2.00	2.00	0.00	210.00	
1,381.3	23.05	243.88	1,350.1	-116.9	-198.9	2.00	1.94	3.29	38.29	
5,215.5	23.05	243.88	4,878.2	-777.9	-1,546.9	0.00	0.00	0.00	0.00	
6,368.1	0.00	0.00	6,000.0	-878.6	-1,752.3	2.00	-2.00	0.00	180.00	TARGET BHL 204C
8,337.1	0.00	0.00	7,969.0	-878.6	-1,752.3	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Company:</b>	Anadarko, Weld County CO	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-11)		

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	0.80	210.00	240.0	-0.2	-0.1	0.2	2.00	2.00	0.00
280.0	1.60	210.00	280.0	-1.0	-0.6	0.9	2.00	2.00	0.00
320.0	2.40	210.00	320.0	-2.2	-1.3	2.1	2.00	2.00	0.00
350.0	3.00	210.00	349.9	-3.4	-2.0	3.3	2.00	2.00	0.00
360.0	3.16	212.25	359.9	-3.9	-2.2	3.7	2.00	1.59	22.49
400.0	3.84	219.30	399.8	-5.8	-3.7	5.9	2.00	1.69	17.64
440.0	4.55	224.20	439.7	-8.0	-5.6	8.6	2.00	1.79	12.23
480.0	5.29	227.75	479.6	-10.4	-8.1	11.9	2.00	1.85	8.87
520.0	6.05	230.42	519.4	-13.0	-11.1	15.7	2.00	1.89	6.68
560.0	6.81	232.49	559.1	-15.7	-14.6	20.1	2.00	1.91	5.19
600.0	7.59	234.15	598.8	-18.7	-18.6	25.0	2.00	1.93	4.14
640.0	8.36	235.50	638.4	-21.9	-23.2	30.5	2.00	1.94	3.38
680.0	9.14	236.62	678.0	-25.3	-28.2	36.6	2.00	1.95	2.81
720.0	9.93	237.57	717.4	-28.9	-33.8	43.2	2.00	1.96	2.37
760.0	10.72	238.38	756.8	-32.7	-39.9	50.3	2.00	1.97	2.02
800.0	11.50	239.08	796.0	-36.7	-46.4	58.0	2.00	1.97	1.75
840.0	12.29	239.69	835.2	-40.9	-53.5	66.2	2.00	1.98	1.53
880.0	13.09	240.23	874.2	-45.3	-61.1	75.0	2.00	1.98	1.35
906.5	13.61	240.55	900.0	-48.3	-66.5	81.1	2.00	1.98	1.22
8 5/8"									
920.0	13.88	240.71	913.1	-49.9	-69.3	84.3	2.00	1.98	1.15
960.0	14.67	241.13	951.8	-54.7	-77.9	94.1	2.00	1.98	1.07
1,000.0	15.46	241.52	990.5	-59.7	-87.0	104.5	2.00	1.98	0.96
1,040.0	16.26	241.86	1,028.9	-64.9	-96.6	115.5	2.00	1.99	0.87
1,080.0	17.05	242.18	1,067.3	-70.3	-106.8	126.9	2.00	1.99	0.79
1,120.0	17.85	242.47	1,105.4	-75.8	-117.4	138.9	2.00	1.99	0.72
1,160.0	18.65	242.73	1,143.4	-81.6	-128.5	151.4	2.00	1.99	0.66
1,200.0	19.44	242.98	1,181.2	-87.6	-140.1	164.5	2.00	1.99	0.61
1,240.0	20.24	243.20	1,218.9	-93.7	-152.2	178.1	2.00	1.99	0.56
1,280.0	21.03	243.41	1,256.3	-100.0	-164.8	192.2	2.00	1.99	0.52
1,320.0	21.83	243.61	1,293.5	-106.5	-177.9	206.8	2.00	1.99	0.49
1,360.0	22.63	243.79	1,330.5	-113.3	-191.5	221.9	2.00	1.99	0.45
1,381.3	23.05	243.88	1,350.1	-116.9	-198.9	230.2	2.00	1.99	0.43
1,400.0	23.05	243.88	1,367.4	-120.1	-205.5	237.5	0.00	0.00	0.00
1,440.0	23.05	243.88	1,404.2	-127.0	-219.5	253.2	0.00	0.00	0.00
1,480.0	23.05	243.88	1,441.0	-133.9	-233.6	268.8	0.00	0.00	0.00
1,520.0	23.05	243.88	1,477.8	-140.8	-247.6	284.5	0.00	0.00	0.00
1,560.0	23.05	243.88	1,514.6	-147.7	-261.7	300.1	0.00	0.00	0.00
1,600.0	23.05	243.88	1,551.4	-154.6	-275.8	315.8	0.00	0.00	0.00
1,640.0	23.05	243.88	1,588.2	-161.5	-289.8	331.5	0.00	0.00	0.00
1,680.0	23.05	243.88	1,625.0	-168.4	-303.9	347.1	0.00	0.00	0.00
1,720.0	23.05	243.88	1,661.8	-175.3	-318.0	362.8	0.00	0.00	0.00
1,760.0	23.05	243.88	1,698.6	-182.2	-332.0	378.5	0.00	0.00	0.00
1,800.0	23.05	243.88	1,735.4	-189.1	-346.1	394.1	0.00	0.00	0.00
1,840.0	23.05	243.88	1,772.2	-196.0	-360.1	409.8	0.00	0.00	0.00
1,880.0	23.05	243.88	1,809.1	-202.9	-374.2	425.4	0.00	0.00	0.00
1,920.0	23.05	243.88	1,845.9	-209.8	-388.3	441.1	0.00	0.00	0.00
1,960.0	23.05	243.88	1,882.7	-216.7	-402.3	456.8	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Company:</b>	Anadarko, Weld County CO	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-11)		

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)
2,000.0	23.05	243.88	1,919.5	-223.6	-416.4	472.4	0.00	0.00	0.00
2,040.0	23.05	243.88	1,956.3	-230.5	-430.5	488.1	0.00	0.00	0.00
2,080.0	23.05	243.88	1,993.1	-237.3	-444.5	503.8	0.00	0.00	0.00
2,120.0	23.05	243.88	2,029.9	-244.2	-458.6	519.4	0.00	0.00	0.00
2,160.0	23.05	243.88	2,066.7	-251.1	-472.6	535.1	0.00	0.00	0.00
2,200.0	23.05	243.88	2,103.5	-258.0	-486.7	550.7	0.00	0.00	0.00
2,240.0	23.05	243.88	2,140.3	-264.9	-500.8	566.4	0.00	0.00	0.00
2,280.0	23.05	243.88	2,177.1	-271.8	-514.8	582.1	0.00	0.00	0.00
2,320.0	23.05	243.88	2,213.9	-278.7	-528.9	597.7	0.00	0.00	0.00
2,360.0	23.05	243.88	2,250.7	-285.6	-543.0	613.4	0.00	0.00	0.00
2,400.0	23.05	243.88	2,287.5	-292.5	-557.0	629.0	0.00	0.00	0.00
2,440.0	23.05	243.88	2,324.3	-299.4	-571.1	644.7	0.00	0.00	0.00
2,480.0	23.05	243.88	2,361.1	-306.3	-585.2	660.4	0.00	0.00	0.00
2,520.0	23.05	243.88	2,397.9	-313.2	-599.2	676.0	0.00	0.00	0.00
2,560.0	23.05	243.88	2,434.8	-320.1	-613.3	691.7	0.00	0.00	0.00
2,600.0	23.05	243.88	2,471.6	-327.0	-627.3	707.4	0.00	0.00	0.00
2,640.0	23.05	243.88	2,508.4	-333.9	-641.4	723.0	0.00	0.00	0.00
2,680.0	23.05	243.88	2,545.2	-340.8	-655.5	738.7	0.00	0.00	0.00
2,720.0	23.05	243.88	2,582.0	-347.7	-669.5	754.3	0.00	0.00	0.00
2,760.0	23.05	243.88	2,618.8	-354.6	-683.6	770.0	0.00	0.00	0.00
2,800.0	23.05	243.88	2,655.6	-361.5	-697.7	785.7	0.00	0.00	0.00
2,840.0	23.05	243.88	2,692.4	-368.4	-711.7	801.3	0.00	0.00	0.00
2,880.0	23.05	243.88	2,729.2	-375.3	-725.8	817.0	0.00	0.00	0.00
2,920.0	23.05	243.88	2,766.0	-382.2	-739.8	832.7	0.00	0.00	0.00
2,960.0	23.05	243.88	2,802.8	-389.1	-753.9	848.3	0.00	0.00	0.00
3,000.0	23.05	243.88	2,839.6	-395.9	-768.0	864.0	0.00	0.00	0.00
3,040.0	23.05	243.88	2,876.4	-402.8	-782.0	879.6	0.00	0.00	0.00
3,080.0	23.05	243.88	2,913.2	-409.7	-796.1	895.3	0.00	0.00	0.00
3,120.0	23.05	243.88	2,950.0	-416.6	-810.2	911.0	0.00	0.00	0.00
3,160.0	23.05	243.88	2,986.8	-423.5	-824.2	926.6	0.00	0.00	0.00
3,200.0	23.05	243.88	3,023.7	-430.4	-838.3	942.3	0.00	0.00	0.00
3,240.0	23.05	243.88	3,060.5	-437.3	-852.3	957.9	0.00	0.00	0.00
3,280.0	23.05	243.88	3,097.3	-444.2	-866.4	973.6	0.00	0.00	0.00
3,320.0	23.05	243.88	3,134.1	-451.1	-880.5	989.3	0.00	0.00	0.00
3,360.0	23.05	243.88	3,170.9	-458.0	-894.5	1,004.9	0.00	0.00	0.00
3,400.0	23.05	243.88	3,207.7	-464.9	-908.6	1,020.6	0.00	0.00	0.00
3,440.0	23.05	243.88	3,244.5	-471.8	-922.7	1,036.3	0.00	0.00	0.00
3,480.0	23.05	243.88	3,281.3	-478.7	-936.7	1,051.9	0.00	0.00	0.00
3,520.0	23.05	243.88	3,318.1	-485.6	-950.8	1,067.6	0.00	0.00	0.00
3,560.0	23.05	243.88	3,354.9	-492.5	-964.8	1,083.2	0.00	0.00	0.00
3,600.0	23.05	243.88	3,391.7	-499.4	-978.9	1,098.9	0.00	0.00	0.00
3,640.0	23.05	243.88	3,428.5	-506.3	-993.0	1,114.6	0.00	0.00	0.00
3,680.0	23.05	243.88	3,465.3	-513.2	-1,007.0	1,130.2	0.00	0.00	0.00
3,720.0	23.05	243.88	3,502.1	-520.1	-1,021.1	1,145.9	0.00	0.00	0.00
3,760.0	23.05	243.88	3,538.9	-527.0	-1,035.2	1,161.6	0.00	0.00	0.00
3,800.0	23.05	243.88	3,575.7	-533.9	-1,049.2	1,177.2	0.00	0.00	0.00
3,840.0	23.05	243.88	3,612.5	-540.8	-1,063.3	1,192.9	0.00	0.00	0.00
3,880.0	23.05	243.88	3,649.4	-547.7	-1,077.4	1,208.5	0.00	0.00	0.00
3,920.0	23.05	243.88	3,686.2	-554.6	-1,091.4	1,224.2	0.00	0.00	0.00
3,960.0	23.05	243.88	3,723.0	-561.4	-1,105.5	1,239.9	0.00	0.00	0.00
4,000.0	23.05	243.88	3,759.8	-568.3	-1,119.5	1,255.5	0.00	0.00	0.00
4,040.0	23.05	243.88	3,796.6	-575.2	-1,133.6	1,271.2	0.00	0.00	0.00
4,080.0	23.05	243.88	3,833.4	-582.1	-1,147.7	1,286.9	0.00	0.00	0.00
4,120.0	23.05	243.88	3,870.2	-589.0	-1,161.7	1,302.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Company:</b>	Anadarko, Weld County CO	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-11)		

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)	
4,160.0	23.05	243.88	3,907.0	-595.9	-1,175.8	1,318.2	0.00	0.00	0.00	
4,200.0	23.05	243.88	3,943.8	-602.8	-1,189.9	1,333.8	0.00	0.00	0.00	
4,240.0	23.05	243.88	3,980.6	-609.7	-1,203.9	1,349.5	0.00	0.00	0.00	
4,280.0	23.05	243.88	4,017.4	-616.6	-1,218.0	1,365.2	0.00	0.00	0.00	
4,320.0	23.05	243.88	4,054.2	-623.5	-1,232.0	1,380.8	0.00	0.00	0.00	
4,352.4	23.05	243.88	4,084.0	-629.1	-1,243.4	1,393.5	0.00	0.00	0.00	
<b>PARKMAN</b>										
4,360.0	23.05	243.88	4,091.0	-630.4	-1,246.1	1,396.5	0.00	0.00	0.00	
4,400.0	23.05	243.88	4,127.8	-637.3	-1,260.2	1,412.1	0.00	0.00	0.00	
4,440.0	23.05	243.88	4,164.6	-644.2	-1,274.2	1,427.8	0.00	0.00	0.00	
4,480.0	23.05	243.88	4,201.4	-651.1	-1,288.3	1,443.5	0.00	0.00	0.00	
4,520.0	23.05	243.88	4,238.3	-658.0	-1,302.4	1,459.1	0.00	0.00	0.00	
4,560.0	23.05	243.88	4,275.1	-664.9	-1,316.4	1,474.8	0.00	0.00	0.00	
4,600.0	23.05	243.88	4,311.9	-671.8	-1,330.5	1,490.5	0.00	0.00	0.00	
4,640.0	23.05	243.88	4,348.7	-678.7	-1,344.5	1,506.1	0.00	0.00	0.00	
4,680.0	23.05	243.88	4,385.5	-685.6	-1,358.6	1,521.8	0.00	0.00	0.00	
4,720.0	23.05	243.88	4,422.3	-692.5	-1,372.7	1,537.4	0.00	0.00	0.00	
4,760.0	23.05	243.88	4,459.1	-699.4	-1,386.7	1,553.1	0.00	0.00	0.00	
4,800.0	23.05	243.88	4,495.9	-706.3	-1,400.8	1,568.8	0.00	0.00	0.00	
4,840.0	23.05	243.88	4,532.7	-713.2	-1,414.9	1,584.4	0.00	0.00	0.00	
4,880.0	23.05	243.88	4,569.5	-720.1	-1,428.9	1,600.1	0.00	0.00	0.00	
4,920.0	23.05	243.88	4,606.3	-726.9	-1,443.0	1,615.8	0.00	0.00	0.00	
4,928.4	23.05	243.88	4,614.0	-728.4	-1,445.9	1,619.0	0.00	0.00	0.00	
<b>SUSSEX</b>										
4,960.0	23.05	243.88	4,643.1	-733.8	-1,457.1	1,631.4	0.00	0.00	0.00	
5,000.0	23.05	243.88	4,679.9	-740.7	-1,471.1	1,647.1	0.00	0.00	0.00	
5,040.0	23.05	243.88	4,716.7	-747.6	-1,485.2	1,662.7	0.00	0.00	0.00	
5,080.0	23.05	243.88	4,753.5	-754.5	-1,499.2	1,678.4	0.00	0.00	0.00	
5,120.0	23.05	243.88	4,790.3	-761.4	-1,513.3	1,694.1	0.00	0.00	0.00	
5,160.0	23.05	243.88	4,827.1	-768.3	-1,527.4	1,709.7	0.00	0.00	0.00	
5,200.0	23.05	243.88	4,864.0	-775.2	-1,541.4	1,725.4	0.00	0.00	0.00	
5,215.5	23.05	243.88	4,878.2	-777.9	-1,546.9	1,731.5	0.00	0.00	0.00	
5,240.0	22.56	243.88	4,900.8	-782.1	-1,555.4	1,741.0	2.00	-2.00	0.00	
5,280.0	21.76	243.88	4,937.8	-788.7	-1,569.0	1,756.0	2.00	-2.00	0.00	
5,320.0	20.96	243.88	4,975.1	-795.1	-1,582.0	1,770.6	2.00	-2.00	0.00	
5,360.0	20.16	243.88	5,012.5	-801.3	-1,594.6	1,784.7	2.00	-2.00	0.00	
5,400.0	19.36	243.88	5,050.2	-807.3	-1,606.8	1,798.2	2.00	-2.00	0.00	
5,440.0	18.56	243.88	5,088.0	-813.0	-1,618.5	1,811.2	2.00	-2.00	0.00	
5,480.0	17.76	243.88	5,126.0	-818.5	-1,629.7	1,823.6	2.00	-2.00	0.00	
5,520.0	16.96	243.88	5,164.2	-823.7	-1,640.4	1,835.6	2.00	-2.00	0.00	
5,560.0	16.16	243.88	5,202.5	-828.8	-1,650.6	1,847.0	2.00	-2.00	0.00	
5,600.0	15.36	243.88	5,241.0	-833.5	-1,660.4	1,857.9	2.00	-2.00	0.00	
5,640.0	14.56	243.88	5,279.7	-838.1	-1,669.6	1,868.2	2.00	-2.00	0.00	
5,680.0	13.76	243.88	5,318.5	-842.4	-1,678.4	1,878.0	2.00	-2.00	0.00	
5,720.0	12.96	243.88	5,357.4	-846.5	-1,686.7	1,887.2	2.00	-2.00	0.00	
5,760.0	12.16	243.88	5,396.4	-850.3	-1,694.5	1,895.9	2.00	-2.00	0.00	
5,800.0	11.36	243.88	5,435.6	-853.9	-1,701.9	1,904.1	2.00	-2.00	0.00	
5,840.0	10.56	243.88	5,474.9	-857.2	-1,708.7	1,911.7	2.00	-2.00	0.00	
5,880.0	9.76	243.88	5,514.2	-860.3	-1,715.0	1,918.7	2.00	-2.00	0.00	
5,920.0	8.96	243.88	5,553.7	-863.2	-1,720.9	1,925.2	2.00	-2.00	0.00	
5,960.0	8.16	243.88	5,593.2	-865.8	-1,726.2	1,931.2	2.00	-2.00	0.00	
6,000.0	7.36	243.88	5,632.9	-868.2	-1,731.1	1,936.6	2.00	-2.00	0.00	
6,040.0	6.56	243.88	5,672.6	-870.3	-1,735.4	1,941.4	2.00	-2.00	0.00	
6,080.0	5.76	243.88	5,712.4	-872.2	-1,739.3	1,945.7	2.00	-2.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Company:</b>	Anadarko, Weld County CO	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-11)		

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)
6,120.0	4.96	243.88	5,752.2	-873.9	-1,742.6	1,949.5	2.00	-2.00	0.00
6,160.0	4.16	243.88	5,792.1	-875.3	-1,745.5	1,952.7	2.00	-2.00	0.00
6,200.0	3.36	243.88	5,832.0	-876.4	-1,747.8	1,955.3	2.00	-2.00	0.00
6,240.0	2.56	243.88	5,871.9	-877.3	-1,749.7	1,957.3	2.00	-2.00	0.00
6,280.0	1.76	243.88	5,911.9	-878.0	-1,751.1	1,958.9	2.00	-2.00	0.00
6,320.0	0.96	243.88	5,951.9	-878.4	-1,751.9	1,959.8	2.00	-2.00	0.00
6,360.0	0.16	243.88	5,991.9	-878.6	-1,752.3	1,960.2	2.00	-2.00	0.00
6,368.1	0.00	0.00	6,000.0	-878.6	-1,752.3	1,960.2	2.00	-2.00	0.00
<b>TARGET BHL 2040'FSL, 595'FWL</b>									
6,400.0	0.00	0.00	6,031.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,440.0	0.00	0.00	6,071.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,480.0	0.00	0.00	6,111.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,520.0	0.00	0.00	6,151.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,560.0	0.00	0.00	6,191.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,231.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,640.0	0.00	0.00	6,271.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,680.0	0.00	0.00	6,311.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,720.0	0.00	0.00	6,351.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,760.0	0.00	0.00	6,391.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,431.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,840.0	0.00	0.00	6,471.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,880.0	0.00	0.00	6,511.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,920.0	0.00	0.00	6,551.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
6,960.0	0.00	0.00	6,591.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,000.0	0.00	0.00	6,631.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,040.0	0.00	0.00	6,671.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,080.0	0.00	0.00	6,711.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,120.0	0.00	0.00	6,751.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,160.0	0.00	0.00	6,791.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,200.0	0.00	0.00	6,831.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,240.0	0.00	0.00	6,871.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,280.0	0.00	0.00	6,911.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,320.0	0.00	0.00	6,951.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,360.0	0.00	0.00	6,991.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,400.0	0.00	0.00	7,031.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,440.0	0.00	0.00	7,071.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,462.1	0.00	0.00	7,094.0	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
<b>NIOBARRA - LEGAL BOX 400' X 400' 2014'FSL &amp; 632'FWL - TARGET CIRCLE 2040'FSL &amp; 595'FWL</b>									
7,480.0	0.00	0.00	7,111.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,520.0	0.00	0.00	7,151.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,560.0	0.00	0.00	7,191.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,600.0	0.00	0.00	7,231.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,640.0	0.00	0.00	7,271.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,680.0	0.00	0.00	7,311.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,720.0	0.00	0.00	7,351.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,732.1	0.00	0.00	7,364.0	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
<b>CODELL</b>									
7,760.0	0.00	0.00	7,391.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,800.0	0.00	0.00	7,431.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,825.1	0.00	0.00	7,457.0	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
<b>GREENHORN</b>									
7,840.0	0.00	0.00	7,471.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00
7,880.0	0.00	0.00	7,511.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Company:</b>	Anadarko, Weld County CO	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-11)		

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)	
7,920.0	0.00	0.00	7,551.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
7,960.0	0.00	0.00	7,591.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,631.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,040.0	0.00	0.00	7,671.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,080.0	0.00	0.00	7,711.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,120.0	0.00	0.00	7,751.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,160.0	0.00	0.00	7,791.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,187.1	0.00	0.00	7,819.0	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
<b>J-SAND</b>										
8,200.0	0.00	0.00	7,831.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,240.0	0.00	0.00	7,871.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,280.0	0.00	0.00	7,911.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,320.0	0.00	0.00	7,951.9	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	
8,337.1	0.00	0.00	7,969.0	-878.6	-1,752.3	1,960.2	0.00	0.00	0.00	

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										
LEGAL BOX 400' X 41	0.00	0.00	7,094.0	-904.6	-1,715.3	1,293,617.00	3,219,849.08	40.136697	-104.713669	
- plan misses target center by 45.2ft at 7462.1ft MD (7094.0 TVD, -878.6 N, -1752.3 E)										
- Rectangle (sides W400.0 H400.0 D875.0)										
TARGET CIRCLE 20'	0.00	0.00	7,094.0	-878.6	-1,752.3	1,293,642.66	3,219,811.87	40.136768	-104.713801	
- plan hits target center										
- Circle (radius 50.0)										
TARGET BHL 2040'F	0.00	0.00	6,000.0	-878.6	-1,752.3	1,293,642.66	3,219,811.87	40.136768	-104.713801	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
906.5	900.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,352.4	4,084.0	PARKMAN		0.00		
4,928.4	4,614.0	SUSSEX		0.00		
7,462.1	7,094.0	NIOBRARA		0.00		
7,732.1	7,364.0	CODELL		0.00		
7,825.1	7,457.0	GREENHORN		0.00		
8,187.1	7,819.0	J-SAND		0.00		



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Company:</b>	Anadarko, Weld County CO	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-07-11)		



## **Directional**

### **Anadarko, Weld County CO**

**SEC.18-T2N-R65W**

**Warner 25-18 Pad Sec.18-T2N-R65W**

**Warner 12-18**

**Wellbore #1**

**Plan #1 (3-07-11)**

## **Anticollision Report**

**17 March, 2011**



<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Project:</b>	SEC.18-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Reference Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-11)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (3-07-11)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 3/17/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	8,337.1	Plan #1 (3-07-11) (Wellbore #1)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Warner 25-18 Pad Sec.18-T2N-R65W						
Warner 32-18 - Wellbore #1 - Plan #1 (3-07-11)	200.0	200.0	16.0	15.3	23.668	CC, ES
Warner 32-18 - Wellbore #1 - Plan #1 (3-07-11)	2,700.0	2,671.9	332.0	299.1	10.088	SF

Offset Design Warner 25-18 Pad Sec.18-T2N-R65W - Warner 32-18 - Wellbore #1 - Plan #1 (3-07-11)													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)	+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	27.10	14.2	7.3	16.0	16.0	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	27.10	14.2	7.3	16.0	15.7	0.22	71.004		
200.0	200.0	200.0	200.0	0.3	0.3	27.10	14.2	7.3	16.0	15.3	0.67	23.668	CC, ES	
300.0	300.0	300.3	300.2	0.5	0.6	172.32	14.1	5.5	16.8	15.7	1.10	15.350		
350.0	349.9	350.4	350.3	0.6	0.7	167.06	13.9	3.3	18.1	16.8	1.31	13.813		
400.0	399.8	400.4	400.2	0.8	0.8	152.20	13.6	0.3	19.8	18.3	1.52	13.020		
500.0	499.5	500.4	499.8	1.0	1.0	133.37	12.9	-8.4	24.5	22.5	2.01	12.232		
600.0	598.8	600.2	598.9	1.3	1.3	122.05	11.8	-20.5	30.6	28.1	2.56	11.960		
700.0	697.7	699.9	697.4	1.6	1.7	114.70	10.5	-36.1	38.0	34.8	3.21	11.837		
800.0	796.0	799.4	795.0	2.0	2.0	109.72	8.9	-55.0	46.5	42.5	3.96	11.729		
900.0	893.6	898.7	891.8	2.4	2.5	106.20	7.0	-77.2	56.0	51.2	4.83	11.599		
1,000.0	990.5	997.8	987.6	2.9	3.0	103.64	4.9	-102.7	66.5	60.7	5.81	11.441		
1,100.0	1,086.4	1,096.7	1,082.2	3.5	3.6	101.73	2.4	-131.4	78.0	71.1	6.93	11.261		
1,200.0	1,181.2	1,195.4	1,175.5	4.1	4.2	100.27	-0.3	-163.3	90.5	82.3	8.18	11.067		
1,300.0	1,274.9	1,293.9	1,267.5	4.8	4.9	99.12	-3.2	-198.3	103.9	94.3	9.56	10.866		
1,381.3	1,350.1	1,373.8	1,341.2	5.4	5.6	98.36	-5.8	-229.0	115.4	104.6	10.79	10.696		
1,400.0	1,367.4	1,392.1	1,358.0	5.6	5.7	98.30	-6.5	-236.3	118.1	107.1	11.08	10.663		
1,500.0	1,459.4	1,490.1	1,446.9	6.4	6.6	97.17	-9.9	-277.3	133.2	120.5	12.70	10.486		
1,600.0	1,551.4	1,588.0	1,534.4	7.2	7.5	95.07	-13.7	-321.1	149.0	134.6	14.38	10.361		
1,700.0	1,643.4	1,686.5	1,622.1	8.0	8.4	93.12	-17.5	-365.8	165.2	149.1	16.08	10.273		
1,800.0	1,735.4	1,785.1	1,709.9	8.8	9.4	91.51	-21.2	-410.5	181.6	163.8	17.78	10.214		
1,900.0	1,827.5	1,883.6	1,797.6	9.6	10.4	90.17	-25.0	-455.2	198.1	178.6	19.47	10.173		
2,000.0	1,919.5	1,982.1	1,885.3	10.4	11.3	89.04	-28.8	-500.0	214.6	193.5	21.16	10.144		
2,100.0	2,011.5	2,080.7	1,973.0	11.3	12.3	88.07	-32.6	-544.7	231.3	208.4	22.84	10.124		
2,200.0	2,103.5	2,179.2	2,060.7	12.1	13.3	87.23	-36.4	-589.4	248.0	223.4	24.52	10.110		

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

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
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<b>Reference Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-11)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Warner 25-18 Pad Sec.18-T2N-R65W - Warner 32-18 - Wellbore #1 - Plan #1 (3-07-11)												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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,300.0	2,195.5	2,277.7	2,148.5	12.9	14.3	86.50	-40.2	-634.1	264.7	238.5	26.20	10.101	
2,400.0	2,287.5	2,376.3	2,236.2	13.7	15.2	85.85	-44.0	-678.8	281.5	253.6	27.88	10.095	
2,500.0	2,379.5	2,474.8	2,323.9	14.6	16.2	85.28	-47.8	-723.6	298.3	268.7	29.56	10.091	
2,600.0	2,471.6	2,573.3	2,411.6	15.4	17.2	84.77	-51.6	-768.3	315.1	283.9	31.23	10.089	
2,700.0	2,563.6	2,671.9	2,499.4	16.2	18.2	84.31	-55.4	-813.0	332.0	299.1	32.91	10.088 SF	
2,800.0	2,655.6	2,770.4	2,587.1	17.0	19.2	83.89	-59.2	-857.7	348.8	314.3	34.58	10.088	
2,900.0	2,747.6	2,869.0	2,674.8	17.9	20.2	83.51	-63.0	-902.4	365.7	329.5	36.25	10.089	
3,000.0	2,839.6	2,967.5	2,762.5	18.7	21.1	83.17	-66.8	-947.1	382.6	344.7	37.92	10.090	
3,100.0	2,931.6	3,066.0	2,850.2	19.5	22.1	82.85	-70.6	-991.9	399.5	359.9	39.59	10.092	
3,200.0	3,023.7	3,164.6	2,938.0	20.4	23.1	82.56	-74.4	-1,036.6	416.5	375.2	41.26	10.094	
3,300.0	3,115.7	3,263.1	3,025.7	21.2	24.1	82.29	-78.2	-1,081.3	433.4	390.5	42.93	10.097	
3,400.0	3,207.7	3,361.6	3,113.4	22.0	25.1	82.05	-82.0	-1,126.0	450.3	405.7	44.59	10.099	
3,500.0	3,299.7	3,460.2	3,201.1	22.9	26.1	81.82	-85.8	-1,170.7	467.3	421.0	46.26	10.101	
3,600.0	3,391.7	3,558.7	3,288.9	23.7	27.1	81.61	-89.6	-1,215.5	484.2	436.3	47.93	10.104	
3,700.0	3,483.7	3,657.2	3,376.6	24.5	28.0	81.41	-93.3	-1,260.2	501.2	451.6	49.59	10.106	
3,800.0	3,575.7	3,755.8	3,464.3	25.4	29.0	81.22	-97.1	-1,304.9	518.2	466.9	51.26	10.109	
3,900.0	3,667.8	3,854.3	3,552.0	26.2	30.0	81.05	-100.9	-1,349.6	535.2	482.2	52.92	10.112	
4,000.0	3,759.8	3,952.9	3,639.8	27.0	31.0	80.88	-104.7	-1,394.3	552.1	497.5	54.59	10.114	
4,100.0	3,851.8	4,051.4	3,727.5	27.9	32.0	80.73	-108.5	-1,439.0	569.1	512.9	56.25	10.117	
4,200.0	3,943.8	4,149.9	3,815.2	28.7	33.0	80.59	-112.3	-1,483.8	586.1	528.2	57.92	10.119	
4,300.0	4,035.8	4,248.5	3,902.9	29.5	34.0	80.45	-116.1	-1,528.5	603.1	543.5	59.58	10.122	
4,400.0	4,127.8	4,347.0	3,990.6	30.3	35.0	80.32	-119.9	-1,573.2	620.1	558.8	61.25	10.124	
4,500.0	4,219.8	4,445.5	4,078.4	31.2	35.9	80.20	-123.7	-1,617.9	637.1	574.2	62.91	10.126	
4,600.0	4,311.9	4,544.1	4,166.1	32.0	36.9	80.08	-127.5	-1,662.6	654.1	589.5	64.58	10.129	
4,700.0	4,403.9	4,642.6	4,253.8	32.8	37.9	79.97	-131.3	-1,707.4	671.1	604.8	66.24	10.131	
4,800.0	4,495.9	4,741.1	4,341.5	33.7	38.9	79.87	-135.1	-1,752.1	688.1	620.2	67.90	10.133	
4,900.0	4,587.9	4,839.7	4,429.3	34.5	39.9	79.77	-138.9	-1,796.8	705.1	635.5	69.57	10.135	
5,000.0	4,679.9	4,938.2	4,517.0	35.3	40.9	79.68	-142.7	-1,841.5	722.1	650.9	71.23	10.137	
5,100.0	4,771.9	5,036.8	4,604.7	36.2	41.9	79.59	-146.5	-1,886.2	739.1	666.2	72.89	10.139	
5,200.0	4,864.0	5,135.3	4,692.4	37.0	42.9	79.50	-150.3	-1,930.9	756.1	681.6	74.56	10.141	
5,215.5	4,878.2	5,150.6	4,706.1	37.1	43.0	79.49	-150.9	-1,937.9	758.8	683.9	74.82	10.142	
5,300.0	4,966.4	5,233.8	4,780.1	37.7	43.8	79.62	-154.1	-1,975.6	773.3	697.2	76.16	10.154	
5,400.0	5,050.2	5,345.2	4,880.0	38.3	44.8	79.58	-158.2	-2,024.8	790.5	713.0	77.52	10.198	
5,500.0	5,145.1	5,460.1	4,984.9	38.8	45.6	79.53	-162.2	-2,071.5	806.4	727.7	78.70	10.247	
5,600.0	5,241.0	5,575.8	5,092.3	39.3	46.4	79.45	-165.8	-2,114.2	820.9	741.2	79.76	10.292	
5,700.0	5,337.9	5,692.2	5,202.1	39.7	47.1	79.36	-169.1	-2,152.8	834.0	753.3	80.69	10.335	
5,800.0	5,435.6	5,809.4	5,314.1	40.1	47.7	79.25	-172.0	-2,187.1	845.7	764.2	81.50	10.376	
5,900.0	5,533.9	5,927.2	5,428.0	40.4	48.2	79.13	-174.5	-2,217.0	855.9	773.7	82.17	10.415	
6,000.0	5,632.9	6,045.5	5,543.6	40.6	48.6	78.98	-176.7	-2,242.2	864.6	781.8	82.72	10.452	
6,100.0	5,732.3	6,164.4	5,660.7	40.8	49.0	78.82	-178.4	-2,262.8	871.8	788.6	83.14	10.485	
6,200.0	5,832.0	6,283.8	5,779.0	41.0	49.3	78.64	-179.8	-2,278.6	877.4	794.0	83.45	10.515	
6,300.0	5,931.9	6,403.5	5,898.2	41.1	49.5	78.43	-180.7	-2,289.5	881.5	797.9	83.63	10.541	
6,368.1	6,000.0	6,485.2	5,979.8	41.2	49.6	-37.84	-181.1	-2,294.1	883.5	799.8	83.69	10.557	
6,400.0	6,031.9	6,523.5	6,018.1	41.2	49.6	-37.91	-181.2	-2,295.4	884.1	800.4	83.71	10.562	
6,500.0	6,131.9	6,637.3	6,131.9	41.2	49.7	-37.98	-181.3	-2,296.6	884.6	800.8	83.82	10.554	
6,600.0	6,231.9	6,737.3	6,231.9	41.3	49.7	-37.98	-181.3	-2,296.6	884.6	800.7	83.95	10.538	
6,700.0	6,331.9	6,837.3	6,331.9	41.4	49.8	-37.98	-181.3	-2,296.6	884.6	800.5	84.08	10.521	
6,800.0	6,431.9	6,937.3	6,431.9	41.4	49.9	-37.98	-181.3	-2,296.6	884.6	800.4	84.21	10.505	
6,900.0	6,531.9	7,037.3	6,531.9	41.5	49.9	-37.98	-181.3	-2,296.6	884.6	800.3	84.35	10.488	
7,000.0	6,631.9	7,137.3	6,631.9	41.6	50.0	-37.98	-181.3	-2,296.6	884.6	800.1	84.48	10.471	
7,100.0	6,731.9	7,237.3	6,731.9	41.7	50.0	-37.98	-181.3	-2,296.6	884.6	800.0	84.62	10.453	
7,200.0	6,831.9	7,337.3	6,831.9	41.7	50.1	-37.98	-181.3	-2,296.6	884.6	799.8	84.76	10.436	

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

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<b>Reference Site:</b>	Warner 25-18 Pad Sec. 18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-11)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Warner 25-18 Pad Sec. 18-T2N-R65W - Warner 32-18 - Wellbore #1 - Plan #1 (3-07-11)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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	
7,300.0	6,931.9	7,437.3	6,931.9	41.8	50.2	-37.98	-181.3	-2,296.6	884.6	799.7	84.91	10.418	
7,400.0	7,031.9	7,537.3	7,031.9	41.9	50.2	-37.98	-181.3	-2,296.6	884.6	799.6	85.05	10.401	
7,500.0	7,131.9	7,637.3	7,131.9	42.0	50.3	-37.98	-181.3	-2,296.6	884.6	799.4	85.20	10.382	
7,600.0	7,231.9	7,737.3	7,231.9	42.0	50.4	-37.98	-181.3	-2,296.6	884.6	799.3	85.35	10.364	
7,700.0	7,331.9	7,837.3	7,331.9	42.1	50.4	-37.98	-181.3	-2,296.6	884.6	799.1	85.50	10.346	
7,800.0	7,431.9	7,937.3	7,431.9	42.2	50.5	-37.98	-181.3	-2,296.6	884.6	798.9	85.66	10.327	
7,900.0	7,531.9	8,037.3	7,531.9	42.3	50.6	-37.98	-181.3	-2,296.6	884.6	798.8	85.81	10.308	
8,000.0	7,631.9	8,137.3	7,631.9	42.3	50.6	-37.98	-181.3	-2,296.6	884.6	798.6	85.97	10.289	
8,100.0	7,731.9	8,237.3	7,731.9	42.4	50.7	-37.98	-181.3	-2,296.6	884.6	798.5	86.13	10.270	
8,200.0	7,831.9	8,337.3	7,831.9	42.5	50.8	-37.98	-181.3	-2,296.6	884.6	798.3	86.30	10.251	
8,300.0	7,931.9	8,437.3	7,931.9	42.6	50.9	-37.98	-181.3	-2,296.6	884.6	798.1	86.46	10.231	
8,337.1	7,969.0	8,474.5	7,969.0	42.6	50.9	-37.98	-181.3	-2,296.6	884.6	798.1	86.52	10.224	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Project:</b>	SEC.18-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Reference Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-11)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4998.0ft (Original Well Elev) Coordinates are relative to: Warner 12-18  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.51°



<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Warner 12-18
<b>Project:</b>	SEC.18-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Reference Site:</b>	Warner 25-18 Pad Sec.18-T2N-R65W	<b>MD Reference:</b>	WELL @ 4998.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Warner 12-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (3-07-11)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4998.0ft (Original Well Elev)Coordinates are relative to: Warner 12-18  
Offset Depths are relative to Offset Datum  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is -105.500000 °  
Grid Convergence at Surface is: 0.51°

