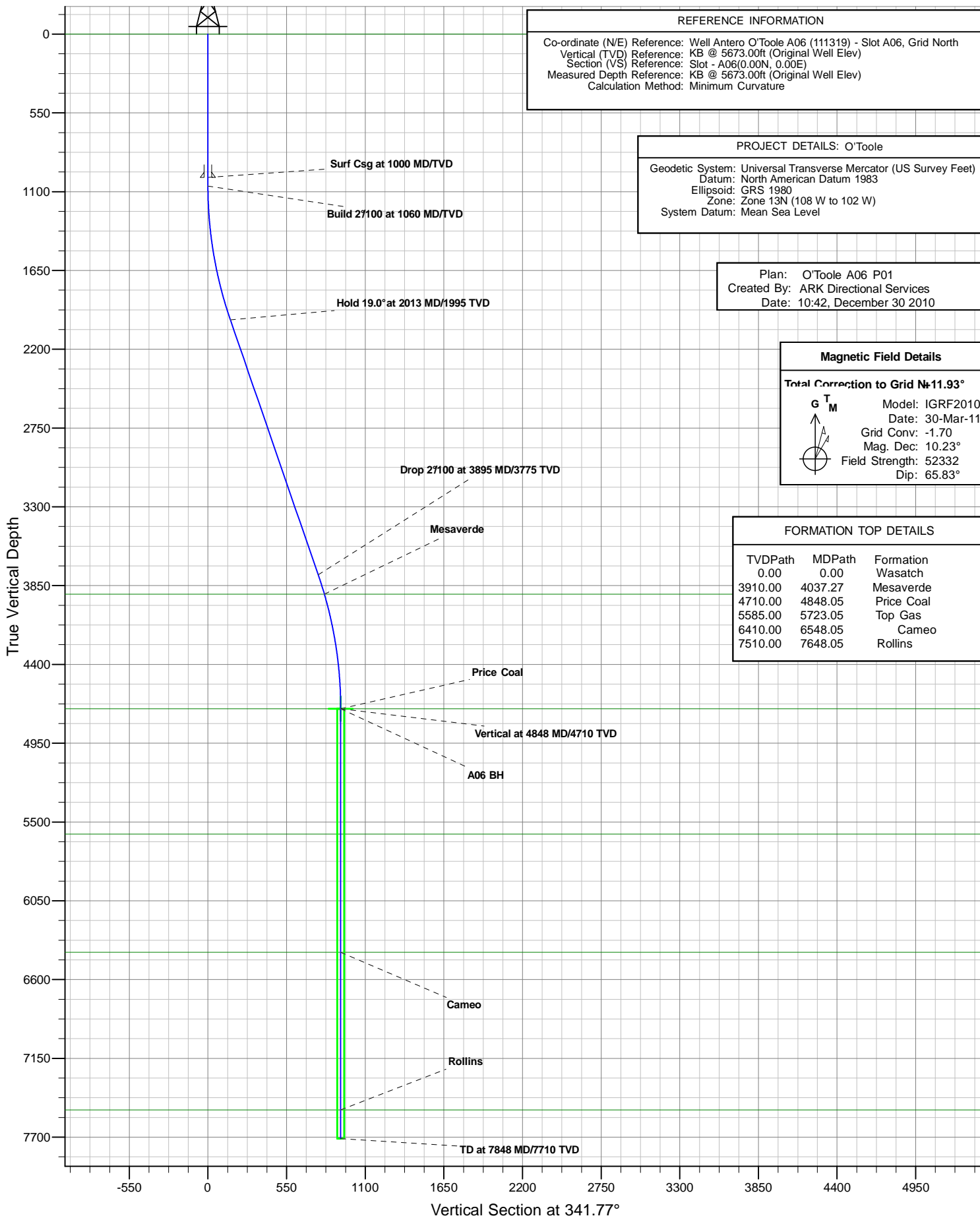


VERTICAL SECTION VIEW





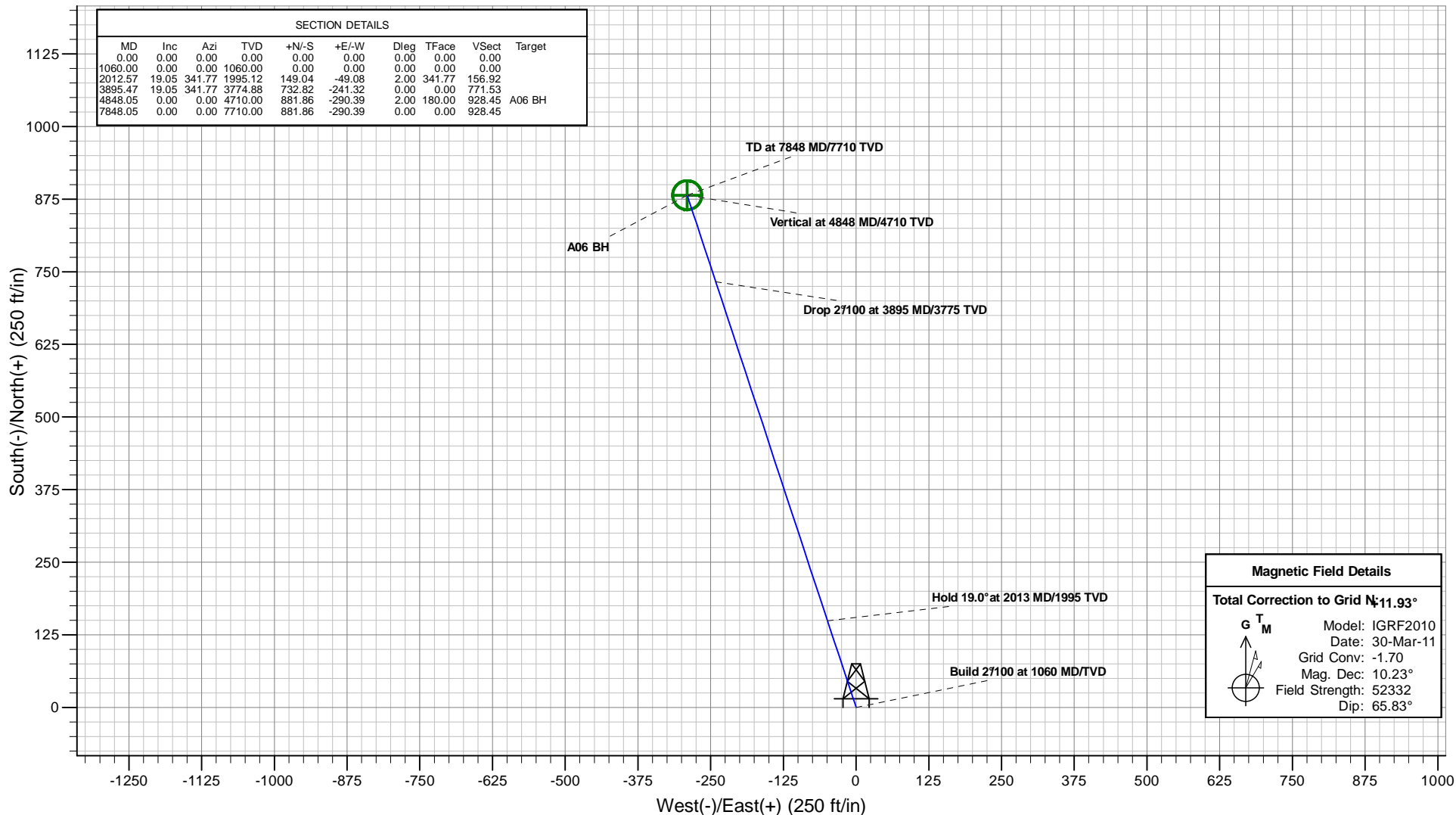
Antero Resources

Antero O'Toole A06 (111319)



PLAN VIEW

Project: O'Toole
Site: O'Toole A Pad
Well: Antero O'Toole A06 (111319)
Wellbore: O'Toole A06
Design: O'Toole A06 P01



Plan: O'Toole A06 P01
Created By: ARK Directional Services
Date: 10:46, December 30 2010

PROJECT DETAILS: O'Toole

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)
System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Antero O'Toole A06 (111319) - Slot A06, Grid North
Vertical (TVD) Reference: KB @ 5673.00ft (Original Well Elev)
Section (VS) Reference: Slot - A06(0.00N, 0.00E)
Measured Depth Reference: KB @ 5673.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

Antero Resources

O'Toole

O'Toole A Pad

Antero O'Toole A06 (111319) - Slot A06

O'Toole A06

Plan: O'Toole A06 P01

Standard Planning Report - Geographic

30 December, 2010

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well Antero O'Toole A06 (111319) - Slot A06
Company:	Antero Resources	TVD Reference:	KB @ 5673.00ft (Original Well Elev)
Project:	O'Toole	MD Reference:	KB @ 5673.00ft (Original Well Elev)
Site:	O'Toole A Pad	North Reference:	Grid
Well:	Antero O'Toole A06 (111319)	Survey Calculation Method:	Minimum Curvature
Wellbore:	O'Toole A06		
Design:	O'Toole A06 P01		

Project	O'Toole		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site		O'Toole A Pad			
Site Position:		Northing:	14,364,078.526 usft	Latitude:	39.522763688°N
From:	Map	Easting:	889,150.833 usft	Longitude:	107.663965951°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.70 °

Well	Antero O'Toole A06 (111319) - Slot A06					
Well Position	+N/-S	0.00 ft	Northing:	14,364,077.737 usft	Latitude:	39.522767209°N
	+E/-W	0.00 ft	Easting:	889,220.829 usft	Longitude:	107.663717917°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,649.00 ft

Wellbore	O'Toole A06				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/30/2011	10.23	65.83	52,332

Design	O'Toole A06 P01				
Audit Notes:					
Version:	Phase:	PROTOTYPE		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	341.77	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,060.00	0.00	0.00	1,060.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,012.57	19.05	341.77	1,995.12	149.04	-49.08	2.00	2.00	0.00	341.77	
3,895.47	19.05	341.77	3,774.88	732.82	-241.32	0.00	0.00	0.00	0.00	
4,848.05	0.00	0.00	4,710.00	881.86	-290.39	2.00	-2.00	0.00	180.00	A06 BH
7,848.05	0.00	0.00	7,710.00	881.86	-290.39	0.00	0.00	0.00	0.00	

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well Antero O'Toole A06 (111319) - Slot A06
Company:	Antero Resources	TVD Reference:	KB @ 5673.00ft (Original Well Elev)
Project:	O'Toole	MD Reference:	KB @ 5673.00ft (Original Well Elev)
Site:	O'Toole A Pad	North Reference:	Grid
Well:	Antero O'Toole A06 (111319)	Survey Calculation Method:	Minimum Curvature
Wellbore:	O'Toole A06		
Design:	O'Toole A06 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
Wasatch									
100.00	0.00	0.00	100.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
200.00	0.00	0.00	200.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
300.00	0.00	0.00	300.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
400.00	0.00	0.00	400.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
500.00	0.00	0.00	500.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
600.00	0.00	0.00	600.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
700.00	0.00	0.00	700.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
800.00	0.00	0.00	800.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
900.00	0.00	0.00	900.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
Surf Csg at 1000 MD/TVD									
1,060.00	0.00	0.00	1,060.00	0.00	0.00	14,364,077.737	889,220.829	39.522767209°N	107.663717917°W
Build 2°/100 at 1060 MD/TVD									
1,100.00	0.80	341.77	1,100.00	0.27	-0.09	14,364,078.002	889,220.741	39.522767930°N	107.663718254°W
1,200.00	2.80	341.77	1,199.94	3.25	-1.07	14,364,080.985	889,219.759	39.522776034°N	107.663722047°W
1,300.00	4.80	341.77	1,299.72	9.54	-3.14	14,364,087.280	889,217.686	39.522793135°N	107.663730049°W
1,400.00	6.80	341.77	1,399.20	19.14	-6.30	14,364,096.878	889,214.526	39.522819210°N	107.663742252°W
1,500.00	8.80	341.77	1,498.27	32.03	-10.55	14,364,109.768	889,210.281	39.522854228°N	107.663758640°W
1,600.00	10.80	341.77	1,596.81	48.20	-15.87	14,364,125.934	889,204.958	39.522898146°N	107.663779194°W
1,700.00	12.80	341.77	1,694.69	67.62	-22.27	14,364,145.357	889,198.562	39.522950912°N	107.663803887°W
1,800.00	14.80	341.77	1,791.80	90.28	-29.73	14,364,168.012	889,191.101	39.523012459°N	107.663832691°W
1,900.00	16.80	341.77	1,888.02	116.14	-38.24	14,364,193.872	889,182.586	39.523082715°N	107.663865569°W
2,000.00	18.80	341.77	1,983.22	145.17	-47.80	14,364,222.907	889,173.025	39.523161592°N	107.663902483°W
2,012.57	19.05	341.77	1,995.12	149.04	-49.08	14,364,226.780	889,171.749	39.523172116°N	107.663907408°W
Hold 19.0° at 2013 MD/1995 TVD									
2,100.00	19.05	341.77	2,077.75	176.15	-58.01	14,364,253.886	889,162.823	39.523245753°N	107.663941870°W
2,200.00	19.05	341.77	2,172.28	207.15	-68.22	14,364,284.890	889,152.614	39.523329981°N	107.663981288°W
2,300.00	19.05	341.77	2,266.80	238.16	-78.42	14,364,315.894	889,142.404	39.523414209°N	107.664020707°W
2,400.00	19.05	341.77	2,361.32	269.16	-88.63	14,364,346.898	889,132.195	39.523498438°N	107.664060125°W
2,500.00	19.05	341.77	2,455.85	300.17	-98.84	14,364,377.902	889,121.985	39.523582666°N	107.664099544°W
2,600.00	19.05	341.77	2,550.37	331.17	-109.05	14,364,408.906	889,111.776	39.523666894°N	107.664138962°W
2,700.00	19.05	341.77	2,644.89	362.17	-119.26	14,364,439.910	889,101.566	39.523751123°N	107.664178381°W
2,800.00	19.05	341.77	2,739.41	393.18	-129.47	14,364,470.914	889,091.357	39.523835351°N	107.664217800°W
2,900.00	19.05	341.77	2,833.94	424.18	-139.68	14,364,501.918	889,081.147	39.523919579°N	107.664257219°W
3,000.00	19.05	341.77	2,928.46	455.19	-149.89	14,364,532.922	889,070.938	39.524003807°N	107.664296638°W
3,100.00	19.05	341.77	3,022.98	486.19	-160.10	14,364,563.926	889,060.728	39.524088035°N	107.664336057°W
3,200.00	19.05	341.77	3,117.50	517.19	-170.31	14,364,594.930	889,050.519	39.524172263°N	107.664375477°W
3,300.00	19.05	341.77	3,212.03	548.20	-180.52	14,364,625.934	889,040.309	39.524256492°N	107.664414896°W
3,400.00	19.05	341.77	3,306.55	579.20	-190.73	14,364,656.938	889,030.100	39.524340720°N	107.664454315°W
3,500.00	19.05	341.77	3,401.07	610.21	-200.94	14,364,687.942	889,019.890	39.524424948°N	107.664493735°W
3,600.00	19.05	341.77	3,495.59	641.21	-211.15	14,364,718.946	889,009.681	39.524509176°N	107.664533155°W
3,700.00	19.05	341.77	3,590.12	672.21	-221.36	14,364,749.949	888,999.471	39.524593404°N	107.664572574°W
3,800.00	19.05	341.77	3,684.64	703.22	-231.57	14,364,780.953	888,989.261	39.524677632°N	107.664611994°W
3,895.47	19.05	341.77	3,774.88	732.82	-241.32	14,364,810.554	888,979.514	39.524758047°N	107.664649630°W
Drop 2°/100 at 3895 MD/3775 TVD									
3,900.00	18.96	341.77	3,779.16	734.22	-241.78	14,364,811.954	888,979.053	39.524761851°N	107.664651410°W
4,000.00	16.96	341.77	3,874.28	763.51	-251.42	14,364,841.242	888,969.409	39.524841418°N	107.664688649°W
4,037.27	16.22	341.77	3,910.00	773.61	-254.75	14,364,851.348	888,966.081	39.524868872°N	107.664701498°W
Mesaverde									
4,100.00	14.96	341.77	3,970.42	789.62	-260.02	14,364,867.360	888,960.808	39.524912370°N	107.664721856°W
4,200.00	12.96	341.77	4,067.47	812.54	-267.57	14,364,890.274	888,953.263	39.524974621°N	107.664750990°W
4,300.00	10.96	341.77	4,165.29	832.22	-274.05	14,364,909.958	888,946.781	39.525028095°N	107.664776017°W

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well Antero O'Toole A06 (111319) - Slot A06
Company:	Antero Resources	TVD Reference:	KB @ 5673.00ft (Original Well Elev)
Project:	O'Toole	MD Reference:	KB @ 5673.00ft (Original Well Elev)
Site:	O'Toole A Pad	North Reference:	Grid
Well:	Antero O'Toole A06 (111319)	Survey Calculation Method:	Minimum Curvature
Wellbore:	O'Toole A06		
Design:	O'Toole A06 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,400.00	8.96	341.77	4,263.78	848.65	-279.46	14,364,926.387	888,941.371	39.525072728°N	107.664796906°W
4,500.00	6.96	341.77	4,362.81	861.81	-283.79	14,364,939.541	888,937.039	39.525108464°N	107.664813631°W
4,600.00	4.96	341.77	4,462.26	871.67	-287.04	14,364,949.404	888,933.791	39.525135260°N	107.664826172°W
4,700.00	2.96	341.77	4,562.02	878.23	-289.20	14,364,955.965	888,931.631	39.525153083°N	107.664834514°W
4,800.00	0.96	341.77	4,661.95	881.48	-290.27	14,364,959.215	888,930.560	39.525161912°N	107.664838646°W
4,848.05	0.00	0.00	4,710.00	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
Vertical at 4848 MD/4710 TVD - Price Coal									
4,900.00	0.00	0.00	4,761.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,000.00	0.00	0.00	4,861.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,100.00	0.00	0.00	4,961.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,200.00	0.00	0.00	5,061.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,300.00	0.00	0.00	5,161.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,400.00	0.00	0.00	5,261.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,500.00	0.00	0.00	5,361.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,600.00	0.00	0.00	5,461.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,700.00	0.00	0.00	5,561.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,723.05	0.00	0.00	5,585.00	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
Top Gas									
5,800.00	0.00	0.00	5,661.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
5,900.00	0.00	0.00	5,761.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,000.00	0.00	0.00	5,861.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,100.00	0.00	0.00	5,961.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,200.00	0.00	0.00	6,061.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,300.00	0.00	0.00	6,161.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,400.00	0.00	0.00	6,261.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,500.00	0.00	0.00	6,361.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,548.05	0.00	0.00	6,410.00	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
Cameo									
6,600.00	0.00	0.00	6,461.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,700.00	0.00	0.00	6,561.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,800.00	0.00	0.00	6,661.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
6,900.00	0.00	0.00	6,761.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,000.00	0.00	0.00	6,861.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,100.00	0.00	0.00	6,961.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,200.00	0.00	0.00	7,061.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,300.00	0.00	0.00	7,161.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,400.00	0.00	0.00	7,261.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,500.00	0.00	0.00	7,361.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,600.00	0.00	0.00	7,461.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,648.05	0.00	0.00	7,510.00	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
Rollins									
7,700.00	0.00	0.00	7,561.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,800.00	0.00	0.00	7,661.95	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
7,848.05	0.00	0.00	7,710.00	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
TD at 7848 MD/7710 TVD									

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well Antero O'Toole A06 (111319) - Slot A06
Company:	Antero Resources	TVD Reference:	KB @ 5673.00ft (Original Well Elev)
Project:	O'Toole	MD Reference:	KB @ 5673.00ft (Original Well Elev)
Site:	O'Toole A Pad	North Reference:	Grid
Well:	Antero O'Toole A06 (111319)	Survey Calculation Method:	Minimum Curvature
Wellbore:	O'Toole A06		
Design:	O'Toole A06 P01		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
A06 BH	0.00	360.00	4,710.00	881.86	-290.39	14,364,959.598	888,930.434	39.525162952°N	107.664839133°W
- plan hits target center									
- Circle (radius 25.00)									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(in)	(in)
1,000.00	1,000.00	Surf Csg at 1000 MD/TVD		5.50	6.00

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(ft)	(ft)				(°)	(°)
0.00	0.00	Wasatch				
4,037.27	3,910.00	Mesaverde				
4,848.05	4,710.00	Price Coal				
5,723.05	5,585.00	Top Gas				
6,548.05	6,410.00	Cameo				
7,648.05	7,510.00	Rollins				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
1,060.00	1,060.00	0.00	0.00	Build 2°/100 at 1060 MD/TVD	
2,012.57	1,995.12	149.04	-49.08	Hold 19.0° at 2013 MD/1995 TVD	
3,895.47	3,774.88	732.82	-241.32	Drop 2°/100 at 3895 MD/3775 TVD	
4,848.05	4,710.00	881.86	-290.39	Vertical at 4848 MD/4710 TVD	
7,848.05	7,710.00	881.86	-290.39	TD at 7848 MD/7710 TVD	