

ENSIGN

Directional

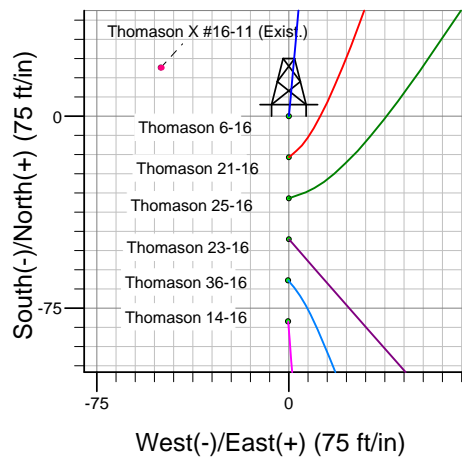
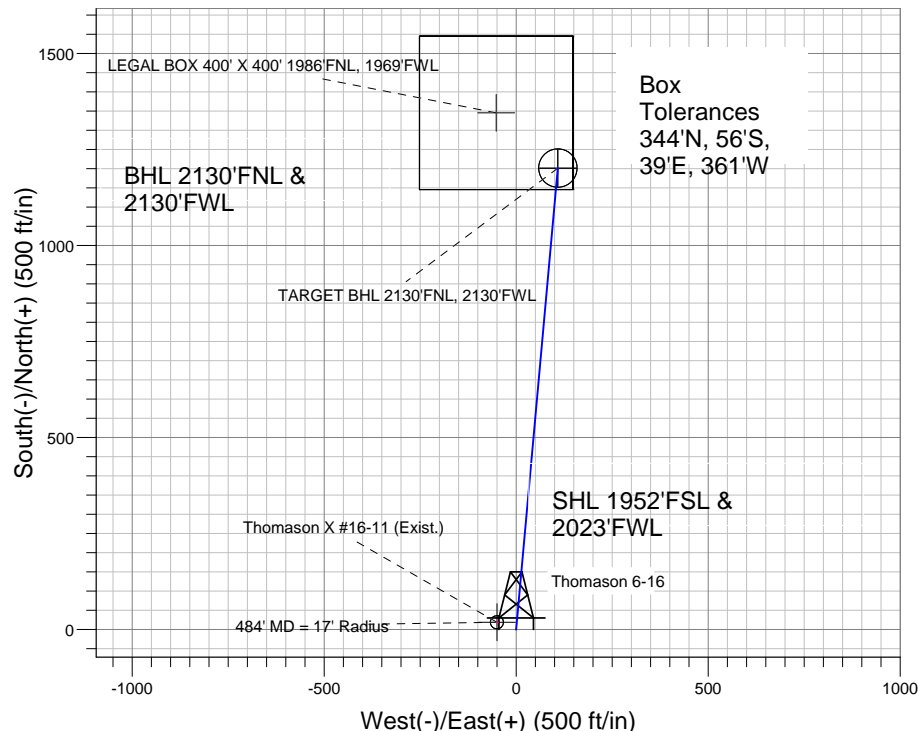
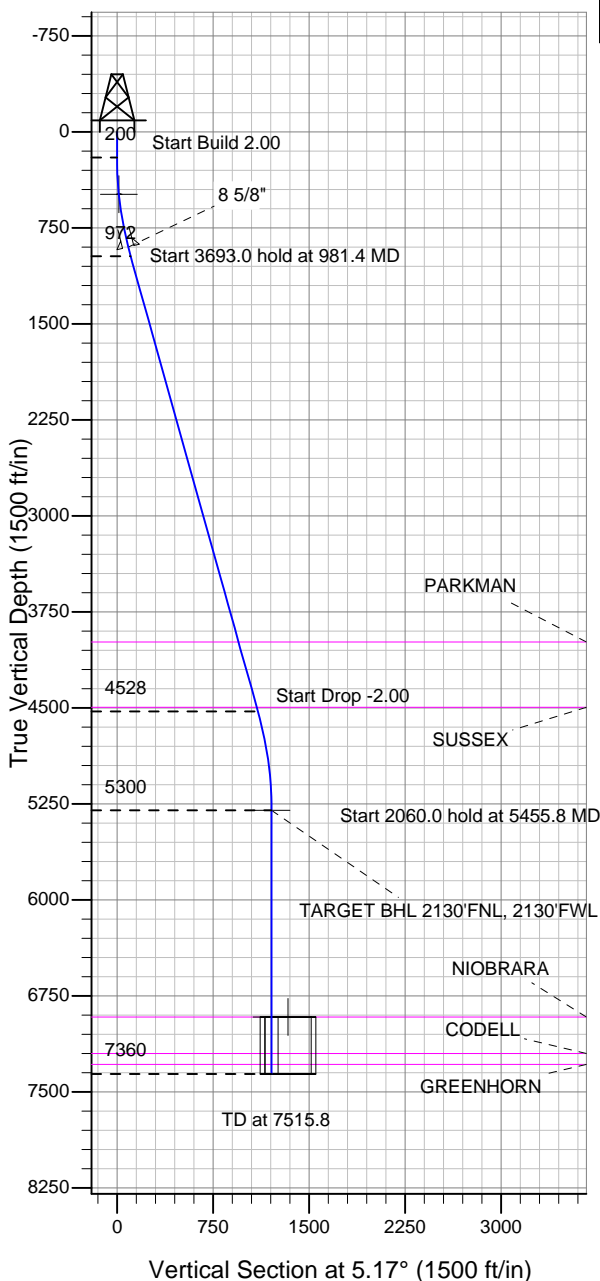
Well Name: Thomason 6-16

Surface Location: Thomason 11-16 Pad Sec.16-T2N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4885.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1293771.57	3231729.07	40.136824	-104.671175	

Original Well Elev WELL @ 4899.0ft (Original Well Elev)

Anadarko, Weld County CO



FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
3985.0	4110.3	PARKMAN
4495.0	4639.9	SUSSEX
6915.0	7070.8	NIOBRARA
7200.0	7355.8	CODELL
7285.0	7440.8	GREENHORN



Azimuths to True North
Magnetic North: 8.83°

Magnetic Field
Strength: 53033.3snT
Dip Angle: 66.86°
Date: 3/1/2011
Model: IGRF2010

Well Name: Thomason 6-16 Lat/Long: 40.136824 -104.671175

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
484' MD = 17' Radius	487.0	19.0	-50.0	40.136876	-104.671354	Circle (Radius: 17.0)
TARGET BHL 2130'FNL, 2130'FWL	5300.0	1201.8	108.8	40.140123	-104.670786	Point
LEGAL BOX 400' X 400' 1986'FNL, 1969'FWL	6915.0	1345.8	-52.2	40.140518	-104.671362	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 2130'FNL, 2130'FWL	6915.0	1201.8	108.8	40.140123	-104.670786	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	981.4	15.63	5.17	971.8	105.5	9.5	2.00	5.17	105.9	
4	4674.4	15.63	5.17	4528.2	1096.3	99.2	0.00	0.00	1100.8	
5	5455.8	0.00	0.00	5300.0	1201.8	108.8	2.00	180.00	1206.7	TARGET BHL 2130'FNL, 2130'FWL
6	7515.8	0.00	0.00	7360.0	1201.8	108.8	0.00	0.00	1206.7	

CASING DETAILS

TVD	MD	Name	Size
900.0	907.2	8 5/8"	8-5/8

Thomason 11-16 Pad Sec.16-T2N-R65W
Thomason 6-16
Plan #1 (3-01-11)
14:06, March 10 2011



Anadarko, Weld County CO

SEC.16-T2N-R65W

Thomason 11-16 Pad Sec.16-T2N-R65W

Thomason 6-16

Wellbore #1

Plan: Plan #1 (3-01-11)

Standard Planning Report

10 March, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well Thomason 6-16
Company:	Anadarko, Weld County CO	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Project:	SEC.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	North Reference:	True
Well:	Thomason 6-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-01-11)		

Project	SEC.16-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		Thomason 11-16 Pad Sec.16-T2N-R65W			
Site Position:		Northing:	1,293,771.59ft	Latitude:	40.136824
From:	Lat/Long	Easting:	3,231,729.07ft	Longitude:	-104.671175
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.54 °

Well	Thomason 6-16					
Well Position	+N/-S	0.0 ft	Northing:	1,293,771.57 ft	Latitude:	40.136824
	+E/-W	0.0 ft	Easting:	3,231,729.07 ft	Longitude:	-104.671175
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,885.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/1/2011	8.83	66.86	53,033

Design	Plan #1 (3-01-11)			
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	5.17

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
981.4	15.63	5.17	971.8	105.5	9.5	2.00	2.00	0.00	5.17	
4,674.4	15.63	5.17	4,528.2	1,096.3	99.2	0.00	0.00	0.00	0.00	
5,455.8	0.00	0.00	5,300.0	1,201.8	108.8	2.00	-2.00	0.00	180.00	TARGET BHL 213C
7,515.8	0.00	0.00	7,360.0	1,201.8	108.8	0.00	0.00	0.00	0.00	

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Project:	SEC.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	North Reference:	True
Well:	Thomason 6-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-01-11)		

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	5.17	240.0	0.3	0.0	0.3	2.00	2.00	0.00
280.0	1.60	5.17	280.0	1.1	0.1	1.1	2.00	2.00	0.00
320.0	2.40	5.17	320.0	2.5	0.2	2.5	2.00	2.00	0.00
360.0	3.20	5.17	359.9	4.4	0.4	4.5	2.00	2.00	0.00
400.0	4.00	5.17	399.8	7.0	0.6	7.0	2.00	2.00	0.00
440.0	4.80	5.17	439.7	10.0	0.9	10.0	2.00	2.00	0.00
480.0	5.60	5.17	479.6	13.6	1.2	13.7	2.00	2.00	0.00
487.5	5.75	5.17	487.0	14.4	1.3	14.4	2.00	2.00	0.00
484' MD = 17' Radius									
520.0	6.40	5.17	519.3	17.8	1.6	17.9	2.00	2.00	0.00
560.0	7.20	5.17	559.1	22.5	2.0	22.6	2.00	2.00	0.00
600.0	8.00	5.17	598.7	27.8	2.5	27.9	2.00	2.00	0.00
640.0	8.80	5.17	638.3	33.6	3.0	33.7	2.00	2.00	0.00
680.0	9.60	5.17	677.8	40.0	3.6	40.1	2.00	2.00	0.00
720.0	10.40	5.17	717.1	46.9	4.2	47.1	2.00	2.00	0.00
760.0	11.20	5.17	756.4	54.3	4.9	54.6	2.00	2.00	0.00
800.0	12.00	5.17	795.6	62.3	5.6	62.6	2.00	2.00	0.00
840.0	12.80	5.17	834.7	70.9	6.4	71.2	2.00	2.00	0.00
880.0	13.60	5.17	873.6	80.0	7.2	80.3	2.00	2.00	0.00
907.2	14.14	5.17	900.0	86.5	7.8	86.8	2.00	2.00	0.00
8 5/8"									
920.0	14.40	5.17	912.4	89.6	8.1	90.0	2.00	2.00	0.00
960.0	15.20	5.17	951.1	99.8	9.0	100.2	2.00	2.00	0.00
981.4	15.63	5.17	971.8	105.5	9.5	105.9	2.00	2.00	0.00
1,000.0	15.63	5.17	989.7	110.5	10.0	110.9	0.00	0.00	0.00
1,040.0	15.63	5.17	1,028.2	121.2	11.0	121.7	0.00	0.00	0.00
1,080.0	15.63	5.17	1,066.7	131.9	11.9	132.5	0.00	0.00	0.00
1,120.0	15.63	5.17	1,105.2	142.7	12.9	143.2	0.00	0.00	0.00
1,160.0	15.63	5.17	1,143.7	153.4	13.9	154.0	0.00	0.00	0.00
1,200.0	15.63	5.17	1,182.3	164.1	14.9	164.8	0.00	0.00	0.00
1,240.0	15.63	5.17	1,220.8	174.9	15.8	175.6	0.00	0.00	0.00
1,280.0	15.63	5.17	1,259.3	185.6	16.8	186.4	0.00	0.00	0.00
1,320.0	15.63	5.17	1,297.8	196.3	17.8	197.1	0.00	0.00	0.00
1,360.0	15.63	5.17	1,336.3	207.1	18.7	207.9	0.00	0.00	0.00
1,400.0	15.63	5.17	1,374.9	217.8	19.7	218.7	0.00	0.00	0.00
1,440.0	15.63	5.17	1,413.4	228.5	20.7	229.5	0.00	0.00	0.00
1,480.0	15.63	5.17	1,451.9	239.3	21.7	240.2	0.00	0.00	0.00
1,520.0	15.63	5.17	1,490.4	250.0	22.6	251.0	0.00	0.00	0.00
1,560.0	15.63	5.17	1,529.0	260.7	23.6	261.8	0.00	0.00	0.00
1,600.0	15.63	5.17	1,567.5	271.5	24.6	272.6	0.00	0.00	0.00
1,640.0	15.63	5.17	1,606.0	282.2	25.5	283.3	0.00	0.00	0.00
1,680.0	15.63	5.17	1,644.5	292.9	26.5	294.1	0.00	0.00	0.00
1,720.0	15.63	5.17	1,683.0	303.6	27.5	304.9	0.00	0.00	0.00
1,760.0	15.63	5.17	1,721.6	314.4	28.5	315.7	0.00	0.00	0.00
1,800.0	15.63	5.17	1,760.1	325.1	29.4	326.4	0.00	0.00	0.00
1,840.0	15.63	5.17	1,798.6	335.8	30.4	337.2	0.00	0.00	0.00
1,880.0	15.63	5.17	1,837.1	346.6	31.4	348.0	0.00	0.00	0.00
1,920.0	15.63	5.17	1,875.6	357.3	32.3	358.8	0.00	0.00	0.00

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Project:	SEC.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	North Reference:	True
Well:	Thomason 6-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-01-11)		

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)
1,960.0	15.63	5.17	1,914.2	368.0	33.3	369.5	0.00	0.00	0.00
2,000.0	15.63	5.17	1,952.7	378.8	34.3	380.3	0.00	0.00	0.00
2,040.0	15.63	5.17	1,991.2	389.5	35.2	391.1	0.00	0.00	0.00
2,080.0	15.63	5.17	2,029.7	400.2	36.2	401.9	0.00	0.00	0.00
2,120.0	15.63	5.17	2,068.2	411.0	37.2	412.7	0.00	0.00	0.00
2,160.0	15.63	5.17	2,106.8	421.7	38.2	423.4	0.00	0.00	0.00
2,200.0	15.63	5.17	2,145.3	432.4	39.1	434.2	0.00	0.00	0.00
2,240.0	15.63	5.17	2,183.8	443.2	40.1	445.0	0.00	0.00	0.00
2,280.0	15.63	5.17	2,222.3	453.9	41.1	455.8	0.00	0.00	0.00
2,320.0	15.63	5.17	2,260.9	464.6	42.0	466.5	0.00	0.00	0.00
2,360.0	15.63	5.17	2,299.4	475.4	43.0	477.3	0.00	0.00	0.00
2,400.0	15.63	5.17	2,337.9	486.1	44.0	488.1	0.00	0.00	0.00
2,440.0	15.63	5.17	2,376.4	496.8	45.0	498.9	0.00	0.00	0.00
2,480.0	15.63	5.17	2,414.9	507.6	45.9	509.6	0.00	0.00	0.00
2,520.0	15.63	5.17	2,453.5	518.3	46.9	520.4	0.00	0.00	0.00
2,560.0	15.63	5.17	2,492.0	529.0	47.9	531.2	0.00	0.00	0.00
2,600.0	15.63	5.17	2,530.5	539.8	48.8	542.0	0.00	0.00	0.00
2,640.0	15.63	5.17	2,569.0	550.5	49.8	552.7	0.00	0.00	0.00
2,680.0	15.63	5.17	2,607.5	561.2	50.8	563.5	0.00	0.00	0.00
2,720.0	15.63	5.17	2,646.1	572.0	51.8	574.3	0.00	0.00	0.00
2,760.0	15.63	5.17	2,684.6	582.7	52.7	585.1	0.00	0.00	0.00
2,800.0	15.63	5.17	2,723.1	593.4	53.7	595.8	0.00	0.00	0.00
2,840.0	15.63	5.17	2,761.6	604.2	54.7	606.6	0.00	0.00	0.00
2,880.0	15.63	5.17	2,800.2	614.9	55.6	617.4	0.00	0.00	0.00
2,920.0	15.63	5.17	2,838.7	625.6	56.6	628.2	0.00	0.00	0.00
2,960.0	15.63	5.17	2,877.2	636.4	57.6	639.0	0.00	0.00	0.00
3,000.0	15.63	5.17	2,915.7	647.1	58.6	649.7	0.00	0.00	0.00
3,040.0	15.63	5.17	2,954.2	657.8	59.5	660.5	0.00	0.00	0.00
3,080.0	15.63	5.17	2,992.8	668.5	60.5	671.3	0.00	0.00	0.00
3,120.0	15.63	5.17	3,031.3	679.3	61.5	682.1	0.00	0.00	0.00
3,160.0	15.63	5.17	3,069.8	690.0	62.4	692.8	0.00	0.00	0.00
3,200.0	15.63	5.17	3,108.3	700.7	63.4	703.6	0.00	0.00	0.00
3,240.0	15.63	5.17	3,146.8	711.5	64.4	714.4	0.00	0.00	0.00
3,280.0	15.63	5.17	3,185.4	722.2	65.4	725.2	0.00	0.00	0.00
3,320.0	15.63	5.17	3,223.9	732.9	66.3	735.9	0.00	0.00	0.00
3,360.0	15.63	5.17	3,262.4	743.7	67.3	746.7	0.00	0.00	0.00
3,400.0	15.63	5.17	3,300.9	754.4	68.3	757.5	0.00	0.00	0.00
3,440.0	15.63	5.17	3,339.4	765.1	69.2	768.3	0.00	0.00	0.00
3,480.0	15.63	5.17	3,378.0	775.9	70.2	779.0	0.00	0.00	0.00
3,520.0	15.63	5.17	3,416.5	786.6	71.2	789.8	0.00	0.00	0.00
3,560.0	15.63	5.17	3,455.0	797.3	72.2	800.6	0.00	0.00	0.00
3,600.0	15.63	5.17	3,493.5	808.1	73.1	811.4	0.00	0.00	0.00
3,640.0	15.63	5.17	3,532.1	818.8	74.1	822.1	0.00	0.00	0.00
3,680.0	15.63	5.17	3,570.6	829.5	75.1	832.9	0.00	0.00	0.00
3,720.0	15.63	5.17	3,609.1	840.3	76.0	843.7	0.00	0.00	0.00
3,760.0	15.63	5.17	3,647.6	851.0	77.0	854.5	0.00	0.00	0.00
3,800.0	15.63	5.17	3,686.1	861.7	78.0	865.3	0.00	0.00	0.00
3,840.0	15.63	5.17	3,724.7	872.5	79.0	876.0	0.00	0.00	0.00
3,880.0	15.63	5.17	3,763.2	883.2	79.9	886.8	0.00	0.00	0.00
3,920.0	15.63	5.17	3,801.7	893.9	80.9	897.6	0.00	0.00	0.00
3,960.0	15.63	5.17	3,840.2	904.7	81.9	908.4	0.00	0.00	0.00
4,000.0	15.63	5.17	3,878.7	915.4	82.8	919.1	0.00	0.00	0.00
4,040.0	15.63	5.17	3,917.3	926.1	83.8	929.9	0.00	0.00	0.00
4,080.0	15.63	5.17	3,955.8	936.9	84.8	940.7	0.00	0.00	0.00

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Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	North Reference:	True
Well:	Thomason 6-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-01-11)		

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)
4,110.3	15.63	5.17	3,985.0	945.0	85.5	948.9	0.00	0.00	0.00
PARKMAN									
4,120.0	15.63	5.17	3,994.3	947.6	85.8	951.5	0.00	0.00	0.00
4,160.0	15.63	5.17	4,032.8	958.3	86.7	962.2	0.00	0.00	0.00
4,200.0	15.63	5.17	4,071.3	969.1	87.7	973.0	0.00	0.00	0.00
4,240.0	15.63	5.17	4,109.9	979.8	88.7	983.8	0.00	0.00	0.00
4,280.0	15.63	5.17	4,148.4	990.5	89.6	994.6	0.00	0.00	0.00
4,320.0	15.63	5.17	4,186.9	1,001.2	90.6	1,005.3	0.00	0.00	0.00
4,360.0	15.63	5.17	4,225.4	1,012.0	91.6	1,016.1	0.00	0.00	0.00
4,400.0	15.63	5.17	4,264.0	1,022.7	92.6	1,026.9	0.00	0.00	0.00
4,440.0	15.63	5.17	4,302.5	1,033.4	93.5	1,037.7	0.00	0.00	0.00
4,480.0	15.63	5.17	4,341.0	1,044.2	94.5	1,048.4	0.00	0.00	0.00
4,520.0	15.63	5.17	4,379.5	1,054.9	95.5	1,059.2	0.00	0.00	0.00
4,560.0	15.63	5.17	4,418.0	1,065.6	96.4	1,070.0	0.00	0.00	0.00
4,600.0	15.63	5.17	4,456.6	1,076.4	97.4	1,080.8	0.00	0.00	0.00
4,639.9	15.63	5.17	4,495.0	1,087.1	98.4	1,091.5	0.00	0.00	0.00
SUSSEX									
4,640.0	15.63	5.17	4,495.1	1,087.1	98.4	1,091.6	0.00	0.00	0.00
4,674.4	15.63	5.17	4,528.2	1,096.3	99.2	1,100.8	0.00	0.00	0.00
4,680.0	15.52	5.17	4,533.6	1,097.8	99.3	1,102.3	2.00	-2.00	0.00
4,720.0	14.72	5.17	4,572.2	1,108.2	100.3	1,112.8	2.00	-2.00	0.00
4,760.0	13.92	5.17	4,611.0	1,118.1	101.2	1,122.6	2.00	-2.00	0.00
4,800.0	13.12	5.17	4,649.9	1,127.4	102.0	1,132.0	2.00	-2.00	0.00
4,840.0	12.32	5.17	4,688.9	1,136.2	102.8	1,140.8	2.00	-2.00	0.00
4,880.0	11.52	5.17	4,728.0	1,144.4	103.6	1,149.1	2.00	-2.00	0.00
4,920.0	10.72	5.17	4,767.3	1,152.1	104.3	1,156.8	2.00	-2.00	0.00
4,960.0	9.92	5.17	4,806.6	1,159.2	104.9	1,163.9	2.00	-2.00	0.00
5,000.0	9.12	5.17	4,846.1	1,165.8	105.5	1,170.5	2.00	-2.00	0.00
5,040.0	8.32	5.17	4,885.6	1,171.8	106.0	1,176.6	2.00	-2.00	0.00
5,080.0	7.52	5.17	4,925.2	1,177.3	106.5	1,182.1	2.00	-2.00	0.00
5,120.0	6.72	5.17	4,964.9	1,182.2	107.0	1,187.1	2.00	-2.00	0.00
5,160.0	5.92	5.17	5,004.7	1,186.6	107.4	1,191.5	2.00	-2.00	0.00
5,200.0	5.12	5.17	5,044.5	1,190.5	107.7	1,195.3	2.00	-2.00	0.00
5,240.0	4.32	5.17	5,084.4	1,193.7	108.0	1,198.6	2.00	-2.00	0.00
5,280.0	3.52	5.17	5,124.3	1,196.5	108.3	1,201.3	2.00	-2.00	0.00
5,320.0	2.72	5.17	5,164.2	1,198.6	108.5	1,203.5	2.00	-2.00	0.00
5,360.0	1.92	5.17	5,204.2	1,200.2	108.6	1,205.1	2.00	-2.00	0.00
5,400.0	1.12	5.17	5,244.2	1,201.3	108.7	1,206.2	2.00	-2.00	0.00
5,440.0	0.32	5.17	5,284.2	1,201.8	108.8	1,206.7	2.00	-2.00	0.00
5,455.8	0.00	0.00	5,300.0	1,201.8	108.8	1,206.7	2.00	-2.00	0.00
TARGET BHL 2130'FNL, 2130'FWL									
5,480.0	0.00	0.00	5,324.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,520.0	0.00	0.00	5,364.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,560.0	0.00	0.00	5,404.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,444.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,640.0	0.00	0.00	5,484.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,680.0	0.00	0.00	5,524.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,720.0	0.00	0.00	5,564.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,760.0	0.00	0.00	5,604.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,644.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,840.0	0.00	0.00	5,684.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,724.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,764.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Thomason 6-16
Company:	Anadarko, Weld County CO	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Project:	SEC.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	North Reference:	True
Well:	Thomason 6-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-01-11)		

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)
5,960.0	0.00	0.00	5,804.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,844.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,884.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,080.0	0.00	0.00	5,924.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,120.0	0.00	0.00	5,964.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,160.0	0.00	0.00	6,004.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,044.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,240.0	0.00	0.00	6,084.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,280.0	0.00	0.00	6,124.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,164.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,204.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,244.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,284.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,324.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,364.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,404.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,444.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,640.0	0.00	0.00	6,484.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,524.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,564.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,604.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,644.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,684.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,724.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,764.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,804.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,844.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,040.0	0.00	0.00	6,884.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,070.8	0.00	0.00	6,915.0	1,201.8	108.8	1,206.7	0.00	0.00	0.00
NIOBARRA - TARGET CIRCLE 2130'FNL, 2130'FWL - LEGAL BOX 400' X 400' 1986'FNL, 1969'FWL									
7,080.0	0.00	0.00	6,924.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,120.0	0.00	0.00	6,964.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,160.0	0.00	0.00	7,004.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,200.0	0.00	0.00	7,044.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,240.0	0.00	0.00	7,084.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,280.0	0.00	0.00	7,124.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,320.0	0.00	0.00	7,164.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,355.8	0.00	0.00	7,200.0	1,201.8	108.8	1,206.7	0.00	0.00	0.00
CODELL									
7,360.0	0.00	0.00	7,204.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,400.0	0.00	0.00	7,244.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,440.0	0.00	0.00	7,284.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,440.8	0.00	0.00	7,285.0	1,201.8	108.8	1,206.7	0.00	0.00	0.00
GREENHORN									
7,480.0	0.00	0.00	7,324.2	1,201.8	108.8	1,206.7	0.00	0.00	0.00
7,515.8	0.00	0.00	7,360.0	1,201.8	108.8	1,206.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Thomason 6-16
Company:	Anadarko, Weld County CO	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Project:	SEC.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	North Reference:	True
Well:	Thomason 6-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-01-11)		

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									
TARGET BHL 2130'F	0.00	0.00	5,300.0	1,201.8	108.8	1,294,974.31	3,231,826.58	40.140123	-104.670786
- plan hits target center									
- Point									
TARGET CIRCLE 2130'F	0.00	0.00	6,915.0	1,201.8	108.8	1,294,974.31	3,231,826.58	40.140123	-104.670786
- plan hits target center									
- Circle (radius 50.0)									
LEGAL BOX 400' X 400'F	0.00	0.00	6,915.0	1,345.8	-52.2	1,295,116.77	3,231,664.29	40.140518	-104.671362
- plan misses target center by 216.0ft at 7070.8ft MD (6915.0 TVD, 1201.8 N, 108.8 E)									
- Rectangle (sides W400.0 H400.0 D445.0)									
484' MD = 17' Radius	0.00	0.00	487.0	19.0	-50.0	1,293,790.05	3,231,678.84	40.136876	-104.671354
- plan misses target center by 51.6ft at 487.5ft MD (487.0 TVD, 14.4 N, 1.3 E)									
- Circle (radius 17.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
907.2	900.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,110.3	3,985.0	PARKMAN		0.00		
4,639.9	4,495.0	SUSSEX		0.00		
7,070.8	6,915.0	NIOBRARA		0.00		
7,355.8	7,200.0	CODELL		0.00		
7,440.8	7,285.0	GREENHORN		0.00		



Directional

Anadarko, Weld County CO

SEC.16-T2N-R65W

Thomason 11-16 Pad Sec.16-T2N-R65W

Thomason 6-16

Wellbore #1

Plan #1 (3-01-11)

Anticollision Report

10 March, 2011



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	SEC.16-T2N-R65W	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Reference Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Thomason 6-16	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 (3-01-11)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (3-01-11)		
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 3/10/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,515.8	Plan #1 (3-01-11) (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						
Thomason 11-16 Pad Sec.16-T2N-R65W						
Thomason 21-16 - Wellbore #1 - Plan #1 (3-01-11)	200.0	200.0	16.0	15.4	23.765	CC, ES
Thomason 21-16 - Wellbore #1 - Plan #1 (3-01-11)	1,400.0	1,404.4	61.0	50.7	5.951	SF
Thomason X #16-11 (Exist.) - Wellbore #1 - Design #1	487.0	483.5	51.6	49.6	25.982	CC
Thomason X #16-11 (Exist.) - Wellbore #1 - Design #1	500.0	496.5	51.6	49.5	25.209	ES
Thomason X #16-11 (Exist.) - Wellbore #1 - Design #1	700.0	694.5	59.2	56.2	19.313	SF

Offset Design Thomason 11-16 Pad Sec.16-T2N-R65W - Thomason 21-16 - Wellbore #1 - Plan #1 (3-01-11)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-16.0	0.0	16.0	16.0	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-16.0	0.0	16.0	15.8	0.22	71.296		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-16.0	0.0	16.0	15.4	0.67	23.765	CC, ES	
300.0	300.0	300.3	300.3	0.6	0.6	170.74	-14.9	1.3	16.7	15.6	1.13	14.800		
400.0	399.8	400.7	400.6	0.8	0.8	161.04	-11.4	5.1	18.9	17.3	1.59	11.898		
500.0	499.5	501.3	500.8	1.0	1.0	152.22	-4.5	9.8	21.8	19.8	2.06	10.580		
600.0	598.7	601.8	600.6	1.3	1.3	144.99	5.8	15.1	25.4	22.8	2.58	9.834		
700.0	697.5	702.4	700.1	1.6	1.6	139.08	19.6	21.1	29.5	26.3	3.17	9.307		
800.0	795.6	803.0	799.0	2.0	2.0	134.23	36.8	27.7	34.0	30.1	3.84	8.859		
900.0	893.1	903.6	897.2	2.4	2.4	130.21	57.4	35.0	38.9	34.3	4.61	8.442		
981.4	971.8	985.6	976.6	2.8	2.8	127.41	76.6	41.3	43.2	37.9	5.33	8.113		
1,000.0	989.7	1,004.2	994.6	2.9	2.9	126.78	81.3	42.9	44.2	38.7	5.50	8.035		
1,100.0	1,086.0	1,104.9	1,091.1	3.4	3.4	121.64	108.7	51.3	48.6	42.0	6.54	7.426		
1,200.0	1,182.3	1,205.3	1,186.2	4.0	4.0	113.81	139.2	60.4	52.0	44.3	7.74	6.725		
1,300.0	1,278.6	1,305.2	1,279.8	4.5	4.6	103.59	172.9	70.0	55.7	46.7	9.02	6.171		
1,400.0	1,374.9	1,404.4	1,371.5	5.0	5.3	91.69	209.5	80.0	61.0	50.7	10.25	5.951	SF	
1,500.0	1,471.2	1,503.0	1,461.5	5.5	6.1	79.73	248.5	90.5	69.2	57.9	11.24	6.152		
1,600.0	1,567.5	1,601.7	1,551.4	6.1	6.8	70.36	287.8	101.0	79.8	67.8	12.03	6.637		
1,700.0	1,663.8	1,700.4	1,641.3	6.6	7.6	63.31	327.1	111.6	92.2	79.4	12.72	7.245		
1,800.0	1,760.1	1,799.0	1,731.2	7.2	8.4	57.96	366.4	122.1	105.5	92.1	13.37	7.892		
1,900.0	1,856.4	1,897.7	1,821.1	7.7	9.1	53.84	405.7	132.6	119.6	105.6	14.01	8.533		
2,000.0	1,952.7	1,996.4	1,911.0	8.2	9.9	50.59	445.0	143.2	134.1	119.5	14.66	9.146		

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 Thomason 6-16
Project:	SEC.16-T2N-R65W	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Reference Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Thomason 6-16	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 (3-01-11)	Offset TVD Reference:	Offset Datum

Offset Design												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	
2,100.0	2,049.0	2,095.1	2,000.9	8.8	10.7	47.98	484.3	153.7	149.0	133.7	15.33	9.723	
2,200.0	2,145.3	2,193.8	2,090.8	9.3	11.5	45.84	523.6	164.3	164.1	148.2	16.00	10.261	
2,300.0	2,241.6	2,292.4	2,180.7	9.9	12.2	44.07	562.9	174.8	179.5	162.8	16.68	10.760	
2,400.0	2,337.9	2,391.1	2,270.6	10.4	13.0	42.58	602.2	185.3	194.9	177.6	17.37	11.221	
2,500.0	2,434.2	2,489.8	2,360.5	10.9	13.8	41.31	641.5	195.9	210.5	192.4	18.07	11.648	
2,600.0	2,530.5	2,588.5	2,450.4	11.5	14.6	40.21	680.8	206.4	226.2	207.4	18.78	12.044	
2,700.0	2,626.8	2,687.2	2,540.3	12.0	15.4	39.25	720.1	216.9	241.9	222.4	19.49	12.410	
2,800.0	2,723.1	2,785.8	2,630.2	12.6	16.2	38.41	759.5	227.5	257.7	237.5	20.21	12.750	
2,900.0	2,819.4	2,884.5	2,720.1	13.1	16.9	37.67	798.8	238.0	273.5	252.6	20.93	13.066	
3,000.0	2,915.7	2,983.2	2,810.0	13.7	17.7	37.01	838.1	248.5	289.4	267.7	21.66	13.360	
3,100.0	3,012.0	3,081.9	2,899.9	14.2	18.5	36.42	877.4	259.1	305.3	282.9	22.39	13.635	
3,200.0	3,108.3	3,180.6	2,989.8	14.8	19.3	35.89	916.7	269.6	321.2	298.1	23.12	13.892	
3,300.0	3,204.6	3,279.2	3,079.7	15.3	20.1	35.40	956.0	280.1	337.2	313.3	23.86	14.132	
3,400.0	3,300.9	3,377.9	3,169.6	15.8	20.9	34.96	995.3	290.7	353.2	328.6	24.60	14.357	
3,500.0	3,397.2	3,476.6	3,259.5	16.4	21.7	34.56	1,034.6	301.2	369.2	343.8	25.34	14.569	
3,600.0	3,493.5	3,575.3	3,349.4	16.9	22.4	34.20	1,073.9	311.7	385.2	359.1	26.08	14.768	
3,700.0	3,589.8	3,674.0	3,439.3	17.5	23.2	33.86	1,113.2	322.3	401.2	374.4	26.83	14.956	
3,800.0	3,686.1	3,772.6	3,529.2	18.0	24.0	33.54	1,152.5	332.8	417.3	389.7	27.57	15.133	
3,900.0	3,782.4	3,871.3	3,619.1	18.6	24.8	33.25	1,191.8	343.4	433.3	405.0	28.32	15.301	
4,000.0	3,878.7	3,970.0	3,708.9	19.1	25.6	32.99	1,231.1	353.9	449.4	420.3	29.07	15.460	
4,100.0	3,975.0	4,068.7	3,798.8	19.7	26.4	32.74	1,270.4	364.4	465.5	435.7	29.82	15.610	
4,200.0	4,071.3	4,167.4	3,888.7	20.2	27.2	32.50	1,309.7	375.0	481.6	451.0	30.57	15.753	
4,300.0	4,167.6	4,266.0	3,978.6	20.7	28.0	32.28	1,349.0	385.5	497.7	466.3	31.32	15.888	
4,400.0	4,264.0	4,364.7	4,068.5	21.3	28.7	32.08	1,388.3	396.0	513.8	481.7	32.07	16.018	
4,500.0	4,360.3	4,463.4	4,158.4	21.8	29.5	31.89	1,427.6	406.6	529.9	497.0	32.83	16.141	
4,600.0	4,456.6	4,562.1	4,248.3	22.4	30.3	31.71	1,466.9	417.1	546.0	512.4	33.58	16.258	
4,674.4	4,528.2	4,635.5	4,315.2	22.8	30.9	31.58	1,496.2	424.9	558.0	523.8	34.14	16.342	
4,700.0	4,552.9	4,660.7	4,338.2	22.9	31.1	31.57	1,506.2	427.6	562.2	527.9	34.33	16.377	
4,800.0	4,649.9	4,759.0	4,427.7	23.3	31.9	31.47	1,545.4	438.1	580.5	545.6	34.94	16.614	
4,900.0	4,747.6	4,856.6	4,516.7	23.7	32.7	31.24	1,584.2	448.5	601.8	566.3	35.45	16.974	
5,000.0	4,846.1	4,953.4	4,604.9	24.0	33.4	30.91	1,622.8	458.9	626.0	590.2	35.87	17.453	
5,100.0	4,945.1	5,049.3	4,692.2	24.2	34.2	30.49	1,661.0	469.1	653.2	617.0	36.19	18.050	
5,200.0	5,044.5	5,144.2	4,778.7	24.5	35.0	30.01	1,698.8	479.3	683.4	647.0	36.43	18.762	
5,300.0	5,144.2	5,253.5	4,878.6	24.6	35.7	29.35	1,741.7	490.7	716.1	679.5	36.54	19.595	
5,400.0	5,244.2	5,377.8	4,994.0	24.8	36.4	28.60	1,786.3	502.7	748.3	711.8	36.57	20.466	
5,455.8	5,300.0	5,448.3	5,060.3	24.8	36.8	33.37	1,809.4	508.9	766.0	729.4	36.55	20.957	
5,500.0	5,344.2	5,504.7	5,113.7	24.9	37.1	32.93	1,826.7	513.5	779.4	742.8	36.58	21.306	
5,600.0	5,444.2	5,635.0	5,238.5	25.0	37.7	32.09	1,862.9	523.3	806.9	770.2	36.71	21.979	
5,700.0	5,544.2	5,768.7	5,368.1	25.1	38.2	31.41	1,894.3	531.7	830.3	793.4	36.91	22.495	
5,800.0	5,644.2	5,905.2	5,502.0	25.2	38.7	30.89	1,920.4	538.6	849.3	812.1	37.15	22.859	
5,900.0	5,744.2	6,044.1	5,639.3	25.3	39.1	30.51	1,940.5	544.0	863.7	826.3	37.42	23.081	
6,000.0	5,844.2	6,184.7	5,779.2	25.4	39.3	30.26	1,954.3	547.7	873.5	835.8	37.72	23.161	
6,100.0	5,944.2	6,326.4	5,920.7	25.5	39.5	30.13	1,961.4	549.7	878.6	840.6	38.02	23.108	
6,200.0	6,044.2	6,449.9	6,044.2	25.6	39.6	30.11	1,962.5	549.9	879.3	841.0	38.32	22.946	
6,300.0	6,144.2	6,549.9	6,144.2	25.7	39.7	30.11	1,962.5	549.9	879.3	840.7	38.61	22.776	
6,400.0	6,244.2	6,649.9	6,244.2	25.8	39.8	30.11	1,962.5	549.9	879.3	840.4	38.90	22.604	
6,500.0	6,344.2	6,749.9	6,344.2	25.9	39.8	30.11	1,962.5	549.9	879.3	840.1	39.20	22.433	
6,600.0	6,444.2	6,849.9	6,444.2	26.0	39.9	30.11	1,962.5	549.9	879.3	839.8	39.50	22.263	
6,700.0	6,544.2	6,949.9	6,544.2	26.2	40.0	30.11	1,962.5	549.9	879.3	839.5	39.80	22.095	
6,800.0	6,644.2	7,049.9	6,644.2	26.3	40.1	30.11	1,962.5	549.9	879.3	839.2	40.10	21.927	
6,900.0	6,744.2	7,149.9	6,744.2	26.4	40.1	30.11	1,962.5	549.9	879.3	838.9	40.41	21.760	
7,000.0	6,844.2	7,249.9	6,844.2	26.5	40.2	30.11	1,962.5	549.9	879.3	838.6	40.72	21.595	

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 Thomason 6-16
Project:	SEC.16-T2N-R65W	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Reference Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Thomason 6-16	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 (3-01-11)	Offset TVD Reference:	Offset Datum

Offset Design Thomason 11-16 Pad Sec.16-T2N-R65W - Thomason 21-16 - Wellbore #1 - Plan #1 (3-01-11)												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
7,100.0	6,944.2	7,349.9	6,944.2	26.6	40.3	30.11	1,962.5	549.9	879.3	838.3	41.03	21.430	
7,200.0	7,044.2	7,449.9	7,044.2	26.8	40.4	30.11	1,962.5	549.9	879.3	838.0	41.35	21.267	
7,300.0	7,144.2	7,549.9	7,144.2	26.9	40.4	30.11	1,962.5	549.9	879.3	837.7	41.66	21.105	
7,400.0	7,244.2	7,649.9	7,244.2	27.0	40.5	30.11	1,962.5	549.9	879.3	837.4	41.98	20.945	
7,500.0	7,344.2	7,749.9	7,344.2	27.1	40.6	30.11	1,962.5	549.9	879.3	837.0	42.31	20.785	
7,515.8	7,360.0	7,765.8	7,360.0	27.1	40.6	30.11	1,962.5	549.9	879.3	837.0	42.36	20.760	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	SEC.16-T2N-R65W	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Reference Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Thomason 6-16	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 (3-01-11)	Offset TVD Reference:	Offset Datum

Offset Design													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 Tooface (")	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	-69.26	19.0	-50.0	53.6					
100.0	100.0	97.0	97.0	0.1	0.1	-69.26	19.0	-50.0	53.5	53.3	0.22	241.720		
200.0	200.0	197.0	197.0	0.3	0.3	-69.26	19.0	-50.0	53.5	52.8	0.67	80.169		
300.0	300.0	297.0	297.0	0.6	0.6	-76.25	19.0	-50.0	53.1	52.0	1.12	47.509		
400.0	399.8	396.8	396.8	0.8	0.8	-81.87	19.0	-50.0	52.1	50.5	1.57	33.124		
487.0	486.5	483.5	483.5	1.0	1.0	-90.00	19.0	-50.0	51.6	49.6	1.98	25.982 CC		
500.0	499.5	496.5	496.5	1.0	1.0	-91.47	19.0	-50.0	51.6	49.5	2.05	25.209 ES		
600.0	598.7	595.7	595.7	1.3	1.2	-104.55	19.0	-50.0	53.3	50.7	2.55	20.921		
700.0	697.5	694.5	694.5	1.6	1.4	-119.12	19.0	-50.0	59.2	56.2	3.07	19.313 SF		
800.0	795.6	792.6	792.6	2.0	1.7	-132.47	19.0	-50.0	70.6	67.0	3.58	19.734		
900.0	893.1	890.1	890.1	2.4	1.9	-143.09	19.0	-50.0	87.5	83.5	4.07	21.517		
981.4	971.8	968.8	968.8	2.8	2.1	-149.69	19.0	-50.0	105.1	100.6	4.46	23.584		
1,000.0	989.7	986.7	986.7	2.9	2.1	-150.99	19.0	-50.0	109.5	104.9	4.54	24.096		
1,100.0	1,086.0	1,083.0	1,083.0	3.4	2.3	-156.56	19.0	-50.0	133.8	128.8	5.01	26.700		
1,200.0	1,182.3	1,179.3	1,179.3	4.0	2.5	-160.41	19.0	-50.0	159.0	153.5	5.48	29.002		
1,300.0	1,278.6	1,275.6	1,275.6	4.5	2.8	-163.21	19.0	-50.0	184.7	178.8	5.96	31.003		
1,400.0	1,374.9	1,371.9	1,371.9	5.0	3.0	-165.32	19.0	-50.0	210.7	204.3	6.44	32.738		
1,500.0	1,471.2	1,468.2	1,468.2	5.5	3.2	-166.97	19.0	-50.0	236.9	230.0	6.92	34.247		
1,600.0	1,567.5	1,564.5	1,564.5	6.1	3.4	-168.29	19.0	-50.0	263.3	255.9	7.40	35.566		
1,700.0	1,663.8	1,660.8	1,660.8	6.6	3.6	-169.37	19.0	-50.0	289.8	281.9	7.89	36.724		
1,800.0	1,760.1	1,757.1	1,757.1	7.2	3.8	-170.27	19.0	-50.0	316.3	307.9	8.38	37.748		
1,900.0	1,856.4	1,853.4	1,853.4	7.7	4.1	-171.03	19.0	-50.0	342.9	334.0	8.87	38.658		
2,000.0	1,952.7	1,949.7	1,949.7	8.2	4.3	-171.68	19.0	-50.0	369.6	360.2	9.36	39.472		
2,100.0	2,049.0	2,046.0	2,046.0	8.8	4.5	-172.24	19.0	-50.0	396.3	386.4	9.86	40.203		
2,200.0	2,145.3	2,142.3	2,142.3	9.3	4.7	-172.73	19.0	-50.0	423.0	412.6	10.35	40.863		
2,300.0	2,241.6	2,238.6	2,238.6	9.9	4.9	-173.17	19.0	-50.0	449.7	438.9	10.85	41.461		
2,400.0	2,337.9	2,334.9	2,334.9	10.4	5.1	-173.55	19.0	-50.0	476.5	465.2	11.34	42.006		
2,500.0	2,434.2	2,431.2	2,431.2	10.9	5.4	-173.90	19.0	-50.0	503.3	491.5	11.84	42.504		
2,600.0	2,530.5	2,527.5	2,527.5	11.5	5.6	-174.21	19.0	-50.0	530.1	517.8	12.34	42.961		
2,700.0	2,626.8	2,623.8	2,623.8	12.0	5.8	-174.49	19.0	-50.0	556.9	544.1	12.84	43.381		
2,800.0	2,723.1	2,720.1	2,720.1	12.6	6.0	-174.74	19.0	-50.0	583.8	570.4	13.34	43.769		
2,900.0	2,819.4	2,816.4	2,816.4	13.1	6.2	-174.97	19.0	-50.0	610.6	596.8	13.84	44.129		
3,000.0	2,915.7	2,912.7	2,912.7	13.7	6.4	-175.18	19.0	-50.0	637.5	623.1	14.34	44.462		
3,100.0	3,012.0	3,009.0	3,009.0	14.2	6.7	-175.38	19.0	-50.0	664.3	649.5	14.84	44.773		
3,200.0	3,108.3	3,105.3	3,105.3	14.8	6.9	-175.56	19.0	-50.0	691.2	675.8	15.34	45.062		
3,300.0	3,204.6	3,201.6	3,201.6	15.3	7.1	-175.73	19.0	-50.0	718.0	702.2	15.84	45.333		
3,400.0	3,300.9	3,297.9	3,297.9	15.8	7.3	-175.88	19.0	-50.0	744.9	728.6	16.34	45.587		
3,500.0	3,397.2	3,394.2	3,394.2	16.4	7.5	-176.02	19.0	-50.0	771.8	754.9	16.84	45.825		
3,600.0	3,493.5	3,490.5	3,490.5	16.9	7.7	-176.16	19.0	-50.0	798.7	781.3	17.34	46.048		
3,700.0	3,589.8	3,586.8	3,586.8	17.5	7.9	-176.28	19.0	-50.0	825.6	807.7	17.85	46.259		
3,800.0	3,686.1	3,683.1	3,683.1	18.0	8.2	-176.40	19.0	-50.0	852.4	834.1	18.35	46.458		
3,900.0	3,782.4	3,779.4	3,779.4	18.6	8.4	-176.51	19.0	-50.0	879.3	860.5	18.85	46.646		
4,000.0	3,878.7	3,875.7	3,875.7	19.1	8.6	-176.61	19.0	-50.0	906.2	886.9	19.35	46.823		
4,100.0	3,975.0	3,972.0	3,972.0	19.7	8.8	-176.71	19.0	-50.0	933.1	913.3	19.86	46.992		
4,200.0	4,071.3	4,068.3	4,068.3	20.2	9.0	-176.80	19.0	-50.0	960.0	939.7	20.36	47.151		
4,300.0	4,167.6	4,164.6	4,164.6	20.7	9.2	-176.89	19.0	-50.0	986.9	966.1	20.86	47.303		
4,400.0	4,264.0	4,261.0	4,261.0	21.3	9.5	-176.97	19.0	-50.0	1,013.8	992.5	21.37	47.447		
4,500.0	4,360.3	4,357.3	4,357.3	21.8	9.7	-177.05	19.0	-50.0	1,040.7	1,018.9	21.87	47.585		
4,600.0	4,456.6	4,453.6	4,453.6	22.4	9.9	-177.13	19.0	-50.0	1,067.7	1,045.3	22.38	47.715		
4,674.4	4,528.2	4,525.2	4,525.2	22.8	10.1	-177.18	19.0	-50.0	1,087.7	1,064.9	22.75	47.809		
4,700.0	4,552.9	4,549.9	4,549.9	22.9	10.1	-177.20	19.0	-50.0	1,094.5	1,071.6	22.89	47.803		
4,800.0	4,649.9	4,646.9	4,646.9	23.3	10.3	-177.29	19.0	-50.0	1,118.8	1,095.4	23.42	47.778		

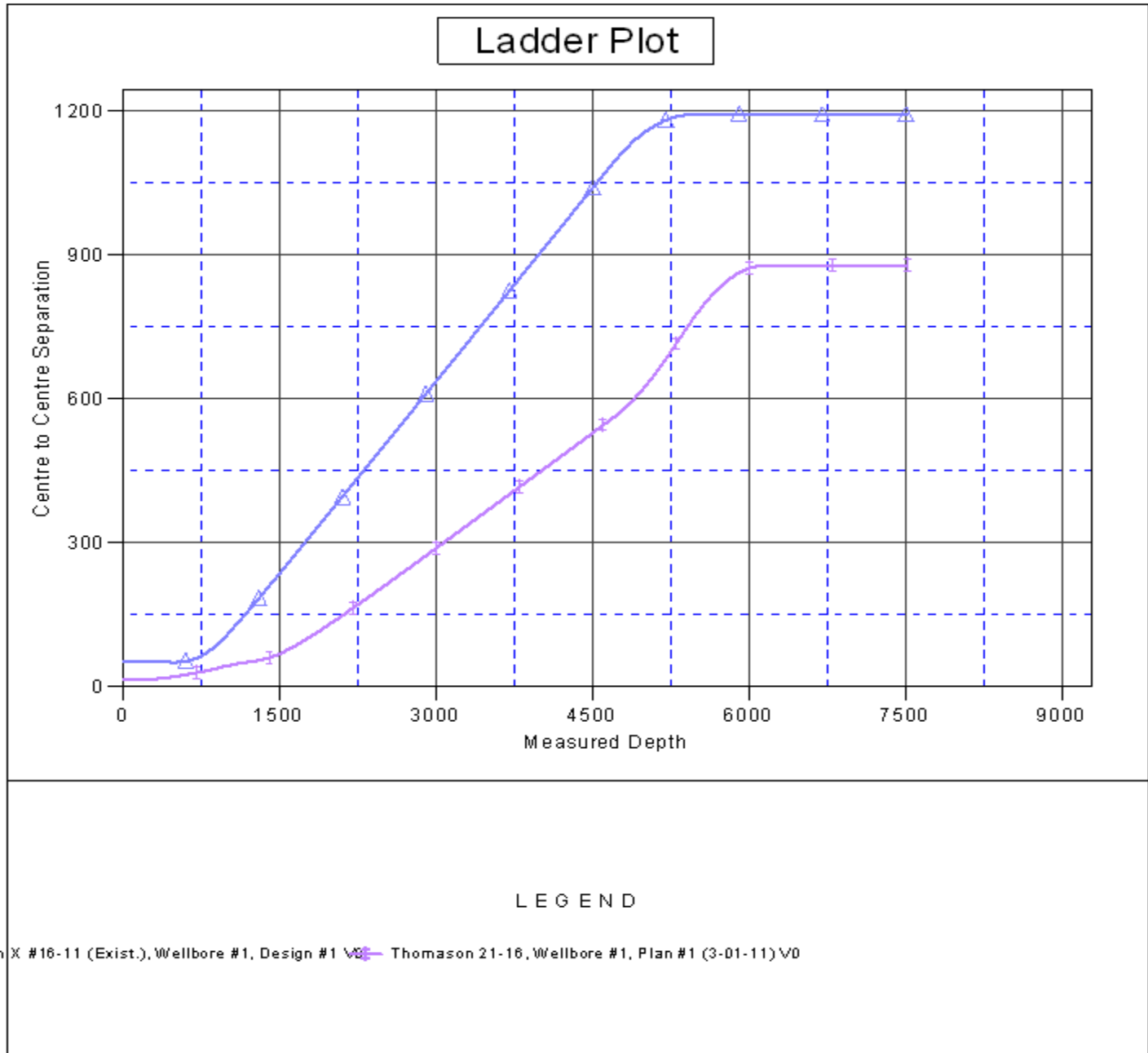
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	SEC.16-T2N-R65W	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Reference Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Thomason 6-16	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 (3-01-11)	Offset TVD Reference:	Offset Datum

Offset Design		Thomason 11-16 Pad Sec.16-T2N-R65W - Thomason X #16-11 (Exist.) - Wellbore #1 - Design #1										Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
4,900.0	4,747.6	4,744.6	4,744.6	23.7	10.6	-177.36	19.0	-50.0	1,139.8	1,115.9	23.91	47.679			
5,000.0	4,846.1	4,843.1	4,843.1	24.0	10.8	-177.41	19.0	-50.0	1,157.3	1,133.0	24.36	47.511			
5,100.0	4,945.1	4,942.1	4,942.1	24.2	11.0	-177.46	19.0	-50.0	1,171.4	1,146.7	24.78	47.281			
5,200.0	5,044.5	5,041.5	5,041.5	24.5	11.2	-177.49	19.0	-50.0	1,182.1	1,156.9	25.16	46.991			
5,300.0	5,144.2	5,141.2	5,141.2	24.6	11.4	-177.51	19.0	-50.0	1,189.3	1,163.8	25.50	46.644			
5,400.0	5,244.2	5,241.2	5,241.2	24.8	11.7	-177.52	19.0	-50.0	1,192.9	1,167.1	25.80	46.242			
5,455.8	5,300.0	5,297.0	5,297.0	24.8	11.8	-172.35	19.0	-50.0	1,193.5	1,167.5	25.95	45.994			
5,500.0	5,344.2	5,341.2	5,341.2	24.9	11.9	-172.35	19.0	-50.0	1,193.5	1,167.4	26.12	45.696			
5,600.0	5,444.2	5,441.2	5,441.2	25.0	12.1	-172.35	19.0	-50.0	1,193.5	1,167.0	26.52	45.005			
5,700.0	5,544.2	5,541.2	5,541.2	25.1	12.3	-172.35	19.0	-50.0	1,193.5	1,166.6	26.92	44.333			
5,800.0	5,644.2	5,641.2	5,641.2	25.2	12.6	-172.35	19.0	-50.0	1,193.5	1,166.2	27.32	43.679			
5,900.0	5,744.2	5,741.2	5,741.2	25.3	12.8	-172.35	19.0	-50.0	1,193.5	1,165.8	27.73	43.041			
6,000.0	5,844.2	5,841.2	5,841.2	25.4	13.0	-172.35	19.0	-50.0	1,193.5	1,165.4	28.13	42.420			
6,100.0	5,944.2	5,941.2	5,941.2	25.5	13.2	-172.35	19.0	-50.0	1,193.5	1,164.9	28.54	41.815			
6,200.0	6,044.2	6,041.2	6,041.2	25.6	13.5	-172.35	19.0	-50.0	1,193.5	1,164.5	28.95	41.226			
6,300.0	6,144.2	6,141.2	6,141.2	25.7	13.7	-172.35	19.0	-50.0	1,193.5	1,164.1	29.36	40.651			
6,400.0	6,244.2	6,241.2	6,241.2	25.8	13.9	-172.35	19.0	-50.0	1,193.5	1,163.7	29.77	40.091			
6,500.0	6,344.2	6,341.2	6,341.2	25.9	14.1	-172.35	19.0	-50.0	1,193.5	1,163.3	30.18	39.544			
6,600.0	6,444.2	6,441.2	6,441.2	26.0	14.4	-172.35	19.0	-50.0	1,193.5	1,162.9	30.59	39.012			
6,700.0	6,544.2	6,541.2	6,541.2	26.2	14.6	-172.35	19.0	-50.0	1,193.5	1,162.5	31.01	38.492			
6,800.0	6,644.2	6,641.2	6,641.2	26.3	14.8	-172.35	19.0	-50.0	1,193.5	1,162.1	31.42	37.984			
6,900.0	6,744.2	6,741.2	6,741.2	26.4	15.0	-172.35	19.0	-50.0	1,193.5	1,161.7	31.84	37.489			
7,000.0	6,844.2	6,841.2	6,841.2	26.5	15.3	-172.35	19.0	-50.0	1,193.5	1,161.2	32.25	37.006			
7,100.0	6,944.2	6,941.2	6,941.2	26.6	15.5	-172.35	19.0	-50.0	1,193.5	1,160.8	32.67	36.534			
7,200.0	7,044.2	7,041.2	7,041.2	26.8	15.7	-172.35	19.0	-50.0	1,193.5	1,160.4	33.09	36.073			
7,300.0	7,144.2	7,141.2	7,141.2	26.9	15.9	-172.35	19.0	-50.0	1,193.5	1,160.0	33.50	35.623			
7,400.0	7,244.2	7,241.2	7,241.2	27.0	16.2	-172.35	19.0	-50.0	1,193.5	1,159.6	33.92	35.183			
7,500.0	7,344.2	7,341.2	7,341.2	27.1	16.4	-172.35	19.0	-50.0	1,193.5	1,159.1	34.34	34.753			
7,515.8	7,360.0	7,357.0	7,357.0	27.1	16.4	-172.35	19.0	-50.0	1,193.5	1,159.1	34.41	34.686			

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	SEC.16-T2N-R65W	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Reference Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Thomason 6-16	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 (3-01-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4899.0ft (Original Well Elev) Coordinates are relative to: Thomason 6-16
 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: 0.54°



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Thomason 6-16
Project:	SEC.16-T2N-R65W	TVD Reference:	WELL @ 4899.0ft (Original Well Elev)
Reference Site:	Thomason 11-16 Pad Sec.16-T2N-R65W	MD Reference:	WELL @ 4899.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Thomason 6-16	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 (3-01-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4899.0ft (Original Well Elev) Coordinates are relative to: Thomason 6-16
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: 0.54°

