

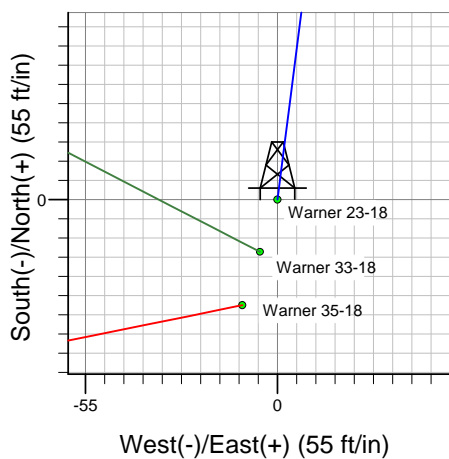
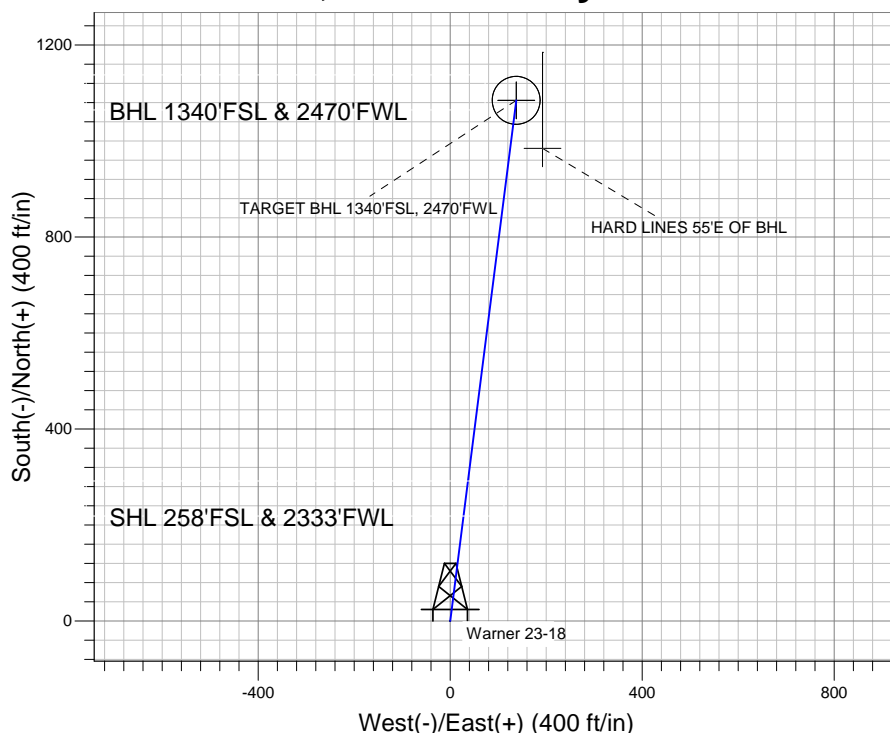
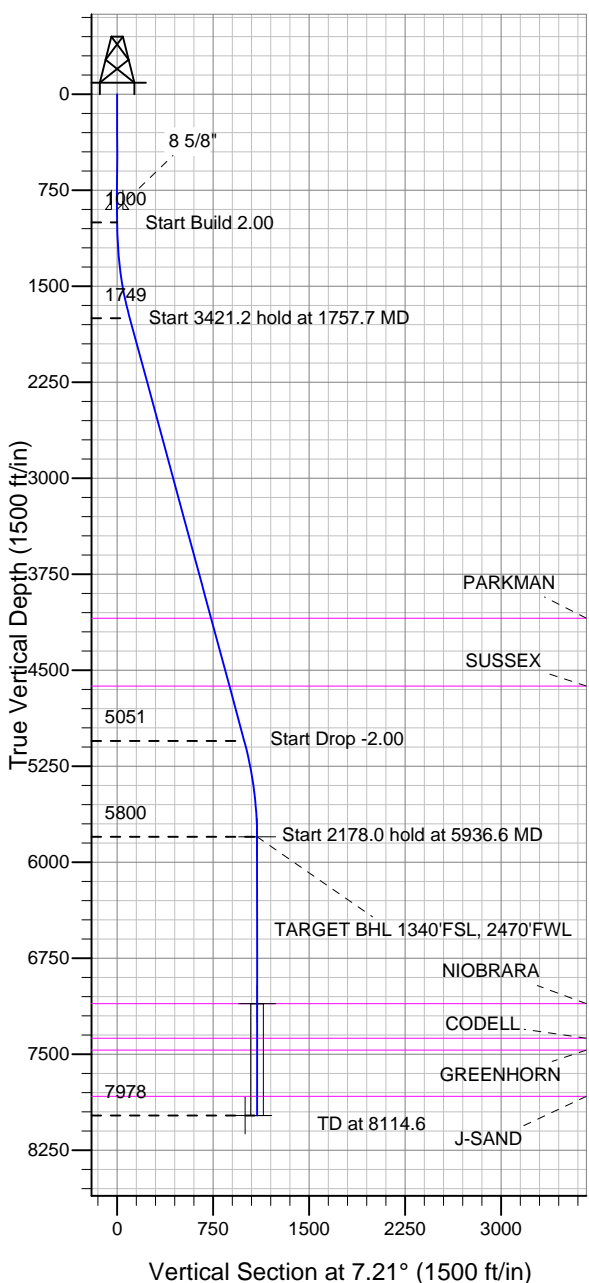
ENSIGN

Directional

Well Name: Warner 23-18

Surface Location: Warner 36-18 Pad Sec.18-T2N-R65W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4993.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1291900.90 3221565.45 40.131944 -104.707585
 Original Well Elev WELL @ 5007.0ft (Original Well Elev)

Anadarko, Weld County CO



FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation
4093.0	4186.2	PARKMAN
4623.0	4735.3	SUSSEX
7103.0	7239.6	NIOBRARA
7373.0	7509.6	CODELL
7466.0	7602.6	GREENHORN
7828.0	7964.6	J-SAND



Azimuths to True North
 Magnetic North: 8.84°

Magnetic Field
 Strength: 53022.1nT
 Dip Angle: 66.85°
 Date: 3/14/2011
 Model: IGRF2010

Well Name: Warner 23-18 Lat/Long: 40.131944 -104.707585

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1340'FSL, 2470'FWL	5800.0	1084.9	137.3	40.134922	-104.707094	Point
TARGET CIRCLE 1340'FSL, 2470'FWL	7103.0	1084.9	137.3	40.134922	-104.707094	Circle (Radius: 50.0)
HARD LINES 55'E OF BHL	7978.0	984.9	192.3	40.134648	-104.706897	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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1757.7	15.15	7.21	1748.9	98.8	12.5	2.00	7.21	99.6	
4	5178.9	15.15	7.21	5051.1	986.1	124.8	0.00	0.00	993.9	
5	5936.6	0.00	0.00	5800.0	1084.9	137.3	2.00	180.00	1093.5	TARGET BHL 1340'FSL, 2470'FWL
6	8114.6	0.00	0.00	7978.0	1084.9	137.3	0.00	0.00	1093.5	

CASING DETAILS

TVD	MD	Name	Size
900.0	900.0	8 5/8"	8-5/8
Warner 36-18 Pad Sec.18-T2N-R65W Warner 23-18 Plan #1 (3-14-11) 11:38, March 15 2011			



Directional

Anadarko, Weld County CO

SEC.18-T2N-R65W

Warner 36-18 Pad Sec.18-T2N-R65W

Warner 23-18

Wellbore #1

Plan: Plan #1 (3-14-11)

Standard Planning Report

15 March, 2011

Database:	Landmark	Local Co-ordinate Reference:	Well Warner 23-18
Company:	Anadarko, Weld County CO	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Project:	SEC.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site:	Warner 36-18 Pad Sec.18-T2N-R65W	North Reference:	True
Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-14-11)		

Project	SEC.18-T2N-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

Site		Warner 36-18 Pad Sec.18-T2N-R65W			
Site Position: From:		Northing:	1,291,900.91 ft	Latitude:	40.131944
	Lat/Long	Easting:	3,221,565.45 ft	Longitude:	-104.707585
	Position Uncertainty: 0.0 ft	Slot Radius:	"	Grid Convergence:	0.51 °

Well	Warner 23-18					
Well Position	+N-S	0.0 ft	Northing:	1,291,900.90 ft	Latitude:	40.131944
	+E-W	0.0 ft	Easting:	3,221,565.45 ft	Longitude:	-104.707585
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,993.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/14/2011	8.84	66.85	53,022

Design	Plan #1 (3-14-11)			
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	7.21

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,757.7	15.15	7.21	1,748.9	98.8	12.5	2.00	2.00	0.00	7.21	
5,178.9	15.15	7.21	5,051.1	986.1	124.8	0.00	0.00	0.00	0.00	
5,936.6	0.00	0.00	5,800.0	1,084.9	137.3	2.00	-2.00	0.00	180.00	TARGET BHL 134C
8,114.6	0.00	0.00	7,978.0	1,084.9	137.3	0.00	0.00	0.00	0.00	

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Company:	Anadarko, Weld County CO	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Project:	SEC.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site:	Warner 36-18 Pad Sec.18-T2N-R65W	North Reference:	True
Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-14-11)		

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	0.00	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	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	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
8 5/8"									
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	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
1,040.0	0.80	7.21	1,040.0	0.3	0.0	0.3	2.00	2.00	0.00
1,080.0	1.60	7.21	1,080.0	1.1	0.1	1.1	2.00	2.00	0.00
1,120.0	2.40	7.21	1,120.0	2.5	0.3	2.5	2.00	2.00	0.00
1,160.0	3.20	7.21	1,159.9	4.4	0.6	4.5	2.00	2.00	0.00
1,200.0	4.00	7.21	1,199.8	6.9	0.9	7.0	2.00	2.00	0.00
1,240.0	4.80	7.21	1,239.7	10.0	1.3	10.0	2.00	2.00	0.00
1,280.0	5.60	7.21	1,279.6	13.6	1.7	13.7	2.00	2.00	0.00
1,320.0	6.40	7.21	1,319.3	17.7	2.2	17.9	2.00	2.00	0.00
1,360.0	7.20	7.21	1,359.1	22.4	2.8	22.6	2.00	2.00	0.00
1,400.0	8.00	7.21	1,398.7	27.7	3.5	27.9	2.00	2.00	0.00
1,440.0	8.80	7.21	1,438.3	33.5	4.2	33.7	2.00	2.00	0.00
1,480.0	9.60	7.21	1,477.8	39.8	5.0	40.1	2.00	2.00	0.00
1,520.0	10.40	7.21	1,517.1	46.7	5.9	47.1	2.00	2.00	0.00
1,560.0	11.20	7.21	1,556.4	54.1	6.8	54.6	2.00	2.00	0.00
1,600.0	12.00	7.21	1,595.6	62.1	7.9	62.6	2.00	2.00	0.00
1,640.0	12.80	7.21	1,634.7	70.6	8.9	71.2	2.00	2.00	0.00
1,680.0	13.60	7.21	1,673.6	79.7	10.1	80.3	2.00	2.00	0.00
1,720.0	14.40	7.21	1,712.4	89.3	11.3	90.0	2.00	2.00	0.00
1,757.7	15.15	7.21	1,748.9	98.8	12.5	99.6	2.00	2.00	0.00
1,760.0	15.15	7.21	1,751.1	99.4	12.6	100.2	0.00	0.00	0.00
1,800.0	15.15	7.21	1,789.7	109.8	13.9	110.7	0.00	0.00	0.00
1,840.0	15.15	7.21	1,828.3	120.2	15.2	121.1	0.00	0.00	0.00
1,880.0	15.15	7.21	1,866.9	130.5	16.5	131.6	0.00	0.00	0.00
1,920.0	15.15	7.21	1,905.6	140.9	17.8	142.0	0.00	0.00	0.00
1,960.0	15.15	7.21	1,944.2	151.3	19.1	152.5	0.00	0.00	0.00
2,000.0	15.15	7.21	1,982.8	161.7	20.5	163.0	0.00	0.00	0.00

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Site:	Warner 36-18 Pad Sec.18-T2N-R65W	North Reference:	True
Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-14-11)		

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)
2,040.0	15.15	7.21	2,021.4	172.0	21.8	173.4	0.00	0.00	0.00
2,080.0	15.15	7.21	2,060.0	182.4	23.1	183.9	0.00	0.00	0.00
2,120.0	15.15	7.21	2,098.6	192.8	24.4	194.3	0.00	0.00	0.00
2,160.0	15.15	7.21	2,137.2	203.2	25.7	204.8	0.00	0.00	0.00
2,200.0	15.15	7.21	2,175.8	213.5	27.0	215.2	0.00	0.00	0.00
2,240.0	15.15	7.21	2,214.4	223.9	28.3	225.7	0.00	0.00	0.00
2,280.0	15.15	7.21	2,253.0	234.3	29.6	236.1	0.00	0.00	0.00
2,320.0	15.15	7.21	2,291.6	244.7	31.0	246.6	0.00	0.00	0.00
2,360.0	15.15	7.21	2,330.3	255.0	32.3	257.1	0.00	0.00	0.00
2,400.0	15.15	7.21	2,368.9	265.4	33.6	267.5	0.00	0.00	0.00
2,440.0	15.15	7.21	2,407.5	275.8	34.9	278.0	0.00	0.00	0.00
2,480.0	15.15	7.21	2,446.1	286.1	36.2	288.4	0.00	0.00	0.00
2,520.0	15.15	7.21	2,484.7	296.5	37.5	298.9	0.00	0.00	0.00
2,560.0	15.15	7.21	2,523.3	306.9	38.8	309.3	0.00	0.00	0.00
2,600.0	15.15	7.21	2,561.9	317.3	40.1	319.8	0.00	0.00	0.00
2,640.0	15.15	7.21	2,600.5	327.6	41.5	330.3	0.00	0.00	0.00
2,680.0	15.15	7.21	2,639.1	338.0	42.8	340.7	0.00	0.00	0.00
2,720.0	15.15	7.21	2,677.7	348.4	44.1	351.2	0.00	0.00	0.00
2,760.0	15.15	7.21	2,716.3	358.8	45.4	361.6	0.00	0.00	0.00
2,800.0	15.15	7.21	2,755.0	369.1	46.7	372.1	0.00	0.00	0.00
2,840.0	15.15	7.21	2,793.6	379.5	48.0	382.5	0.00	0.00	0.00
2,880.0	15.15	7.21	2,832.2	389.9	49.3	393.0	0.00	0.00	0.00
2,920.0	15.15	7.21	2,870.8	400.3	50.7	403.4	0.00	0.00	0.00
2,960.0	15.15	7.21	2,909.4	410.6	52.0	413.9	0.00	0.00	0.00
3,000.0	15.15	7.21	2,948.0	421.0	53.3	424.4	0.00	0.00	0.00
3,040.0	15.15	7.21	2,986.6	431.4	54.6	434.8	0.00	0.00	0.00
3,080.0	15.15	7.21	3,025.2	441.7	55.9	445.3	0.00	0.00	0.00
3,120.0	15.15	7.21	3,063.8	452.1	57.2	455.7	0.00	0.00	0.00
3,160.0	15.15	7.21	3,102.4	462.5	58.5	466.2	0.00	0.00	0.00
3,200.0	15.15	7.21	3,141.0	472.9	59.8	476.6	0.00	0.00	0.00
3,240.0	15.15	7.21	3,179.7	483.2	61.2	487.1	0.00	0.00	0.00
3,280.0	15.15	7.21	3,218.3	493.6	62.5	497.6	0.00	0.00	0.00
3,320.0	15.15	7.21	3,256.9	504.0	63.8	508.0	0.00	0.00	0.00
3,360.0	15.15	7.21	3,295.5	514.4	65.1	518.5	0.00	0.00	0.00
3,400.0	15.15	7.21	3,334.1	524.7	66.4	528.9	0.00	0.00	0.00
3,440.0	15.15	7.21	3,372.7	535.1	67.7	539.4	0.00	0.00	0.00
3,480.0	15.15	7.21	3,411.3	545.5	69.0	549.8	0.00	0.00	0.00
3,520.0	15.15	7.21	3,449.9	555.9	70.3	560.3	0.00	0.00	0.00
3,560.0	15.15	7.21	3,488.5	566.2	71.7	570.7	0.00	0.00	0.00
3,600.0	15.15	7.21	3,527.1	576.6	73.0	581.2	0.00	0.00	0.00
3,640.0	15.15	7.21	3,565.7	587.0	74.3	591.7	0.00	0.00	0.00
3,680.0	15.15	7.21	3,604.4	597.4	75.6	602.1	0.00	0.00	0.00
3,720.0	15.15	7.21	3,643.0	607.7	76.9	612.6	0.00	0.00	0.00
3,760.0	15.15	7.21	3,681.6	618.1	78.2	623.0	0.00	0.00	0.00
3,800.0	15.15	7.21	3,720.2	628.5	79.5	633.5	0.00	0.00	0.00
3,840.0	15.15	7.21	3,758.8	638.8	80.8	643.9	0.00	0.00	0.00
3,880.0	15.15	7.21	3,797.4	649.2	82.2	654.4	0.00	0.00	0.00
3,920.0	15.15	7.21	3,836.0	659.6	83.5	664.9	0.00	0.00	0.00
3,960.0	15.15	7.21	3,874.6	670.0	84.8	675.3	0.00	0.00	0.00
4,000.0	15.15	7.21	3,913.2	680.3	86.1	685.8	0.00	0.00	0.00
4,040.0	15.15	7.21	3,951.8	690.7	87.4	696.2	0.00	0.00	0.00
4,080.0	15.15	7.21	3,990.4	701.1	88.7	706.7	0.00	0.00	0.00
4,120.0	15.15	7.21	4,029.1	711.5	90.0	717.1	0.00	0.00	0.00
4,160.0	15.15	7.21	4,067.7	721.8	91.3	727.6	0.00	0.00	0.00

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Site:	Warner 36-18 Pad Sec.18-T2N-R65W	North Reference:	True
Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-14-11)		

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)
4,186.2	15.15	7.21	4,093.0	728.6	92.2	734.4	0.00	0.00	0.00
PARKMAN									
4,200.0	15.15	7.21	4,106.3	732.2	92.7	738.0	0.00	0.00	0.00
4,240.0	15.15	7.21	4,144.9	742.6	94.0	748.5	0.00	0.00	0.00
4,280.0	15.15	7.21	4,183.5	753.0	95.3	759.0	0.00	0.00	0.00
4,320.0	15.15	7.21	4,222.1	763.3	96.6	769.4	0.00	0.00	0.00
4,360.0	15.15	7.21	4,260.7	773.7	97.9	779.9	0.00	0.00	0.00
4,400.0	15.15	7.21	4,299.3	784.1	99.2	790.3	0.00	0.00	0.00
4,440.0	15.15	7.21	4,337.9	794.4	100.5	800.8	0.00	0.00	0.00
4,480.0	15.15	7.21	4,376.5	804.8	101.8	811.2	0.00	0.00	0.00
4,520.0	15.15	7.21	4,415.2	815.2	103.2	821.7	0.00	0.00	0.00
4,560.0	15.15	7.21	4,453.8	825.6	104.5	832.1	0.00	0.00	0.00
4,600.0	15.15	7.21	4,492.4	835.9	105.8	842.6	0.00	0.00	0.00
4,640.0	15.15	7.21	4,531.0	846.3	107.1	853.1	0.00	0.00	0.00
4,680.0	15.15	7.21	4,569.6	856.7	108.4	863.5	0.00	0.00	0.00
4,720.0	15.15	7.21	4,608.2	867.1	109.7	874.0	0.00	0.00	0.00
4,735.3	15.15	7.21	4,623.0	871.0	110.2	878.0	0.00	0.00	0.00
SUSSEX									
4,760.0	15.15	7.21	4,646.8	877.4	111.0	884.4	0.00	0.00	0.00
4,800.0	15.15	7.21	4,685.4	887.8	112.3	894.9	0.00	0.00	0.00
4,840.0	15.15	7.21	4,724.0	898.2	113.7	905.3	0.00	0.00	0.00
4,880.0	15.15	7.21	4,762.6	908.6	115.0	915.8	0.00	0.00	0.00
4,920.0	15.15	7.21	4,801.2	918.9	116.3	926.3	0.00	0.00	0.00
4,960.0	15.15	7.21	4,839.9	929.3	117.6	936.7	0.00	0.00	0.00
5,000.0	15.15	7.21	4,878.5	939.7	118.9	947.2	0.00	0.00	0.00
5,040.0	15.15	7.21	4,917.1	950.0	120.2	957.6	0.00	0.00	0.00
5,080.0	15.15	7.21	4,955.7	960.4	121.5	968.1	0.00	0.00	0.00
5,120.0	15.15	7.21	4,994.3	970.8	122.9	978.5	0.00	0.00	0.00
5,160.0	15.15	7.21	5,032.9	981.2	124.2	989.0	0.00	0.00	0.00
5,178.9	15.15	7.21	5,051.1	986.1	124.8	993.9	0.00	0.00	0.00
5,200.0	14.73	7.21	5,071.5	991.5	125.5	999.4	2.00	-2.00	0.00
5,240.0	13.93	7.21	5,110.3	1,001.3	126.7	1,009.3	2.00	-2.00	0.00
5,280.0	13.13	7.21	5,149.2	1,010.6	127.9	1,018.6	2.00	-2.00	0.00
5,320.0	12.33	7.21	5,188.2	1,019.3	129.0	1,027.4	2.00	-2.00	0.00
5,360.0	11.53	7.21	5,227.3	1,027.5	130.0	1,035.7	2.00	-2.00	0.00
5,400.0	10.73	7.21	5,266.6	1,035.2	131.0	1,043.4	2.00	-2.00	0.00
5,440.0	9.93	7.21	5,305.9	1,042.3	131.9	1,050.6	2.00	-2.00	0.00
5,480.0	9.13	7.21	5,345.4	1,048.9	132.7	1,057.2	2.00	-2.00	0.00
5,520.0	8.33	7.21	5,384.9	1,054.9	133.5	1,063.3	2.00	-2.00	0.00
5,560.0	7.53	7.21	5,424.5	1,060.4	134.2	1,068.8	2.00	-2.00	0.00
5,600.0	6.73	7.21	5,464.2	1,065.3	134.8	1,073.8	2.00	-2.00	0.00
5,640.0	5.93	7.21	5,504.0	1,069.7	135.4	1,078.2	2.00	-2.00	0.00
5,680.0	5.13	7.21	5,543.8	1,073.5	135.8	1,082.1	2.00	-2.00	0.00
5,720.0	4.33	7.21	5,583.6	1,076.8	136.3	1,085.4	2.00	-2.00	0.00
5,760.0	3.53	7.21	5,623.6	1,079.5	136.6	1,088.1	2.00	-2.00	0.00
5,800.0	2.73	7.21	5,663.5	1,081.7	136.9	1,090.3	2.00	-2.00	0.00
5,840.0	1.93	7.21	5,703.5	1,083.3	137.1	1,091.9	2.00	-2.00	0.00
5,880.0	1.13	7.21	5,743.4	1,084.3	137.2	1,093.0	2.00	-2.00	0.00
5,920.0	0.33	7.21	5,783.4	1,084.8	137.3	1,093.5	2.00	-2.00	0.00
5,936.6	0.00	0.00	5,800.0	1,084.9	137.3	1,093.5	2.00	-2.00	0.00
TARGET BHL 1340'FSL, 2470'FWL									
5,960.0	0.00	0.00	5,823.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,863.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Warner 23-18
Company:	Anadarko, Weld County CO	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Project:	SEC.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site:	Warner 36-18 Pad Sec.18-T2N-R65W	North Reference:	True
Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-14-11)		

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)
6,040.0	0.00	0.00	5,903.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,080.0	0.00	0.00	5,943.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,120.0	0.00	0.00	5,983.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,160.0	0.00	0.00	6,023.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,063.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,240.0	0.00	0.00	6,103.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,280.0	0.00	0.00	6,143.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,320.0	0.00	0.00	6,183.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,360.0	0.00	0.00	6,223.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,263.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,440.0	0.00	0.00	6,303.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,480.0	0.00	0.00	6,343.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,520.0	0.00	0.00	6,383.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,423.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,463.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,503.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,543.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,720.0	0.00	0.00	6,583.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,760.0	0.00	0.00	6,623.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,663.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,840.0	0.00	0.00	6,703.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,743.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,783.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,823.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,863.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,040.0	0.00	0.00	6,903.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,080.0	0.00	0.00	6,943.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,120.0	0.00	0.00	6,983.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,160.0	0.00	0.00	7,023.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,200.0	0.00	0.00	7,063.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,239.6	0.00	0.00	7,103.0	1,084.9	137.3	1,093.5	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 1340'FSL, 2470'FWL									
7,240.0	0.00	0.00	7,103.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,280.0	0.00	0.00	7,143.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,320.0	0.00	0.00	7,183.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,360.0	0.00	0.00	7,223.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,400.0	0.00	0.00	7,263.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,440.0	0.00	0.00	7,303.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,480.0	0.00	0.00	7,343.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,509.6	0.00	0.00	7,373.0	1,084.9	137.3	1,093.5	0.00	0.00	0.00
CODELL									
7,520.0	0.00	0.00	7,383.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,560.0	0.00	0.00	7,423.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,600.0	0.00	0.00	7,463.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,602.6	0.00	0.00	7,466.0	1,084.9	137.3	1,093.5	0.00	0.00	0.00
GREENHORN									
7,640.0	0.00	0.00	7,503.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,680.0	0.00	0.00	7,543.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,720.0	0.00	0.00	7,583.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,760.0	0.00	0.00	7,623.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,800.0	0.00	0.00	7,663.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,840.0	0.00	0.00	7,703.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,880.0	0.00	0.00	7,743.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Warner 23-18
Company:	Anadarko, Weld County CO	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Project:	SEC.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site:	Warner 36-18 Pad Sec.18-T2N-R65W	North Reference:	True
Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-14-11)		

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	7,783.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,960.0	0.00	0.00	7,823.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
7,964.6	0.00	0.00	7,828.0	1,084.9	137.3	1,093.5	0.00	0.00	0.00
J-SAND									
8,000.0	0.00	0.00	7,863.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
8,040.0	0.00	0.00	7,903.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
8,080.0	0.00	0.00	7,943.4	1,084.9	137.3	1,093.5	0.00	0.00	0.00
8,114.6	0.00	0.00	7,978.0	1,084.9	137.3	1,093.5	0.00	0.00	0.00
HARD LINES 55'E OF BHL									

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									
HARD LINES 55'E OF	0.00	0.00	7,978.0	984.9	192.3	1,292,887.44	3,221,748.93	40.134648	-104.706897
- plan misses target center by 114.1ft at 8114.6ft MD (7978.0 TVD, 1084.9 N, 137.3 E)									
- Polygon									
Point 1			7,978.0	0.0	0.0	1,292,887.44	3,221,748.93		
Point 2			7,978.0	200.0	0.0	1,293,087.42	3,221,747.15		
TARGET CIRCLE 134'	0.00	0.00	7,103.0	1,084.9	137.3	1,292,986.92	3,221,693.03	40.134922	-104.707094
- plan hits target center									
- Circle (radius 50.0)									
TARGET BHL 1340'F:	0.00	0.00	5,800.0	1,084.9	137.3	1,292,986.92	3,221,693.03	40.134922	-104.707094
- plan hits target center									
- Point									

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

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,186.2	4,093.0	PARKMAN		0.00	
4,735.3	4,623.0	SUSSEX		0.00	
7,239.6	7,103.0	NIOBRARA		0.00	
7,509.6	7,373.0	CODELL		0.00	
7,602.6	7,466.0	GREENHORN		0.00	
7,964.6	7,828.0	J-SAND		0.00	



Directional

Anadarko, Weld County CO

SEC.18-T2N-R65W

Warner 36-18 Pad Sec.18-T2N-R65W

Warner 23-18

Wellbore #1

Plan #1 (3-14-11)

Anticollision Report

15 March, 2011



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Warner 23-18
Project:	SEC.18-T2N-R65W	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Reference Site:	Warner 36-18 Pad Sec.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (3-14-11)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (3-14-11)		
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 3/15/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	8,114.6	Plan #1 (3-14-11) (Wellbore #1)	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						
Warner 36-18 Pad Sec.18-T2N-R65W						
Warner 33-18 - Wellbore #1 - Plan #1 (3-14-11)	316.4	316.5	15.6	14.4	13.051	CC, ES
Warner 33-18 - Wellbore #1 - Plan #1 (3-14-11)	500.0	499.2	20.5	18.5	10.050	SF

Offset Design Warner 36-18 Pad Sec.18-T2N-R65W - Warner 33-18 - Wellbore #1 - Plan #1 (3-14-11)												
Survey Program: 0-MWD												
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
0.0	0.0	0.0	0.0	0.0	0.0	-161.37	-14.9	-5.0	15.8	15.8	0.00	N/A
100.0	100.0	100.0	100.0	0.1	0.1	-161.37	-14.9	-5.0	15.8	15.5	0.22	70.106
200.0	200.0	200.0	200.0	0.3	0.3	-161.37	-14.9	-5.0	15.8	15.1	0.67	23.369
300.0	300.0	300.0	300.0	0.6	0.6	-155.01	-14.1	-6.6	15.6	14.5	1.12	13.931
316.4	316.4	316.5	316.4	0.6	0.6	-152.73	-13.8	-7.1	15.6	14.4	1.19	13.051 CC, ES
400.0	400.0	399.8	399.7	0.8	0.8	-136.28	-11.7	-11.2	16.2	14.7	1.57	10.343
500.0	500.0	499.2	498.6	1.0	1.0	-112.37	-7.8	-18.9	20.5	18.5	2.04	10.050 SF
600.0	600.0	597.8	596.5	1.2	1.3	-94.45	-2.3	-29.5	29.8	27.3	2.51	11.874
700.0	700.0	695.4	692.9	1.5	1.6	-83.84	4.6	-43.0	43.8	40.8	2.99	14.677
800.0	800.0	791.9	787.7	1.7	2.0	-77.63	13.0	-59.2	61.8	58.4	3.46	17.857
900.0	900.0	887.1	880.5	1.9	2.4	-73.80	22.6	-77.9	83.4	79.5	3.94	21.166
1,000.0	1,000.0	980.7	971.1	2.1	2.9	-71.30	33.5	-99.0	108.4	104.0	4.43	24.500
1,100.0	1,100.0	1,072.9	1,059.4	2.4	3.4	-76.95	45.5	-122.3	136.3	131.4	4.87	27.960
1,200.0	1,199.8	1,163.5	1,145.4	2.6	4.0	-76.71	58.6	-147.7	166.4	161.1	5.36	31.045
1,300.0	1,299.5	1,252.4	1,228.9	2.8	4.6	-77.17	72.6	-174.9	198.8	193.0	5.86	33.911
1,400.0	1,398.7	1,339.5	1,309.7	3.1	5.2	-77.97	87.5	-203.8	233.4	227.1	6.39	36.547
1,500.0	1,497.5	1,424.8	1,387.8	3.3	5.9	-78.92	103.2	-234.2	270.3	263.4	6.95	38.910
1,600.0	1,595.6	1,508.1	1,463.1	3.6	6.6	-79.90	119.5	-265.9	309.5	302.0	7.55	40.984
1,700.0	1,693.1	1,590.2	1,536.2	4.0	7.4	-80.87	136.6	-299.0	351.0	342.8	8.22	42.712
1,757.7	1,748.9	1,641.9	1,582.1	4.2	7.9	-81.55	147.6	-320.3	375.5	366.8	8.65	43.411
1,800.0	1,789.7	1,679.9	1,615.7	4.4	8.3	-82.41	155.7	-336.0	393.5	384.5	8.99	43.785
1,900.0	1,886.2	1,769.5	1,695.1	4.8	9.2	-84.17	174.7	-373.0	436.2	426.4	9.82	44.434
2,000.0	1,982.8	1,859.2	1,774.5	5.2	10.0	-85.61	193.8	-410.0	479.3	468.6	10.69	44.844
2,100.0	2,079.3	1,948.8	1,853.9	5.7	10.9	-86.82	212.9	-447.0	522.5	510.9	11.59	45.095
2,200.0	2,175.8	2,038.5	1,933.3	6.2	11.8	-87.85	232.0	-484.0	565.9	553.4	12.51	45.237

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

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Warner 23-18
Project:	SEC.18-T2N-R65W	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Reference Site:	Warner 36-18 Pad Sec.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (3-14-11)	Offset TVD Reference:	Offset Datum

Offset Design Warner 36-18 Pad Sec.18-T2N-R65W - Warner 33-18 - Wellbore #1 - Plan #1 (3-14-11)												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
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	
2,300.0	2,272.3	2,128.1	2,012.7	6.6	12.7	-88.73	251.0	-521.0	609.5	596.0	13.45	45.306	
2,400.0	2,368.9	2,217.8	2,092.1	7.1	13.6	-89.50	270.1	-558.0	653.1	638.7	14.41	45.326	
2,500.0	2,465.4	2,307.4	2,171.5	7.6	14.5	-90.17	289.2	-595.0	696.8	681.5	15.38	45.313	
2,600.0	2,561.9	2,397.1	2,250.9	8.1	15.4	-90.76	308.2	-632.0	740.6	724.3	16.36	45.279	
2,700.0	2,658.4	2,486.7	2,330.3	8.6	16.3	-91.28	327.3	-669.0	784.5	767.1	17.34	45.230	
2,800.0	2,755.0	2,576.4	2,409.7	9.1	17.2	-91.75	346.4	-706.0	828.4	810.0	18.34	45.172	
2,900.0	2,851.5	2,666.0	2,489.2	9.6	18.1	-92.18	365.4	-743.0	872.3	853.0	19.34	45.109	
3,000.0	2,948.0	2,755.7	2,568.6	10.1	19.0	-92.56	384.5	-780.0	916.3	895.9	20.34	45.043	
3,100.0	3,044.5	2,845.3	2,648.0	10.7	19.9	-92.91	403.6	-816.9	960.3	938.9	21.35	44.976	
3,200.0	3,141.0	2,935.0	2,727.4	11.2	20.8	-93.22	422.7	-853.9	1,004.3	982.0	22.36	44.909	
3,300.0	3,237.6	3,024.6	2,806.8	11.7	21.7	-93.51	441.7	-890.9	1,048.4	1,025.0	23.38	44.843	
3,400.0	3,334.1	3,114.3	2,886.2	12.2	22.6	-93.78	460.8	-927.9	1,092.4	1,068.0	24.40	44.778	
3,500.0	3,430.6	3,204.0	2,965.6	12.7	23.5	-94.03	479.9	-964.9	1,136.5	1,111.1	25.42	44.714	
3,600.0	3,527.1	3,293.6	3,045.0	13.2	24.4	-94.25	498.9	-1,001.9	1,180.6	1,154.2	26.44	44.653	
3,700.0	3,623.7	3,383.3	3,124.4	13.8	25.3	-94.47	518.0	-1,038.9	1,224.7	1,197.3	27.46	44.594	
3,800.0	3,720.2	3,472.9	3,203.8	14.3	26.2	-94.66	537.1	-1,075.9	1,268.9	1,240.4	28.49	44.536	
3,900.0	3,816.7	3,562.6	3,283.2	14.8	27.1	-94.85	556.1	-1,112.9	1,313.0	1,283.5	29.52	44.481	
4,000.0	3,913.2	3,652.2	3,362.6	15.3	28.0	-95.02	575.2	-1,149.9	1,357.2	1,326.6	30.55	44.428	
4,100.0	4,009.8	3,741.9	3,442.0	15.9	29.0	-95.18	594.3	-1,186.9	1,401.3	1,369.8	31.58	44.377	
4,200.0	4,106.3	3,831.5	3,521.4	16.4	29.9	-95.33	613.4	-1,223.9	1,445.5	1,412.9	32.61	44.328	
4,300.0	4,202.8	3,921.2	3,600.8	16.9	30.8	-95.47	632.4	-1,260.9	1,489.7	1,456.0	33.64	44.281	
4,400.0	4,299.3	4,010.8	3,680.2	17.4	31.7	-95.61	651.5	-1,297.9	1,533.9	1,499.2	34.68	44.235	
4,500.0	4,395.8	4,100.5	3,759.7	18.0	32.6	-95.73	670.6	-1,334.9	1,578.1	1,542.3	35.71	44.192	
4,600.0	4,492.4	4,190.1	3,839.1	18.5	33.5	-95.85	689.6	-1,371.9	1,622.3	1,585.5	36.74	44.150	
4,700.0	4,588.9	4,279.8	3,918.5	19.0	34.4	-95.97	708.7	-1,408.9	1,666.5	1,628.7	37.78	44.110	
4,800.0	4,685.4	4,369.4	3,997.9	19.5	35.3	-96.07	727.8	-1,445.9	1,710.7	1,671.8	38.82	44.071	
4,900.0	4,781.9	4,459.1	4,077.3	20.1	36.2	-96.18	746.9	-1,482.9	1,754.9	1,715.0	39.85	44.034	
5,000.0	4,878.5	4,548.7	4,156.7	20.6	37.1	-96.27	765.9	-1,519.9	1,799.1	1,758.2	40.89	43.998	
5,100.0	4,975.0	4,638.4	4,236.1	21.1	38.0	-96.36	785.0	-1,556.9	1,843.3	1,801.4	41.93	43.963	
5,178.9	5,051.1	4,709.1	4,298.7	21.5	38.7	-96.43	800.0	-1,586.0	1,878.2	1,835.5	42.75	43.937	
5,200.0	5,071.5	4,728.1	4,315.5	21.6	38.9	-96.66	804.1	-1,593.9	1,887.5	1,844.5	43.03	43.860	
5,300.0	5,168.7	4,817.9	4,395.0	22.0	39.8	-97.63	823.2	-1,630.9	1,931.5	1,887.2	44.31	43.595	
5,400.0	5,266.6	4,907.8	4,474.7	22.4	40.7	-98.48	842.3	-1,668.0	1,975.0	1,929.5	45.52	43.391	
5,500.0	5,365.1	4,997.8	4,554.4	22.7	41.6	-99.21	861.4	-1,705.2	2,018.1	1,971.5	46.66	43.248	
5,600.0	5,464.2	5,087.7	4,634.0	22.9	42.6	-99.83	880.6	-1,742.3	2,060.8	2,013.0	47.74	43.166	
5,700.0	5,563.7	5,177.4	4,713.5	23.2	43.5	-100.35	899.6	-1,779.3	2,102.9	2,054.2	48.74	43.143	
5,800.0	5,663.5	5,266.8	4,792.7	23.4	44.4	-100.78	918.7	-1,816.2	2,144.6	2,094.9	49.67	43.178	
5,900.0	5,763.4	5,355.8	4,871.5	23.5	45.3	-101.12	937.6	-1,852.9	2,185.8	2,135.3	50.52	43.271	
5,936.6	5,800.0	5,388.3	4,900.2	23.5	45.6	-94.01	944.5	-1,866.3	2,200.8	2,150.0	50.80	43.319	
6,000.0	5,863.4	5,444.5	4,950.0	23.6	46.2	-93.63	956.4	-1,889.5	2,226.8	2,175.8	51.04	43.631	
6,100.0	5,963.4	5,533.0	5,028.5	23.7	47.1	-93.04	975.3	-1,926.0	2,267.9	2,216.5	51.41	44.116	
6,200.0	6,063.4	5,621.6	5,106.9	23.8	48.0	-92.47	994.1	-1,962.6	2,309.2	2,257.5	51.78	44.599	
6,300.0	6,163.4	5,758.3	5,228.3	23.9	49.2	-91.65	1,022.9	-2,018.4	2,350.6	2,298.4	52.23	45.004	
6,400.0	6,263.4	6,116.0	5,558.0	24.1	51.7	-89.96	1,086.3	-2,141.4	2,385.4	2,332.4	53.01	44.995	
6,500.0	6,363.4	6,507.7	5,935.4	24.2	53.5	-88.82	1,133.6	-2,233.1	2,409.2	2,355.5	53.72	44.844	
6,600.0	6,463.4	6,921.9	6,346.1	24.3	54.4	-88.28	1,157.4	-2,279.3	2,420.6	2,366.3	54.31	44.566	
6,700.0	6,563.4	7,139.4	6,563.4	24.4	54.6	-88.24	1,159.3	-2,283.0	2,421.5	2,366.8	54.64	44.319	
6,800.0	6,663.4	7,239.4	6,663.4	24.6	54.6	-88.24	1,159.3	-2,283.0	2,421.5	2,366.6	54.85	44.144	
6,900.0	6,763.4	7,339.4	6,763.4	24.7	54.7	-88.24	1,159.3	-2,283.0	2,421.5	2,366.4	55.07	43.967	
7,000.0	6,863.4	7,439.4	6,863.4	24.8	54.7	-88.24	1,159.3	-2,283.0	2,421.5	2,366.2	55.30	43.790	
7,100.0	6,963.4	7,539.4	6,963.4	24.9	54.8	-88.24	1,159.3	-2,283.0	2,421.5	2,365.9	55.52	43.612	
7,200.0	7,063.4	7,639.4	7,063.4	25.1	54.9	-88.24	1,159.3	-2,283.0	2,421.5	2,365.7	55.75	43.433	

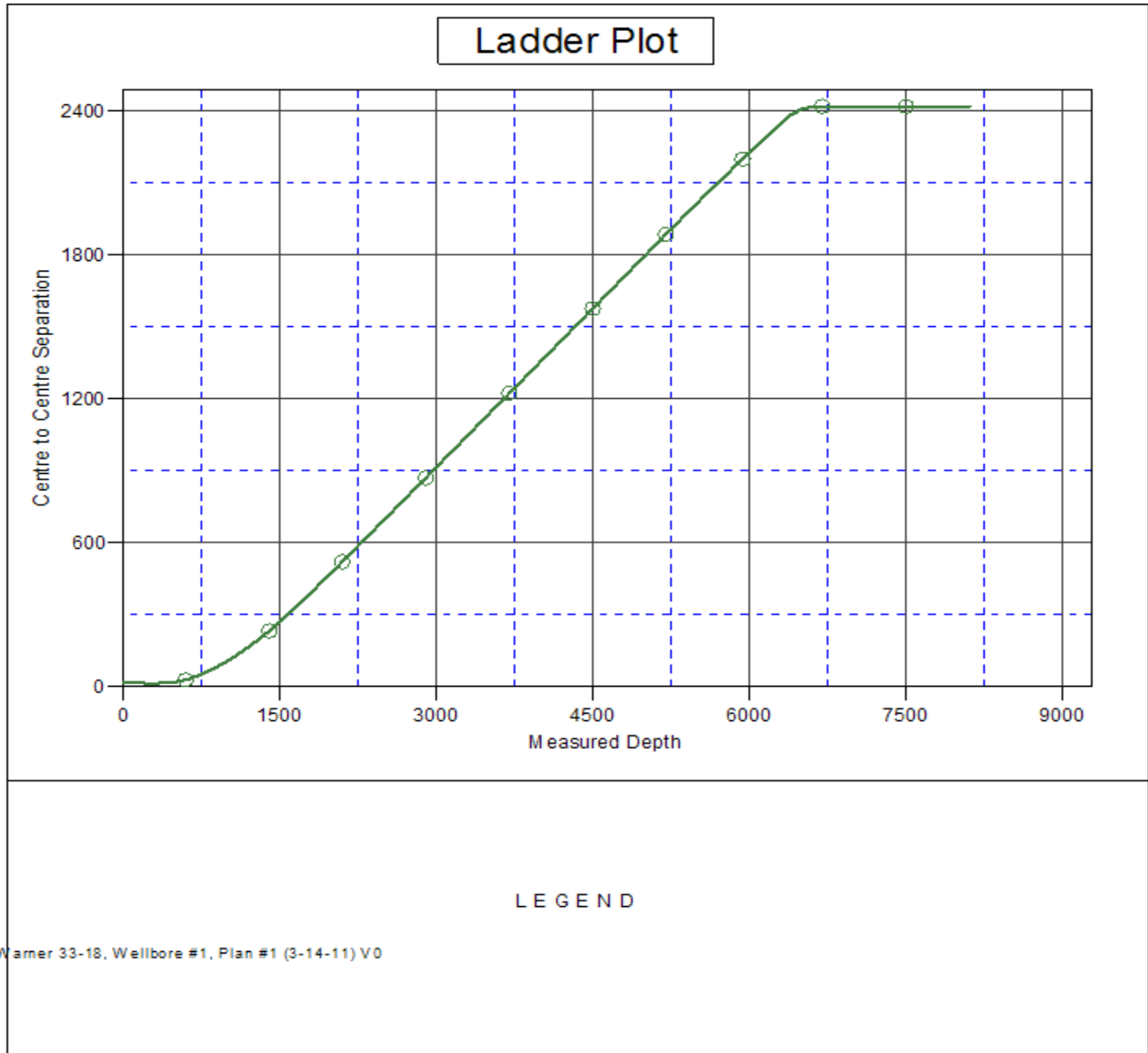
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Warner 23-18
Project:	SEC.18-T2N-R65W	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Reference Site:	Warner 36-18 Pad Sec.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (3-14-11)	Offset TVD Reference:	Offset Datum

Offset Design Warner 36-18 Pad Sec.18-T2N-R65W - Warner 33-18 - Wellbore #1 - Plan #1 (3-14-11)												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
7,300.0	7,163.4	7,739.4	7,163.4	25.2	54.9	-88.24	1,159.3	-2,283.0	2,421.5	2,365.5	55.98	43.254	
7,400.0	7,263.4	7,839.4	7,263.4	25.3	55.0	-88.24	1,159.3	-2,283.0	2,421.5	2,365.2	56.22	43.074	
7,500.0	7,363.4	7,939.4	7,363.4	25.5	55.0	-88.24	1,159.3	-2,283.0	2,421.5	2,365.0	56.45	42.894	
7,600.0	7,463.4	8,039.4	7,463.4	25.6	55.1	-88.24	1,159.3	-2,283.0	2,421.5	2,364.8	56.69	42.714	
7,700.0	7,563.4	8,139.4	7,563.4	25.8	55.2	-88.24	1,159.3	-2,283.0	2,421.5	2,364.5	56.93	42.533	
7,800.0	7,663.4	8,239.4	7,663.4	25.9	55.2	-88.24	1,159.3	-2,283.0	2,421.5	2,364.3	57.18	42.351	
7,900.0	7,763.4	8,339.4	7,763.4	26.0	55.3	-88.24	1,159.3	-2,283.0	2,421.5	2,364.0	57.42	42.170	
8,000.0	7,863.4	8,439.4	7,863.4	26.2	55.4	-88.24	1,159.3	-2,283.0	2,421.5	2,363.8	57.67	41.988	
8,100.0	7,963.4	8,539.4	7,963.4	26.3	55.5	-88.24	1,159.3	-2,283.0	2,421.5	2,363.5	57.92	41.806	
8,114.6	7,978.0	8,553.9	7,978.0	26.3	55.5	-88.24	1,159.3	-2,283.0	2,421.5	2,363.5	57.96	41.779	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Warner 23-18
Project:	SEC.18-T2N-R65W	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Reference Site:	Warner 36-18 Pad Sec.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (3-14-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5007.0ft (Original Well Elev) Coordinates are relative to: Warner 23-18
 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°



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Warner 23-18
Project:	SEC.18-T2N-R65W	TVD Reference:	WELL @ 5007.0ft (Original Well Elev)
Reference Site:	Warner 36-18 Pad Sec.18-T2N-R65W	MD Reference:	WELL @ 5007.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Warner 23-18	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (3-14-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5007.0ft (Original Well Elev) Coordinates are relative to: Warner 23-18
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°

