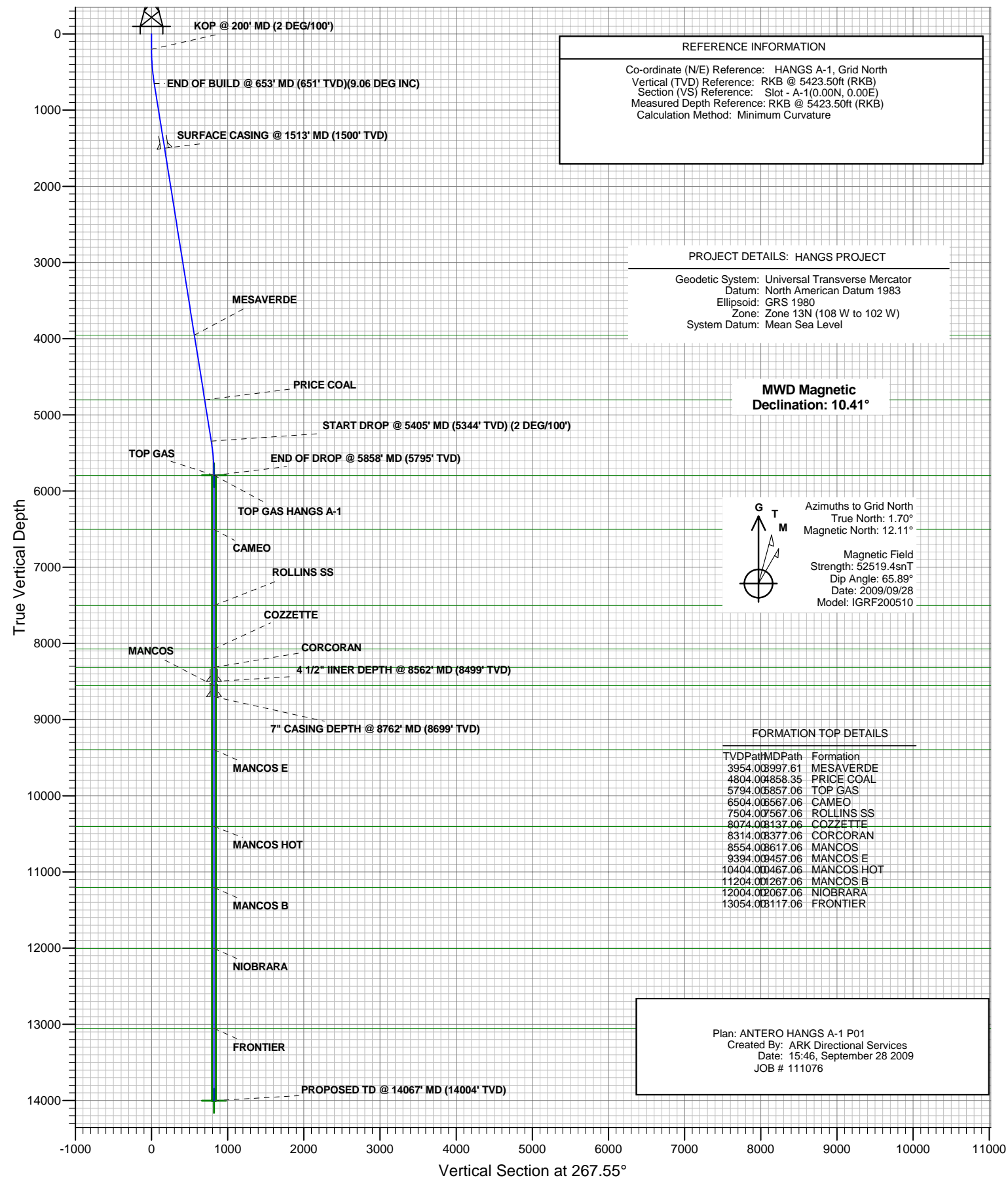




# ANTERO RESOURCES

## ANTERO HANGS A-1



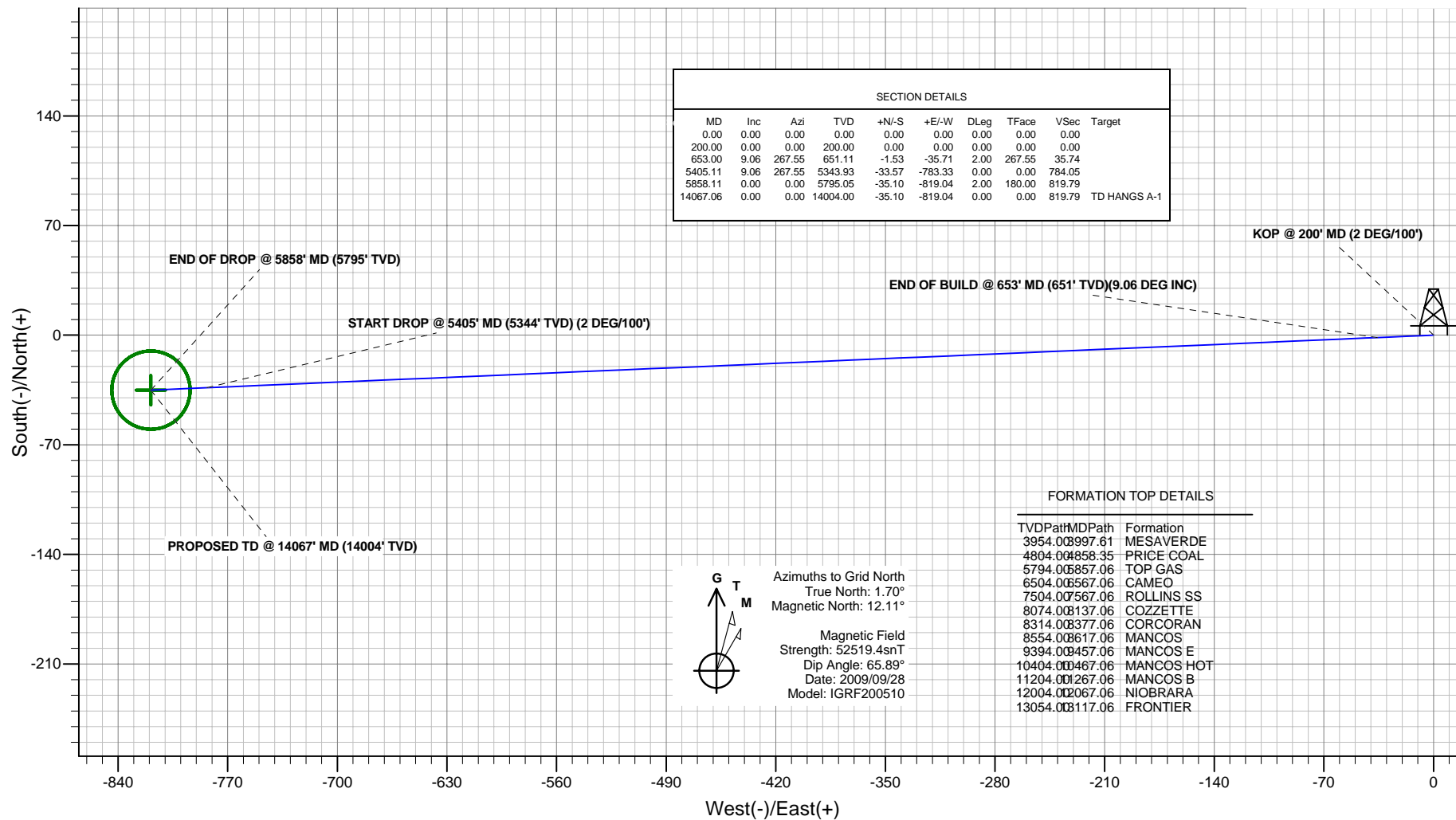


## ANTERO RESOURCES

Project: HANGS PROJECT  
Site: FRONTIER 14  
Well: HANGS A-1 (111076)  
Wellbore: ANTERO HANGS A-1  
Design: ANTERO HANGS A-1 P01  
JOB # 111076



### PLAN VIEW



Plan: ANTERO HANGS A-1 P01  
Created By: ARK Directional Services  
Date: 15:51, September 28 2009

PROJECT DETAILS: HANGS PROJECT  
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: HANGS A-1, Grid North  
Vertical (TVD) Reference: RKB @ 5423.50ft (RKB)  
Section (VS) Reference: Slot - A-1(0.00N, 0.00E)  
Measured Depth Reference: RKB @ 5423.50ft (RKB)  
Calculation Method: Minimum Curvature

# **ANTERO RESOURCES**

**HANGS PROJECT  
FRONTIER 14**

**Plan: ANTERO HANGS A-1 P01**

## **Standard Planning Report - Geographic**

**28 September, 2009**

# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well HANGS A-1 (111076) - Slot A-1
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Project:</b>	HANGS PROJECT	<b>MD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Site:</b>	FRONTIER 14	<b>North Reference:</b>	Grid
<b>Well:</b>	HANGS A-1 (111076)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO HANGS A-1		
<b>Design:</b>	ANTERO HANGS A-1 P01		

<b>Project</b>	HANGS PROJECT		
<b>Map System:</b>	Universal Transverse Mercator	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site	FRONTIER 14				
Site Position:		Northing:	14,369,259.15 ft	Latitude:	39° 32' 12.550 N
From:	Lat/Long	Easting:	887,221.30 ft	Longitude:	107° 40' 16.846 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	-1.70 °

Well	HANGS A-1 (111076) - Slot A-1					
Well Position	+N/-S	0.00 ft	Northing:	14,369,259.15 ft	Latitude:	39° 32' 12.550 N
	+E/-W	0.00 ft	Easting:	887,221.30 ft	Longitude:	107° 40' 16.846 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,405.00 ft

<b>Wellbore</b>	ANTERO HANGS A-1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	2009/09/28	10.41	65.89	52,519

<b>Design</b>	ANTERO HANGS A-1 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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	267.55

<b>Plan Sections</b>										
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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
653.00	9.06	267.55	651.11	-1.53	-35.71	2.00	2.00	0.00	267.55	
5,405.11	9.06	267.55	5,343.93	-33.57	-783.33	0.00	0.00	0.00	0.00	
5,858.11	0.00	0.00	5,795.05	-35.10	-819.04	2.00	-2.00	0.00	180.00	
14,067.06	0.00	0.00	14,004.00	-35.10	-819.04	0.00	0.00	0.00	0.00	TD HANGS A-1

# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well HANGS A-1 (111076) - Slot A-1
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Project:</b>	HANGS PROJECT	<b>MD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Site:</b>	FRONTIER 14	<b>North Reference:</b>	Grid
<b>Well:</b>	HANGS A-1 (111076)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO HANGS A-1		
<b>Design:</b>	ANTERO HANGS A-1 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,369,259.15	887,221.30	39° 32' 12.550 N	107° 40' 16.846 W
100.00	0.00	0.00	100.00	0.00	0.00	14,369,259.15	887,221.30	39° 32' 12.550 N	107° 40' 16.846 W
200.00	0.00	0.00	200.00	0.00	0.00	14,369,259.15	887,221.30	39° 32' 12.550 N	107° 40' 16.846 W
<b>KOP @ 200' MD (2 DEG/100')</b>									
300.00	2.00	267.55	299.98	-0.07	-1.74	14,369,259.08	887,219.55	39° 32' 12.549 N	107° 40' 16.868 W
400.00	4.00	267.55	399.84	-0.30	-6.97	14,369,258.85	887,214.32	39° 32' 12.545 N	107° 40' 16.935 W
500.00	6.00	267.55	499.45	-0.67	-15.68	14,369,258.48	887,205.62	39° 32' 12.539 N	107° 40' 17.046 W
600.00	8.00	267.55	598.70	-1.19	-27.85	14,369,257.96	887,193.44	39° 32' 12.530 N	107° 40' 17.201 W
653.00	9.06	267.55	651.11	-1.53	-35.71	14,369,257.62	887,185.59	39° 32' 12.524 N	107° 40' 17.301 W
<b>END OF BUILD @ 653' MD (651' TVD)(9.06 DEG INC)</b>									
700.00	9.06	267.55	697.53	-1.85	-43.10	14,369,257.30	887,178.19	39° 32' 12.519 N	107° 40' 17.395 W
800.00	9.06	267.55	796.28	-2.52	-58.84	14,369,256.63	887,162.46	39° 32' 12.508 N	107° 40' 17.595 W
900.00	9.06	267.55	895.03	-3.20	-74.57	14,369,255.95	887,146.73	39° 32' 12.496 N	107° 40' 17.796 W
1,000.00	9.06	267.55	993.79	-3.87	-90.30	14,369,255.28	887,131.00	39° 32' 12.485 N	107° 40' 17.996 W
1,100.00	9.06	267.55	1,092.54	-4.54	-106.03	14,369,254.61	887,115.26	39° 32' 12.474 N	107° 40' 18.197 W
1,200.00	9.06	267.55	1,191.29	-5.22	-121.76	14,369,253.93	887,099.53	39° 32' 12.463 N	107° 40' 18.397 W
1,300.00	9.06	267.55	1,290.04	-5.89	-137.50	14,369,253.26	887,083.80	39° 32' 12.451 N	107° 40' 18.597 W
1,400.00	9.06	267.55	1,388.79	-6.57	-153.23	14,369,252.58	887,068.07	39° 32' 12.440 N	107° 40' 18.798 W
1,500.00	9.06	267.55	1,487.55	-7.24	-168.96	14,369,251.91	887,052.33	39° 32' 12.429 N	107° 40' 18.998 W
1,512.61	9.06	267.55	1,500.00	-7.33	-170.95	14,369,251.82	887,050.35	39° 32' 12.427 N	107° 40' 19.023 W
<b>SURFACE CASING @ 1513' MD (1500' TVD)</b>									
1,600.00	9.06	267.55	1,586.30	-7.92	-184.69	14,369,251.23	887,036.60	39° 32' 12.417 N	107° 40' 19.199 W
1,700.00	9.06	267.55	1,685.05	-8.59	-200.43	14,369,250.56	887,020.87	39° 32' 12.406 N	107° 40' 19.399 W
1,800.00	9.06	267.55	1,783.80	-9.26	-216.16	14,369,249.89	887,005.14	39° 32' 12.395 N	107° 40' 19.599 W
1,900.00	9.06	267.55	1,882.56	-9.94	-231.89	14,369,249.21	886,989.40	39° 32' 12.384 N	107° 40' 19.800 W
2,000.00	9.06	267.55	1,981.31	-10.61	-247.62	14,369,248.54	886,973.67	39° 32' 12.372 N	107° 40' 19.000 W
2,100.00	9.06	267.55	2,080.06	-11.29	-263.36	14,369,247.86	886,957.94	39° 32' 12.361 N	107° 40' 20.201 W
2,200.00	9.06	267.55	2,178.81	-11.96	-279.09	14,369,247.19	886,942.21	39° 32' 12.350 N	107° 40' 20.401 W
2,300.00	9.06	267.55	2,277.57	-12.63	-294.82	14,369,246.52	886,926.47	39° 32' 12.339 N	107° 40' 20.601 W
2,400.00	9.06	267.55	2,376.32	-13.31	-310.55	14,369,245.84	886,910.74	39° 32' 12.327 N	107° 40' 20.802 W
2,500.00	9.06	267.55	2,475.07	-13.98	-326.29	14,369,245.17	886,895.01	39° 32' 12.316 N	107° 40' 21.002 W
2,600.00	9.06	267.55	2,573.82	-14.66	-342.02	14,369,244.49	886,879.28	39° 32' 12.305 N	107° 40' 21.203 W
2,700.00	9.06	267.55	2,672.58	-15.33	-357.75	14,369,243.82	886,863.54	39° 32' 12.293 N	107° 40' 21.403 W
2,800.00	9.06	267.55	2,771.33	-16.01	-373.48	14,369,243.14	886,847.81	39° 32' 12.282 N	107° 40' 21.604 W
2,900.00	9.06	267.55	2,870.08	-16.68	-389.22	14,369,242.47	886,832.08	39° 32' 12.271 N	107° 40' 21.804 W
3,000.00	9.06	267.55	2,968.83	-17.35	-404.95	14,369,241.80	886,816.35	39° 32' 12.260 N	107° 40' 22.004 W
3,100.00	9.06	267.55	3,067.59	-18.03	-420.68	14,369,241.12	886,800.62	39° 32' 12.248 N	107° 40' 22.205 W
3,200.00	9.06	267.55	3,166.34	-18.70	-436.41	14,369,240.45	886,784.88	39° 32' 12.237 N	107° 40' 22.405 W
3,300.00	9.06	267.55	3,265.09	-19.38	-452.15	14,369,239.77	886,769.15	39° 32' 12.226 N	107° 40' 22.606 W
3,400.00	9.06	267.55	3,363.84	-20.05	-467.88	14,369,239.10	886,753.42	39° 32' 12.215 N	107° 40' 22.806 W
3,500.00	9.06	267.55	3,462.60	-20.73	-483.61	14,369,238.42	886,737.69	39° 32' 12.203 N	107° 40' 23.006 W
3,600.00	9.06	267.55	3,561.35	-21.40	-499.34	14,369,237.75	886,721.95	39° 32' 12.192 N	107° 40' 23.207 W
3,700.00	9.06	267.55	3,660.10	-22.07	-515.08	14,369,237.08	886,706.22	39° 32' 12.181 N	107° 40' 23.407 W
3,800.00	9.06	267.55	3,758.85	-22.75	-530.81	14,369,236.40	886,690.49	39° 32' 12.169 N	107° 40' 23.608 W
3,900.00	9.06	267.55	3,857.60	-23.42	-546.54	14,369,235.73	886,674.76	39° 32' 12.158 N	107° 40' 23.808 W
3,997.61	9.06	267.55	3,954.00	-24.08	-561.90	14,369,235.07	886,659.40	39° 32' 12.147 N	107° 40' 24.004 W
<b>MESAVERDE</b>									
4,000.00	9.06	267.55	3,956.36	-24.10	-562.27	14,369,235.05	886,659.02	39° 32' 12.147 N	107° 40' 24.008 W
4,100.00	9.06	267.55	4,055.11	-24.77	-578.01	14,369,234.38	886,643.29	39° 32' 12.136 N	107° 40' 24.209 W
4,200.00	9.06	267.55	4,153.86	-25.45	-593.74	14,369,233.70	886,627.56	39° 32' 12.124 N	107° 40' 24.409 W
4,300.00	9.06	267.55	4,252.61	-26.12	-609.47	14,369,233.03	886,611.83	39° 32' 12.113 N	107° 40' 24.610 W
4,400.00	9.06	267.55	4,351.37	-26.79	-625.20	14,369,232.36	886,596.09	39° 32' 12.102 N	107° 40' 24.810 W
4,500.00	9.06	267.55	4,450.12	-27.47	-640.93	14,369,231.68	886,580.36	39° 32' 12.090 N	107° 40' 25.010 W
4,600.00	9.06	267.55	4,548.87	-28.14	-656.67	14,369,231.01	886,564.63	39° 32' 12.079 N	107° 40' 25.211 W

# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well HANGS A-1 (111076) - Slot A-1
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Project:</b>	HANGS PROJECT	<b>MD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Site:</b>	FRONTIER 14	<b>North Reference:</b>	Grid
<b>Well:</b>	HANGS A-1 (111076)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO HANGS A-1		
<b>Design:</b>	ANTERO HANGS A-1 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
4,700.00	9.06	267.55	4,647.62	-28.82	-672.40	14,369,230.33	886,548.90	39° 32' 12.068 N	107° 40' 25.411 W
4,800.00	9.06	267.55	4,746.38	-29.49	-688.13	14,369,229.66	886,533.16	39° 32' 12.057 N	107° 40' 25.612 W
4,858.35	9.06	267.55	4,804.00	-29.88	-697.31	14,369,229.27	886,523.98	39° 32' 12.050 N	107° 40' 25.729 W
<b>PRICE COAL</b>									
4,900.00	9.06	267.55	4,845.13	-30.16	-703.86	14,369,228.99	886,517.43	39° 32' 12.045 N	107° 40' 25.812 W
5,000.00	9.06	267.55	4,943.88	-30.84	-719.60	14,369,228.31	886,501.70	39° 32' 12.034 N	107° 40' 26.013 W
5,100.00	9.06	267.55	5,042.63	-31.51	-735.33	14,369,227.64	886,485.97	39° 32' 12.023 N	107° 40' 26.213 W
5,200.00	9.06	267.55	5,141.39	-32.19	-751.06	14,369,226.96	886,470.23	39° 32' 12.012 N	107° 40' 26.413 W
5,300.00	9.06	267.55	5,240.14	-32.86	-766.79	14,369,226.29	886,454.50	39° 32' 11.963 N	107° 40' 26.614 W
5,405.11	9.06	267.55	5,343.94	-33.57	-783.33	14,369,225.58	886,437.97	39° 32' 11.988 N	107° 40' 26.824 W
<b>START DROP @ 5405' MD (5344' TVD) (2 DEG/100')</b>									
5,500.00	7.16	267.55	5,437.87	-34.14	-796.71	14,369,225.01	886,424.59	39° 32' 11.979 N	107° 40' 26.995 W
5,600.00	5.16	267.55	5,537.29	-34.60	-807.43	14,369,224.55	886,413.87	39° 32' 11.971 N	107° 40' 27.131 W
5,700.00	3.16	267.55	5,637.02	-34.91	-814.68	14,369,224.24	886,406.62	39° 32' 11.966 N	107° 40' 27.224 W
5,800.00	1.16	267.55	5,736.95	-35.08	-818.45	14,369,224.07	886,402.85	39° 32' 11.963 N	107° 40' 27.272 W
5,857.06	0.02	267.55	5,794.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
<b>TOP GAS - TOP GAS HANGS A-1</b>									
5,858.11	0.00	0.00	5,795.05	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
<b>END OF DROP @ 5858' MD (5795' TVD)</b>									
5,900.00	0.00	0.00	5,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,000.00	0.00	0.00	5,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,100.00	0.00	0.00	6,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,200.00	0.00	0.00	6,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,300.00	0.00	0.00	6,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,400.00	0.00	0.00	6,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,500.00	0.00	0.00	6,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,567.06	0.00	0.00	6,504.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
<b>CAMEO</b>									
6,600.00	0.00	0.00	6,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,700.00	0.00	0.00	6,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,800.00	0.00	0.00	6,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
6,900.00	0.00	0.00	6,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,000.00	0.00	0.00	6,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,100.00	0.00	0.00	7,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,200.00	0.00	0.00	7,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,300.00	0.00	0.00	7,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,400.00	0.00	0.00	7,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,500.00	0.00	0.00	7,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,567.06	0.00	0.00	7,504.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
<b>ROLLINS SS</b>									
7,600.00	0.00	0.00	7,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,700.00	0.00	0.00	7,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,800.00	0.00	0.00	7,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
7,900.00	0.00	0.00	7,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
8,000.00	0.00	0.00	7,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
8,100.00	0.00	0.00	8,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
8,137.06	0.00	0.00	8,074.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
<b>COZZETTE</b>									
8,200.00	0.00	0.00	8,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
8,300.00	0.00	0.00	8,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
8,377.06	0.00	0.00	8,314.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
<b>CORCORAN</b>									
8,400.00	0.00	0.00	8,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
8,500.00	0.00	0.00	8,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W

# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well HANGS A-1 (111076) - Slot A-1
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Project:</b>	HANGS PROJECT	<b>MD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Site:</b>	FRONTIER 14	<b>North Reference:</b>	Grid
<b>Well:</b>	HANGS A-1 (111076)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO HANGS A-1		
<b>Design:</b>	ANTERO HANGS A-1 P01		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
8,562.06	0.00	0.00	8,499.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
<b>4 1/2" IINER DEPTH @ 8562' MD (8499' TVD)</b>										
8,600.00	0.00	0.00	8,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
8,617.06	0.00	0.00	8,554.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
<b>MANCOS</b>										
8,700.00	0.00	0.00	8,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
8,762.06	0.00	0.00	8,699.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
<b>7" CASING DEPTH @ 8762' MD (8699' TVD)</b>										
8,800.00	0.00	0.00	8,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
8,900.00	0.00	0.00	8,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,000.00	0.00	0.00	8,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,100.00	0.00	0.00	9,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,200.00	0.00	0.00	9,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,300.00	0.00	0.00	9,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,400.00	0.00	0.00	9,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,457.06	0.00	0.00	9,394.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
<b>MANCOS E</b>										
9,500.00	0.00	0.00	9,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,600.00	0.00	0.00	9,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,700.00	0.00	0.00	9,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,800.00	0.00	0.00	9,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
9,900.00	0.00	0.00	9,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,000.00	0.00	0.00	9,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,100.00	0.00	0.00	10,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,200.00	0.00	0.00	10,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,300.00	0.00	0.00	10,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,400.00	0.00	0.00	10,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,467.06	0.00	0.00	10,404.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
<b>MANCOS HOT</b>										
10,500.00	0.00	0.00	10,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,600.00	0.00	0.00	10,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,700.00	0.00	0.00	10,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,800.00	0.00	0.00	10,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
10,900.00	0.00	0.00	10,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,000.00	0.00	0.00	10,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,100.00	0.00	0.00	11,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,200.00	0.00	0.00	11,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,267.06	0.00	0.00	11,204.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
<b>MANCOS B</b>										
11,300.00	0.00	0.00	11,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,400.00	0.00	0.00	11,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,500.00	0.00	0.00	11,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,600.00	0.00	0.00	11,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,700.00	0.00	0.00	11,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,800.00	0.00	0.00	11,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
11,900.00	0.00	0.00	11,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
12,000.00	0.00	0.00	11,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
12,067.06	0.00	0.00	12,004.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
<b>NIOBRARA</b>										
12,100.00	0.00	0.00	12,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
12,200.00	0.00	0.00	12,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
12,300.00	0.00	0.00	12,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
12,400.00	0.00	0.00	12,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	
12,500.00	0.00	0.00	12,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W	



# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well HANGS A-1 (111076) - Slot A-1
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Project:</b>	HANGS PROJECT	<b>MD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Site:</b>	FRONTIER 14	<b>North Reference:</b>	Grid
<b>Well:</b>	HANGS A-1 (111076)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO HANGS A-1		
<b>Design:</b>	ANTERO HANGS A-1 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
12,600.00	0.00	0.00	12,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
12,700.00	0.00	0.00	12,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
12,800.00	0.00	0.00	12,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
12,900.00	0.00	0.00	12,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,000.00	0.00	0.00	12,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,100.00	0.00	0.00	13,036.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,117.06	0.00	0.00	13,054.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
FRONTIER									
13,200.00	0.00	0.00	13,136.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,300.00	0.00	0.00	13,236.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,400.00	0.00	0.00	13,336.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,500.00	0.00	0.00	13,436.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,600.00	0.00	0.00	13,536.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,700.00	0.00	0.00	13,636.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,800.00	0.00	0.00	13,736.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
13,900.00	0.00	0.00	13,836.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
14,000.00	0.00	0.00	13,936.94	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
14,067.04	0.00	0.00	14,003.98	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
PROPOSED TD @ 14067' MD (14004' TVD)									
14,067.06	0.00	0.00	14,004.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
TD HANGS A-1									

Design 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									
TOP GAS HANGS A-1		360.00	5,794.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
- plan hits target									
- Circle (radius 25.00)									
TD HANGS A-1	0.00	360.00	14,004.00	-35.10	-819.04	14,369,224.05	886,402.26	39° 32' 11.963 N	107° 40' 27.279 W
- plan hits target									
- Circle (radius 25.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
8,762.06	8,699.00	7" CASING DEPTH @ 8762' MD (8699' TVD)	7.00	7.50	
1,512.61	1,500.00	SURFACE CASING @ 1513' MD (1500' TVD)	9.62	12.25	
8,562.06	8,499.00	4 1/2" IINER DEPTH @ 8562' MD (8499' TVD)	7.00	7.50	



# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well HANGS A-1 (111076) - Slot A-1
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Project:</b>	HANGS PROJECT	<b>MD Reference:</b>	RKB @ 5423.50ft (RKB)
<b>Site:</b>	FRONTIER 14	<b>North Reference:</b>	Grid
<b>Well:</b>	HANGS A-1 (111076)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ANTERO HANGS A-1		
<b>Design:</b>	ANTERO HANGS A-1 P01		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,997.61	3,954.00	MESAVERDE		0.00	
4,858.35	4,804.00	PRICE COAL		0.00	
5,857.06	5,794.00	TOP GAS		0.00	
6,567.06	6,504.00	CAMEO		0.00	
7,567.06	7,504.00	ROLLINS SS		0.00	
8,137.06	8,074.00	COZZETTE		0.00	
8,377.06	8,314.00	CORCORAN		0.00	
8,617.06	8,554.00	MANCOS		0.00	
9,457.06	9,394.00	MANCOS E		0.00	
10,467.06	10,404.00	MANCOS HOT		0.00	
11,267.06	11,204.00	MANCOS B		0.00	
12,067.06	12,004.00	NIOBRARA		0.00	
13,117.06	13,054.00	FRONTIER		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.00	200.00	0.00	0.00	KOP @ 200' MD (2 DEG/100')
653.00	651.11	-1.53	-35.71	END OF BUILD @ 653' MD (651' TVD)(9.06 DEG INC)
5,405.11	5,343.94	-33.57	-783.33	START DROP @ 5405' MD (5344' TVD) (2 DEG/100')
5,858.11	5,795.05	-35.10	-819.04	END OF DROP @ 5858' MD (5795' TVD)
14,067.04	14,003.98	-35.10	-819.04	PROPOSED TD @ 14067' MD (14004' TVD)



# ANTERO HANGS A-1

