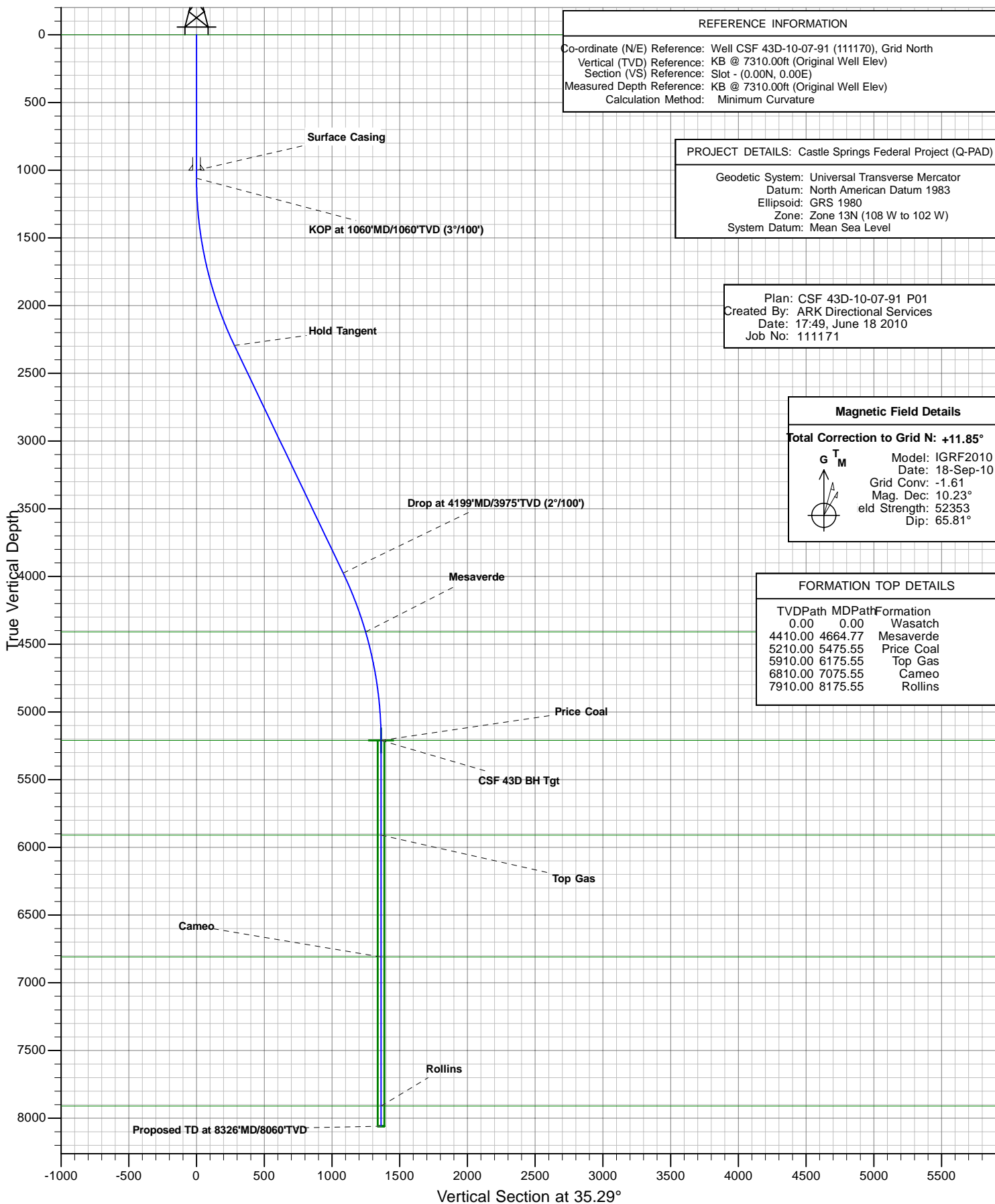




ANTERO RESOURCES

CSF 43D

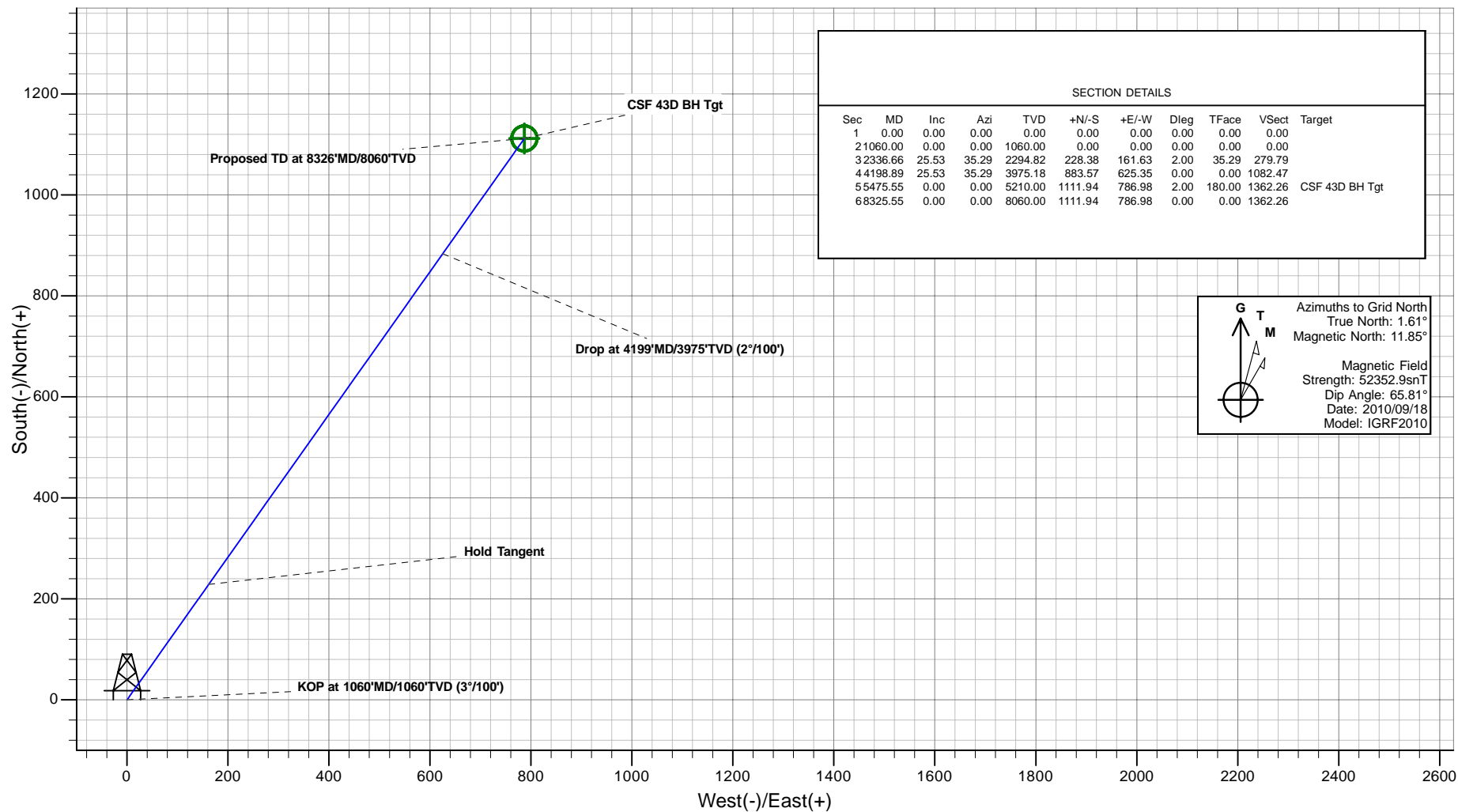




PLAN VIEW

ANTERO RESOURCES

Project: Castle Springs Federal Project (Q-PAD)
 Site: FRONTIER 12
 Well: CSF 43D-10-07-91 (111170)
 Wellbore: CSF 43D
 Design: CSF 43D-10-07-91 P01
 JOB # 111171



Plan: CSF 43D-10-07-91 P01
 Created By: ARK Directional Services
 Date: 17:51, June 18 2010

PROJECT DETAILS: Castle Springs Federal Project (Q-PAD)

Geodetic System: Universal Transverse Mercator
 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 CSF 43D-10-07-91 (111170), Grid North
 Vertical (TVD) Reference: KB @ 7310.00ft (Original Well Elev)
 Section (VS) Reference: Slot - (0.00N, 0.00E)
 Measured Depth Reference: KB @ 7310.00ft (Original Well Elev)
 Calculation Method: Minimum Curvature

ANTERO RESOURCES

Castle Springs Federal Project (Q-PAD)

FRONTIER 12

CSF 43D-10-07-91 (111170)

CSF 43D

Plan: CSF 43D-10-07-91 P01

Standard Planning Report - Geographic

18 June, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well CSF 43D-10-07-91 (111170)
Company:	ANTERO RESOURCES	TVD Reference:	KB @ 7310.00ft (Original Well Elev)
Project:	Castle Springs Federal Project (Q-PAD)	MD Reference:	KB @ 7310.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	CSF 43D-10-07-91 (111170)	Survey Calculation Method:	Minimum Curvature
Wellbore:	CSF 43D		
Design:	CSF 43D-10-07-91 P01		

Project	Castle Springs Federal Project (Q-PAD)		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site		FRONTIER 12			
Site Position:		Northing:	14,338,814.56 usft	Latitude:	39° 27' 22.523 N
From:	Lat/Long	Easting:	924,580.87 usft	Longitude:	107° 32' 9.346 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.61 °

Well	CSF 43D-10-07-91 (111170)					
Well Position	+N/-S	0.00 ft	Northing:	14,338,814.56 usft	Latitude:	39° 27' 22.523 N
	+E/-W	0.00 ft	Easting:	924,580.91 usft	Longitude:	107° 32' 9.346 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	7,285.00 ft

Wellbore	CSF 43D				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010/09/18	10.23	65.81	52,353

Design	CSF 43D-10-07-91 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	35.29	

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	
2,336.66	25.53	35.29	2,294.82	228.38	161.63	2.00	2.00	0.00	35.29	
4,198.89	25.53	35.29	3,975.18	883.57	625.35	0.00	0.00	0.00	0.00	
5,475.55	0.00	0.00	5,210.00	1,111.94	786.98	2.00	-2.00	0.00	180.00	CSF 43D BH Tgt
8,325.55	0.00	0.00	8,060.00	1,111.94	786.98	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well CSF 43D-10-07-91 (111170)
Company:	ANTERO RESOURCES	TVD Reference:	KB @ 7310.00ft (Original Well Elev)
Project:	Castle Springs Federal Project (Q-PAD)	MD Reference:	KB @ 7310.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	CSF 43D-10-07-91 (111170)	Survey Calculation Method:	Minimum Curvature
Wellbore:	CSF 43D		
Design:	CSF 43D-10-07-91 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	14,338,814.56	924,580.91	39° 27' 22.523 N	107° 32' 9.346 W	
Wasatch										
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,338,814.56	924,580.91	39° 27' 22.523 N	107° 32' 9.346 W	
Surface Casing										
1,060.00	0.00	0.00	1,060.00	0.00	0.00	14,338,814.56	924,580.91	39° 27' 22.523 N	107° 32' 9.346 W	
KOP at 1060'MD/1060'TVD (3°/100')										
2,336.66	25.53	35.29	2,294.82	228.38	161.63	14,339,042.94	924,742.55	39° 27' 24.824 N	107° 32' 7.368 W	
Hold Tangent										
4,198.89	25.53	35.29	3,975.18	883.57	625.35	14,339,698.12	925,206.26	39° 27' 31.425 N	107° 32' 1.695 W	
Drop at 4199'MD/3975'TVD (2°/100')										
4,664.77	16.22	35.29	4,410.00	1,018.92	721.14	14,339,833.47	925,302.05	39° 27' 32.788 N	107° 32' 0.522 W	
Mesaverde										
5,475.55	0.00	0.00	5,210.00	1,111.94	786.98	14,339,926.50	925,367.89	39° 27' 33.725 N	107° 31' 59.717 W	
Price Coal - CSF 43D BH Tgt										
6,175.55	0.00	0.00	5,910.00	1,111.94	786.98	14,339,926.50	925,367.89	39° 27' 33.725 N	107° 31' 59.717 W	
Top Gas										
7,075.55	0.00	0.00	6,810.00	1,111.94	786.98	14,339,926.50	925,367.89	39° 27' 33.725 N	107° 31' 59.717 W	
Cameo										
8,175.55	0.00	0.00	7,910.00	1,111.94	786.98	14,339,926.50	925,367.89	39° 27' 33.725 N	107° 31' 59.717 W	
Rollins										
8,325.55	0.00	0.00	8,060.00	1,111.94	786.98	14,339,926.50	925,367.89	39° 27' 33.725 N	107° 31' 59.717 W	
Proposed TD at 8326'MD/8060'TVD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
CSF 43D BH Tgt	0.00	0.00	5,210.00	1,111.94	786.98	14,339,926.50	925,367.89	39° 27' 33.725 N	107° 31' 59.717 W	
- plan hits target center										
- Circle (radius 25.00)										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	1,000.00	Surface Casing	8.62	12.25	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Wasatch		0.00		
4,664.77	4,410.00	Mesaverde		0.00		
5,475.55	5,210.00	Price Coal				
6,175.55	5,910.00	Top Gas				
7,075.55	6,810.00	Cameo				
8,175.55	7,910.00	Rollins				

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well CSF 43D-10-07-91 (111170)
Company:	ANTERO RESOURCES	TVD Reference:	KB @ 7310.00ft (Original Well Elev)
Project:	Castle Springs Federal Project (Q-PAD)	MD Reference:	KB @ 7310.00ft (Original Well Elev)
Site:	FRONTIER 12	North Reference:	Grid
Well:	CSF 43D-10-07-91 (111170)	Survey Calculation Method:	Minimum Curvature
Wellbore:	CSF 43D		
Design:	CSF 43D-10-07-91 P01		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,060.00	1,060.00	0.00	0.00	KOP at 1060'MD/1060'TVD (3°/100')
2,336.66	2,294.82	228.38	161.63	Hold Tangent
4,198.89	3,975.18	883.57	625.35	Drop at 4199'MD/3975'TVD (2°/100')
8,325.55	8,060.00	1,111.94	786.98	Proposed TD at 8326'MD/8060'TVD