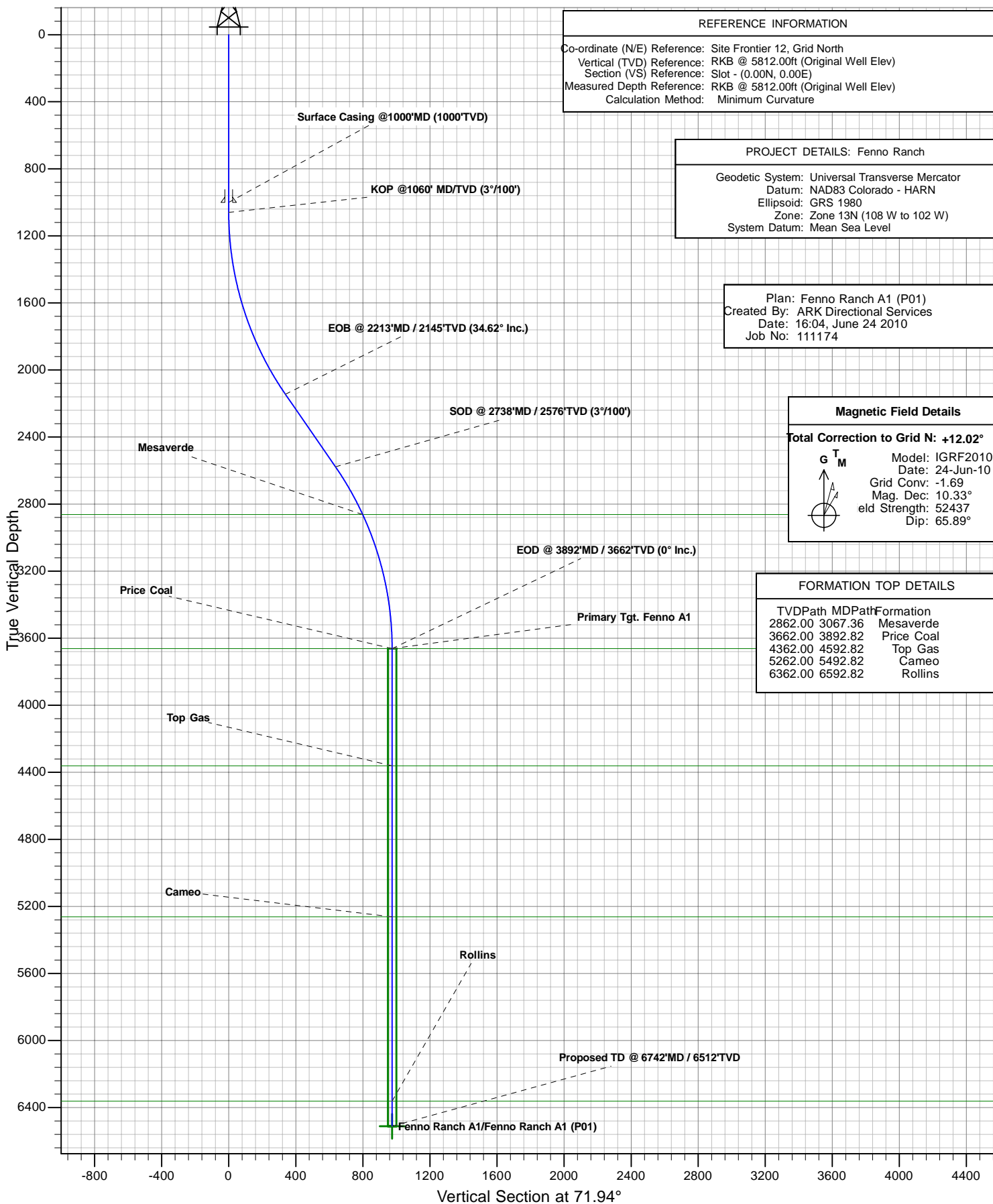




# Antero Resources

## Fenno Ranch A1

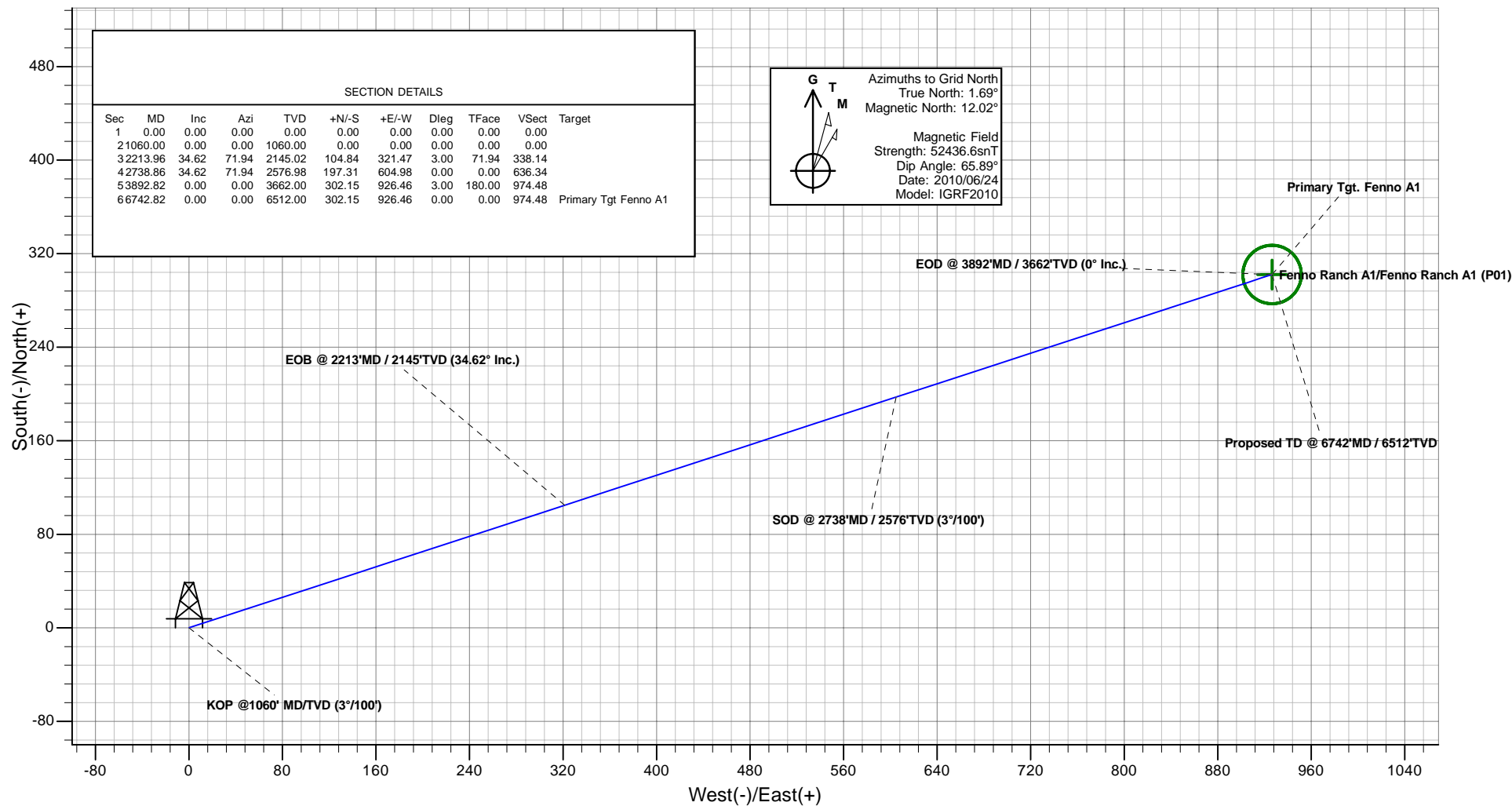




## PLAN VIEW

## Antero Resources

Project: Fenno Ranch  
Site: Frontier 12  
Well: Fenno Ranch A1  
Wellbore: Fenno Ranch A1  
Design: Fenno Ranch A1 (P01)  
JOB # 111174



Plan: Fenno Ranch A1 (P01)  
Created By: ARK Directional Services  
Date: 16:06, June 24 2010

### PROJECT DETAILS: Fenno Ranch

Geodetic System: Universal Transverse Mercator  
Datum: NAD83 Colorado - HARN  
Ellipsoid: GRS 1980  
Zone: Zone 13N (108 W to 102 W)  
System Datum: Mean Sea Level

### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Site: Frontier 12, Grid North  
Vertical (TVD) Reference: RKB @ 5812.00ft (Original Well Elev)  
Section (VS) Reference: Slot - (0.00N, 0.00E)  
Measured Depth Reference: RKB @ 5812.00ft (Original Well Elev)  
Calculation Method: Minimum Curvature

# **Antero Resources**

**Fenno Ranch  
Frontier 12**

**Plan: Fenno Ranch A1 (P01)**

## **Standard Planning Report - Geographic**

**24 June, 2010**

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Site Frontier 12
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	RKB @ 5812.00ft (Original Well Elev)
<b>Project:</b>	Fenno Ranch	<b>MD Reference:</b>	RKB @ 5812.00ft (Original Well Elev)
<b>Site:</b>	Frontier 12	<b>North Reference:</b>	Grid
<b>Well:</b>	Fenno Ranch A1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Fenno Ranch A1		
<b>Design:</b>	Fenno Ranch A1 (P01)		

<b>Project</b>	Fenno Ranch		
<b>Map System:</b>	Universal Transverse Mercator	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD83 Colorado - HARN		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	Frontier 12		
<b>Site Position:</b>		<b>Northing:</b>	14,381,433.76 usft
<b>From:</b>	Map	<b>Easting:</b>	894,067.71 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.20 in
		<b>Latitude:</b>	39.570775376°N
		<b>Longitude:</b>	107.648359053°W
		<b>Grid Convergence:</b>	-1.69 °

<b>Well</b>	Fenno Ranch A1		
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	
		<b>Latitude:</b>	39.570775376°N
		<b>Longitude:</b>	107.648359053°W
		<b>Ground Level:</b>	5,788.00 ft

<b>Wellbore</b>	Fenno Ranch A1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2010/06/24	10.33	65.89	52,437

<b>Design</b>	Fenno Ranch A1 (P01)				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.00	0.00	0.00	71.94	

<b>Plan Sections</b>										
<b>Measured Depth</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical Depth</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg Rate</b>	<b>Build Rate</b>	<b>Turn Rate</b>	<b>TFO</b>	<b>Target</b>
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
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	
2,213.96	34.62	71.94	2,145.02	104.84	321.47	3.00	3.00	0.00	71.94	
2,738.86	34.62	71.94	2,576.98	197.31	604.98	0.00	0.00	0.00	0.00	
3,892.82	0.00	0.00	3,662.00	302.15	926.46	3.00	-3.00	0.00	180.00	
6,742.82	0.00	0.00	6,512.00	302.15	926.46	0.00	0.00	0.00	0.00	Primary Tgt Fenno A1

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Site Frontier 12
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	RKB @ 5812.00ft (Original Well Elev)
<b>Project:</b>	Fenno Ranch	<b>MD Reference:</b>	RKB @ 5812.00ft (Original Well Elev)
<b>Site:</b>	Frontier 12	<b>North Reference:</b>	Grid
<b>Well:</b>	Fenno Ranch A1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Fenno Ranch A1		
<b>Design:</b>	Fenno Ranch A1 (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	14,381,433.76	894,067.71	39.570775376°N	107.648359053°W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,381,433.76	894,067.71	39.570775376°N	107.648359053°W
<b>Surface Casing @1000'MD (1000'TVD)</b>									
1,060.00	0.00	0.00	1,060.00	0.00	0.00	14,381,433.76	894,067.71	39.570775376°N	107.648359053°W
<b>KOP @1060' MD/TVD (3°/100')</b>									
2,213.96	34.62	71.94	2,145.02	104.85	321.48	14,381,538.61	894,389.18	39.571088997°N	107.647230416°W
<b>EOB @ 2213'MD / 2145'TVD (34.62° Inc.)</b>									
2,738.86	34.62	71.94	2,576.98	197.31	604.98	14,381,631.07	894,672.69	39.571365566°N	107.646235075°W
<b>SOD @ 2738'MD / 2576'TVD (3°/100')</b>									
3,067.36	24.76	71.94	2,862.00	247.70	759.48	14,381,681.46	894,827.19	39.571516286°N	107.645692636°W
<b>Mesaverde</b>									
3,892.82	0.00	0.00	3,662.00	302.15	926.46	14,381,735.92	894,994.16	39.571679166°N	107.645106421°W
<b>Primary Tgt. Fenno A1 - EOD @ 3892'MD / 3662'TVD (0° Inc.) - Price Coal</b>									
4,592.82	0.00	0.00	4,362.00	302.15	926.46	14,381,735.92	894,994.16	39.571679166°N	107.645106421°W
<b>Top Gas</b>									
5,492.82	0.00	0.00	5,262.00	302.15	926.46	14,381,735.92	894,994.16	39.571679166°N	107.645106421°W
<b>Cameo</b>									
6,592.82	0.00	0.00	6,362.00	302.15	926.46	14,381,735.92	894,994.16	39.571679166°N	107.645106421°W
<b>Rollins</b>									
6,742.79	0.00	0.00	6,511.97	302.15	926.46	14,381,735.92	894,994.16	39.571679166°N	107.645106421°W
<b>Proposed TD @ 6742'MD / 6512'TVD</b>									
6,742.82	0.00	0.00	6,512.00	302.15	926.46	14,381,735.92	894,994.16	39.571679166°N	107.645106421°W
<b>Primary Tgt Fenno A1</b>									

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									
Primary Tgt Fenno A1	0.00	0.01	6,512.00	302.15	926.46	14,381,735.92	894,994.16	39.571679166°N	107.645106421°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 @1000'MD (1000'TVD)	5.50	6.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,067.36	2,862.00	Mesaverde		0.00		
3,892.82	3,662.00	Price Coal		0.00		
4,592.82	4,362.00	Top Gas		0.00		
5,492.82	5,262.00	Cameo		0.00		
6,592.82	6,362.00	Rollins		0.00		

# ARK Directional Services

## Planning Report - Geographic

<b>Database:</b>	EDM SERVER DB	<b>Local Co-ordinate Reference:</b>	Site Frontier 12
<b>Company:</b>	Antero Resources	<b>TVD Reference:</b>	RKB @ 5812.00ft (Original Well Elev)
<b>Project:</b>	Fenno Ranch	<b>MD Reference:</b>	RKB @ 5812.00ft (Original Well Elev)
<b>Site:</b>	Frontier 12	<b>North Reference:</b>	Grid
<b>Well:</b>	Fenno Ranch A1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Fenno Ranch A1		
<b>Design:</b>	Fenno Ranch A1 (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 @ 1060' MD/TVD (3°/100')
2,213.96	2,145.02	104.85	321.48	EOB @ 2213'MD / 2145'TVD (34.62° Inc.)
2,738.86	2,576.98	197.31	604.98	SOD @ 2738'MD / 2576'TVD (3°/100')
3,892.82	3,662.00	302.15	926.46	Primary Tgt. Fenno A1
3,892.82	3,662.00	302.15	926.46	EOD @ 3892'MD / 3662'TVD (0° Inc.)
6,742.79	6,511.97	302.15	926.46	Proposed TD @ 6742'MD / 6512'TVD