



Antero  
 Outback Unit 1H  
 Doddridge County WV  
 Northing: 14271032.41  
 Easting: 1696909.68  
 As Drilled

**WELL DETAILS:** Outback Unit 1H

Ground Level	1189.0	Longitude	
+N/S	+E/W	Northing	Easting
0.0	0.0	14271032.41	1696909.68

**PROJECT DETAILS:** Doddridge County WV

Geoidic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1983 (NAD83 CONUS)  
 Ellipsoid: Spheroid  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

**REFERENCE INFORMATION**

Co-ordinate (NED) Reference: Well Outback Unit 1H, Grid North  
 Vertical (VD) Reference: Form 22, GS, 3189 • 89.25' @ 1214.00ft  
 Measured Depth Reference: Form 22, GS, 3189 • 89.25' @ 1214.00ft  
 Calculation Method: Minimum Curvature

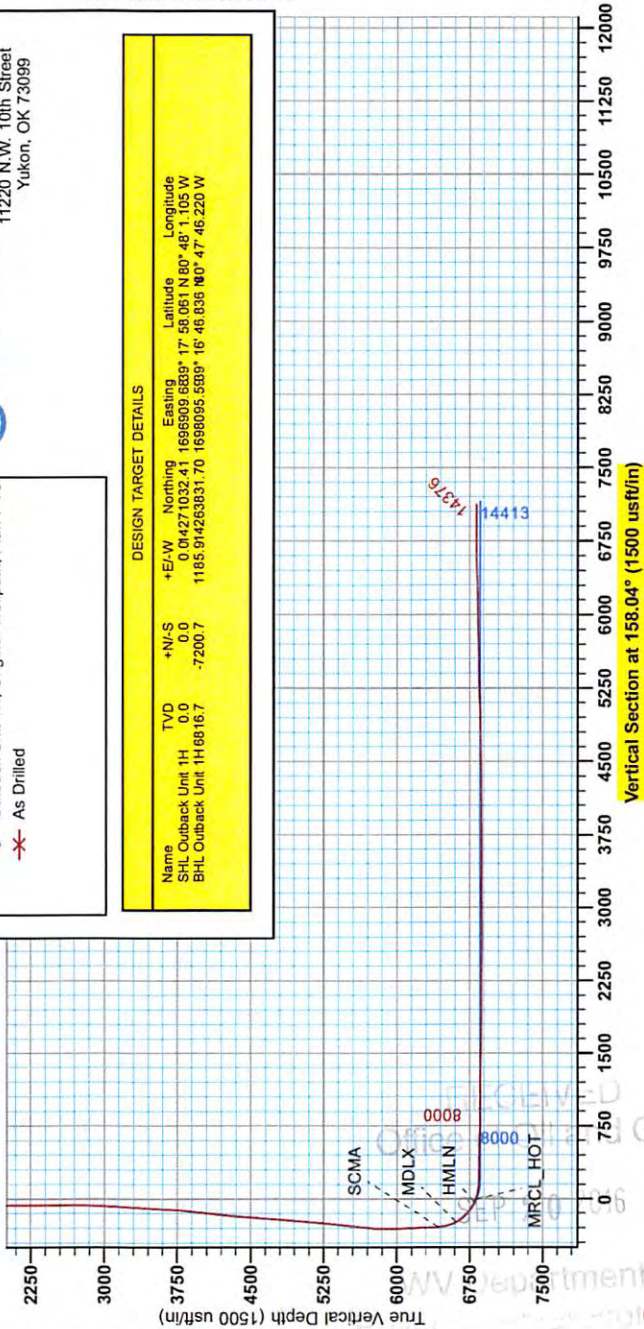
**LEGEND**

- Outback Unit 1H, Original Wellpath, Plan 7 V0
- ✖ As Drilled

Genie Lightfoot  
 16:00, January 07 2015  
 Scientific Drilling  
 11220 N.W. 10th Street  
 Yukon, OK 73099

**DESIGN TARGET DETAILS**

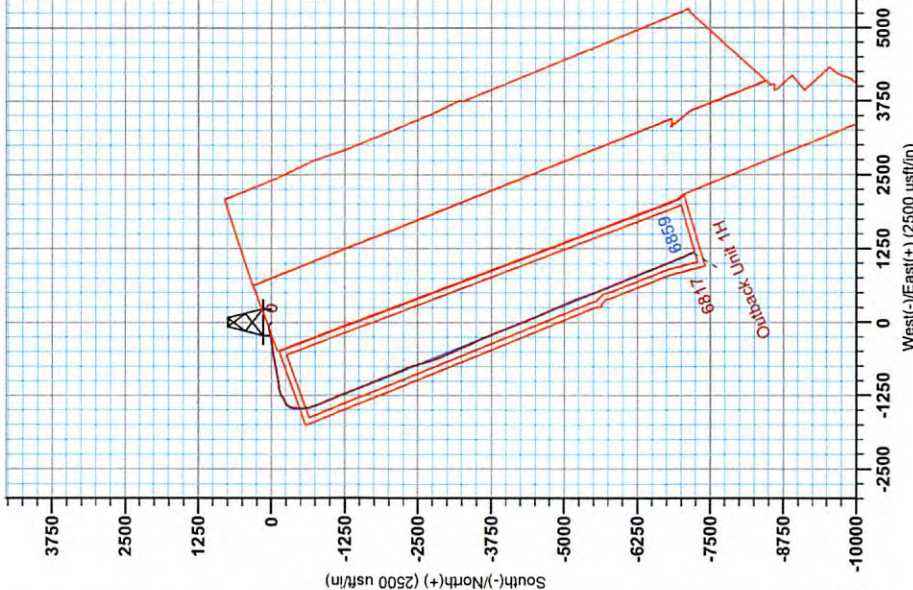
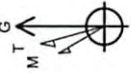
Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude
SHL Outback Unit 1H	0.0	0.0	0.0	0.0	0.0	17° 58.061' N	80° 48' 1.105' W
BHL Outback Unit 1H	6816.7	-7200.7	1165.9142	63031.70	1696095.5389	16° 46.636' N	80° 47' 46.220' W



To convert Magnetic North to Grid, Subtract 6.60°  
 To convert True North to Grid, Subtract 0.13°

Asimuths to Grid North  
 True North: -0.13°  
 Magnetic North: -8.60°

Magnetic Field  
 Strength: 52222.2817  
 Dip Angle: 66.014  
 Date: 10/16/2014  
 Model: BSGM2014





# **Antero**

**Doddridge County WV  
Cofor Pad/Outback Morton Nova Grape Rainer  
Outback Unit 1H  
Original Wellpath**

**Design: As Drilled**

## **EOW Completion Report**

**07 January, 2015**



**04/28/2017**

<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

<b>Project</b>	Doddridge County WV, McClellan District		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

<b>Site</b>	Cofor Pad/Outback Morton Nova Grape Rainer				
<b>Site Position:</b>	<b>Northing:</b>	14,271,032.41 usft	<b>Latitude:</b>	39° 17' 58.061 N	
<b>From:</b> Map	<b>Easting:</b>	1,696,909.68 usft	<b>Longitude:</b>	80° 48' 1.105 W	
<b>Position Uncertainty:</b>	2.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.13 °

<b>Well</b>	Outback Unit 1H, Marcellus				
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,271,032.41 usft	
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,696,909.68 usft	
			<b>Longitude:</b>	80° 48' 1.105 W	
<b>Position Uncertainty</b>	2.0 usft	<b>Wellhead Elevation:</b>	1,214.0 usft	<b>Ground Level:</b>	1,189.0 usft

<b>Wellbore</b>	Original Wellpath				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	10/16/2014	-8.47	66.85	52,222

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	158.04	

<b>Survey Program</b>	Date 1/7/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
37.0	5,874.1	Survey #3 Final Gyro (Original Wellpath)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
5,874.1	14,376.0	Survey #4 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

<b>Survey</b>									
<b>MD (usft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (usft)</b>	<b>N/S (usft)</b>	<b>E/W (usft)</b>	<b>V. Sec (usft)</b>	<b>DLeg (°/100usft)</b>		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00		0.00
37.0	0.11	191.32	37.0	0.0	0.0	0.0	0.30		0.30
62.0	0.22	191.32	62.0	-0.1	0.0	0.1	0.44		0.44
87.0	0.33	191.32	87.0	-0.2	0.0	0.2	0.44		0.44
112.0	0.44	191.32	112.0	-0.4	-0.1	0.3	0.44		0.44
137.0	0.44	197.06	137.0	-0.6	-0.1	0.5	0.18		0.18
162.0	0.42	199.86	162.0	-0.8	-0.2	0.6	0.12		0.12
187.0	0.26	213.18	187.0	-0.9	-0.2	0.7	0.71		0.71
212.0	0.18	204.47	212.0	-1.0	-0.3	0.8	0.35		0.35
237.0	0.20	194.28	237.0	-1.0	-0.3	0.9	0.16		0.16
262.0	0.15	199.03	262.0	-1.1	-0.3	0.9	0.21		0.21



EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)		
287.0	0.15	199.76	287.0	-1.2	-0.4	1.0	0.01		
312.0	0.19	198.59	312.0	-1.3	-0.4	1.0	0.16		
337.0	0.12	183.12	337.0	-1.3	-0.4	1.1	0.32		
362.0	0.18	194.54	362.0	-1.4	-0.4	1.1	0.27		
387.0	0.16	208.80	387.0	-1.4	-0.4	1.2	0.19		
412.0	0.26	243.90	412.0	-1.5	-0.5	1.2	0.63		
437.0	0.30	276.07	437.0	-1.5	-0.6	1.2	0.64		
462.0	0.76	299.77	462.0	-1.4	-0.8	1.0	2.00		
487.0	1.50	312.80	487.0	-1.1	-1.2	0.6	3.11		
512.0	2.19	319.27	512.0	-0.5	-1.8	-0.2	2.88		
537.0	2.70	319.89	537.0	0.3	-2.5	-1.2	2.04		
562.0	3.62	319.25	561.9	1.3	-3.4	-2.5	3.68		
587.0	4.29	317.42	586.9	2.6	-4.5	-4.1	2.73		
612.0	4.88	316.36	611.8	4.1	-5.9	-6.0	2.38		
637.0	5.61	315.01	636.7	5.7	-7.5	-8.1	2.96		
662.0	5.72	314.35	661.5	7.4	-9.2	-10.3	0.51		
687.0	5.77	314.26	686.4	9.2	-11.0	-12.6	0.20		
712.0	5.92	313.95	711.3	10.9	-12.8	-15.0	0.61		
737.0	6.03	314.00	736.2	12.8	-14.7	-17.3	0.44		
762.0	6.15	314.40	761.0	14.6	-16.6	-19.8	0.51		
787.0	6.31	314.30	785.9	16.5	-18.6	-22.2	0.64		
812.0	6.43	313.50	810.7	18.4	-20.6	-24.8	0.60		
837.0	6.54	313.45	835.6	20.4	-22.6	-27.3	0.44		
862.0	6.53	313.17	860.4	22.3	-24.7	-29.9	0.13		
887.0	6.10	312.99	885.2	24.2	-26.7	-32.4	1.72		
912.0	4.96	312.38	910.1	25.8	-28.5	-34.6	4.57		
937.0	4.53	310.94	935.0	27.2	-30.0	-36.4	1.78		
962.0	4.39	311.91	960.0	28.5	-31.5	-38.2	0.64		
987.0	4.42	313.70	984.9	29.8	-32.9	-39.9	0.56		
1,012.0	4.09	312.03	1,009.8	31.1	-34.2	-41.6	1.41		
1,037.0	3.85	313.35	1,034.8	32.2	-35.5	-43.2	1.03		
1,062.0	3.71	314.48	1,059.7	33.4	-36.7	-44.7	0.63		
1,087.0	3.60	314.74	1,084.7	34.5	-37.8	-46.1	0.44		
1,112.0	3.38	314.74	1,109.6	35.6	-38.9	-47.5	0.88		
1,137.0	3.07	316.40	1,134.6	36.6	-39.9	-48.8	1.29		
1,162.0	2.97	316.30	1,159.5	37.5	-40.8	-50.1	0.40		
1,187.0	2.72	315.59	1,184.5	38.4	-41.7	-51.2	1.01		
1,212.0	2.66	315.23	1,209.5	39.3	-42.5	-52.3	0.25		
1,237.0	2.34	313.00	1,234.5	40.0	-43.3	-53.3	1.34		
1,262.0	2.21	315.22	1,259.4	40.7	-44.0	-54.2	0.63		
1,287.0	2.16	313.02	1,284.4	41.4	-44.7	-55.1	0.39		
1,312.0	2.03	315.09	1,309.4	42.0	-45.3	-55.9	0.60		
1,337.0	1.67	315.51	1,334.4	42.6	-45.9	-56.8	1.44		
1,362.0	1.56	314.04	1,359.4	43.1	-46.4	-57.3	0.47		



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

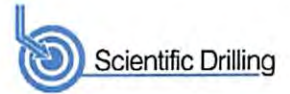
Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,387.0	1.51	313.57	1,384.4	43.5	-46.9	-57.9	0.21
1,412.0	1.51	314.66	1,409.4	44.0	-47.3	-58.5	0.11
1,437.0	1.51	315.30	1,434.3	44.5	-47.8	-59.1	0.07
1,462.0	1.35	314.36	1,459.3	44.9	-48.2	-59.7	0.65
1,487.0	1.26	313.47	1,484.3	45.3	-48.7	-60.2	0.37
1,512.0	1.12	314.06	1,509.3	45.7	-49.0	-60.7	0.56
1,537.0	1.04	314.27	1,534.3	46.0	-49.4	-61.1	0.32
1,562.0	0.94	308.70	1,559.3	46.3	-49.7	-61.5	0.55
1,587.0	0.94	313.84	1,584.3	46.5	-50.0	-61.9	0.34
1,612.0	0.87	310.18	1,609.3	46.8	-50.3	-62.2	0.36
1,637.0	0.82	313.43	1,634.3	47.0	-50.6	-62.5	0.28
1,662.0	0.72	312.86	1,659.3	47.3	-50.8	-62.8	0.40
1,687.0	0.71	313.09	1,684.3	47.5	-51.0	-63.1	0.04
1,712.0	0.60	319.12	1,709.3	47.7	-51.2	-63.4	0.52
1,737.0	0.56	317.33	1,734.3	47.9	-51.4	-63.6	0.18
1,762.0	0.42	323.74	1,759.3	48.0	-51.5	-63.8	0.60
1,787.0	0.44	332.07	1,784.3	48.2	-51.6	-64.0	0.26
1,812.0	0.37	339.51	1,809.3	48.4	-51.7	-64.2	0.35
1,837.0	0.26	347.90	1,834.3	48.5	-51.8	-64.3	0.48
1,862.0	0.27	351.90	1,859.3	48.6	-51.8	-64.4	0.08
1,887.0	0.23	1.85	1,884.3	48.7	-51.8	-64.5	0.24
1,912.0	0.26	9.18	1,909.3	48.8	-51.8	-64.6	0.17
1,937.0	0.21	354.71	1,934.3	48.9	-51.8	-64.7	0.31
1,962.0	0.26	345.30	1,959.3	49.0	-51.8	-64.8	0.25
1,987.0	0.27	356.09	1,984.3	49.1	-51.8	-64.9	0.20
2,012.0	0.23	15.05	2,009.3	49.2	-51.8	-65.0	0.37
2,037.0	0.21	6.50	2,034.3	49.3	-51.8	-65.1	0.15
2,062.0	0.22	9.45	2,059.3	49.4	-51.8	-65.2	0.06
2,087.0	0.21	12.69	2,084.3	49.5	-51.7	-65.3	0.06
2,112.0	0.26	7.98	2,109.3	49.6	-51.7	-65.4	0.21
2,137.0	0.18	349.46	2,134.3	49.7	-51.7	-65.5	0.42
2,162.0	0.14	25.41	2,159.3	49.8	-51.7	-65.5	0.42
2,187.0	0.18	340.89	2,184.3	49.9	-51.7	-65.6	0.51
2,212.0	0.17	352.71	2,209.3	49.9	-51.7	-65.7	0.15
2,237.0	0.02	224.34	2,234.3	50.0	-51.7	-65.7	0.73
2,262.0	0.05	43.68	2,259.3	50.0	-51.7	-65.7	0.28
2,287.0	0.05	175.32	2,284.3	50.0	-51.7	-65.7	0.36
2,312.0	0.08	151.99	2,309.3	49.9	-51.7	-65.7	0.16
2,337.0	0.05	315.40	2,334.3	49.9	-51.7	-65.6	0.51
2,362.0	0.10	135.60	2,359.3	49.9	-51.7	-65.6	0.60
2,387.0	0.07	109.84	2,384.3	49.9	-51.7	-65.6	0.19
2,412.0	0.10	92.83	2,409.3	49.9	-51.7	-65.6	0.16
2,437.0	0.15	175.45	2,434.3	49.9	-51.6	-65.5	0.68
2,462.0	0.15	201.12	2,459.3	49.8	-51.6	-65.5	0.27
2,487.0	0.09	63.55	2,484.3	49.8	-51.6	-65.5	0.90

RECEIVED  
Office of Oil and Gas  
Sept 20 2016  
www.departmentofenergy.com  
E-mail: info@oilandgas.com



EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,512.0	0.06	191.07	2,509.3	49.8	-51.6	-65.5	0.54
2,537.0	0.12	198.08	2,534.3	49.7	-51.6	-65.4	0.24
2,562.0	0.18	132.36	2,559.3	49.7	-51.6	-65.4	0.68
2,587.0	0.26	62.73	2,584.3	49.7	-51.5	-65.3	1.04
2,612.0	0.13	122.21	2,609.3	49.7	-51.5	-65.3	0.90
2,637.0	0.07	60.78	2,634.3	49.7	-51.4	-65.3	0.46
2,662.0	0.15	7.21	2,659.3	49.7	-51.4	-65.3	0.49
2,687.0	0.10	28.40	2,684.3	49.8	-51.4	-65.4	0.27
2,712.0	0.10	18.11	2,709.3	49.8	-51.4	-65.4	0.07
2,737.0	0.03	291.70	2,734.3	49.8	-51.4	-65.4	0.41
2,762.0	0.86	280.78	2,759.3	49.9	-51.6	-65.5	3.32
2,787.0	2.13	278.61	2,784.3	50.0	-52.2	-65.9	5.08
2,812.0	3.20	277.10	2,809.3	50.1	-53.3	-66.4	4.29
2,837.0	4.78	273.02	2,834.2	50.3	-55.1	-67.2	6.42
2,862.0	5.79	271.65	2,859.1	50.4	-57.4	-68.2	4.07
2,887.0	6.44	269.34	2,884.0	50.4	-60.0	-69.2	2.78
2,912.0	7.06	267.86	2,908.8	50.3	-63.0	-70.2	2.58
2,937.0	7.86	264.49	2,933.6	50.1	-66.2	-71.2	3.65
2,962.0	8.52	263.34	2,958.3	49.7	-69.8	-72.2	2.72
2,987.0	9.01	263.58	2,983.0	49.3	-73.5	-73.2	1.97
3,012.0	9.45	264.02	3,007.7	48.8	-77.5	-74.3	1.78
3,037.0	9.97	263.68	3,032.3	48.4	-81.7	-75.4	2.09
3,062.0	10.58	262.08	3,056.9	47.8	-86.1	-76.6	2.69
3,087.0	11.21	261.24	3,081.5	47.2	-90.8	-77.7	2.60
3,112.0	11.75	260.55	3,106.0	46.4	-95.7	-78.8	2.23
3,137.0	12.39	260.35	3,130.4	45.5	-100.9	-79.9	2.57
3,162.0	13.06	260.58	3,154.8	44.6	-106.3	-81.1	2.69
3,187.0	13.72	262.24	3,179.1	43.7	-112.0	-82.5	3.05
3,212.0	14.46	262.78	3,203.4	42.9	-118.1	-84.0	3.01
3,237.0	15.12	263.43	3,227.6	42.2	-124.4	-85.6	2.72
3,262.0	15.88	263.30	3,251.7	41.4	-131.1	-87.4	3.04
3,287.0	16.85	262.69	3,275.6	40.5	-138.0	-89.2	3.94
3,312.0	17.45	261.74	3,299.5	39.5	-145.3	-91.0	2.65
3,337.0	17.96	260.11	3,323.3	38.3	-152.9	-92.7	2.84
3,362.0	18.48	258.49	3,347.1	36.9	-160.5	-94.2	2.90
3,387.0	19.11	256.71	3,370.8	35.2	-168.4	-95.6	3.41
3,412.0	19.78	255.41	3,394.3	33.1	-176.5	-96.7	3.19
3,437.0	20.43	254.69	3,417.8	30.9	-184.8	-97.8	2.78
3,462.0	21.10	254.54	3,441.2	28.6	-193.3	-98.8	2.69
3,487.0	21.60	254.79	3,464.5	26.2	-202.1	-99.8	2.03
3,512.0	22.06	255.89	3,487.7	23.8	-211.1	-101.0	2.46
3,537.0	22.52	256.89	3,510.8	21.6	-220.3	-102.4	2.38
3,562.0	23.15	257.61	3,533.9	19.4	-229.8	-104.0	2.76
3,587.0	23.87	257.89	3,556.8	17.3	-239.5	-105.6	2.91

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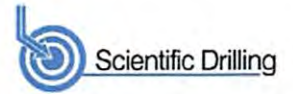
<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
3,612.0	24.48	257.41	3,579.6	15.1	-249.5	-107.4	2.56	
3,637.0	24.52	257.12	3,602.3	12.9	-259.6	-109.0	0.51	
3,662.0	24.31	256.68	3,625.1	10.5	-269.7	-110.6	1.11	
3,687.0	23.82	255.72	3,647.9	8.1	-279.6	-112.1	2.51	
3,712.0	23.47	254.86	3,670.8	5.5	-289.3	-113.3	1.97	
3,737.0	22.71	254.40	3,693.8	2.9	-298.7	-114.4	3.12	
3,762.0	21.72	256.34	3,717.0	0.5	-307.9	-115.6	4.93	
3,787.0	21.52	257.52	3,740.2	-1.5	-316.9	-117.1	1.91	
3,812.0	21.46	258.58	3,763.5	-3.4	-325.8	-118.7	1.57	
3,837.0	21.75	260.21	3,786.7	-5.1	-334.9	-120.5	2.67	
3,862.0	21.99	261.62	3,809.9	-6.6	-344.1	-122.6	2.31	
3,887.0	22.50	262.36	3,833.1	-7.9	-353.4	-124.8	2.33	
3,912.0	23.16	262.72	3,856.1	-9.2	-363.1	-127.3	2.70	
3,937.0	23.69	263.18	3,879.0	-10.4	-372.9	-129.8	2.24	
3,962.0	23.94	263.41	3,901.9	-11.6	-382.9	-132.5	1.07	
3,987.0	24.27	263.36	3,924.7	-12.7	-393.1	-135.2	1.32	
4,012.0	24.42	263.35	3,947.5	-13.9	-403.3	-137.9	0.60	
4,037.0	24.65	263.28	3,970.2	-15.1	-413.6	-140.6	0.93	
4,062.0	24.95	263.19	3,992.9	-16.4	-424.0	-143.4	1.21	
4,087.0	25.04	262.99	4,015.6	-17.7	-434.5	-146.1	0.49	
4,112.0	25.21	262.77	4,038.2	-19.0	-445.1	-148.8	0.78	
4,137.0	25.01	262.45	4,060.9	-20.3	-455.6	-151.5	0.97	
4,162.0	24.81	261.95	4,083.5	-21.8	-466.0	-154.1	1.16	
4,187.0	24.59	262.00	4,106.3	-23.2	-476.4	-156.6	0.88	
4,212.0	24.49	262.12	4,129.0	-24.7	-486.6	-159.1	0.45	
4,237.0	24.30	262.11	4,151.8	-26.1	-496.9	-161.6	0.76	
4,262.0	23.96	262.04	4,174.6	-27.5	-507.0	-164.1	1.36	
4,287.0	23.59	261.74	4,197.5	-28.9	-517.0	-166.5	1.56	
4,312.0	23.17	261.45	4,220.4	-30.4	-526.8	-168.8	1.74	
4,337.0	22.87	260.78	4,243.4	-31.9	-536.4	-171.1	1.59	
4,362.0	22.67	260.37	4,266.5	-33.4	-546.0	-173.2	1.02	
4,387.0	22.79	260.06	4,289.5	-35.1	-555.5	-175.2	0.68	
4,412.0	23.01	259.87	4,312.6	-36.8	-565.1	-177.2	0.93	
4,437.0	22.68	259.51	4,335.6	-38.5	-574.6	-179.2	1.43	
4,462.0	22.16	259.06	4,358.7	-40.3	-584.0	-181.0	2.19	
4,487.0	21.62	258.91	4,381.9	-42.1	-593.2	-182.8	2.17	
4,512.0	21.37	258.27	4,405.2	-43.9	-602.1	-184.5	1.37	
4,537.0	21.23	258.52	4,428.5	-45.7	-611.0	-186.1	0.67	
4,562.0	21.38	259.07	4,451.7	-47.5	-619.9	-187.8	1.00	
4,587.0	21.38	259.35	4,475.0	-49.2	-628.9	-189.6	0.41	
4,612.0	21.48	259.52	4,498.3	-50.9	-637.9	-191.4	0.47	
4,637.0	21.59	259.68	4,521.6	-52.5	-646.9	-193.2	0.50	
4,662.0	21.78	259.56	4,544.8	-54.2	-656.0	-195.1	0.78	
4,687.0	21.82	259.72	4,568.0	-55.8	-665.1	-196.9	0.29	

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EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

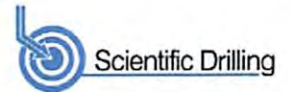
Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
4,712.0	22.03	259.43	4,591.2	-57.5	-674.3	-198.8	0.95	
4,737.0	21.82	259.06	4,614.4	-59.3	-683.5	-200.6	1.01	
4,762.0	21.64	259.04	4,637.6	-61.0	-692.6	-202.4	0.72	
4,787.0	21.63	258.96	4,660.8	-62.8	-701.6	-204.1	0.12	
4,812.0	21.63	258.97	4,684.1	-64.6	-710.7	-205.9	0.01	
4,837.0	21.76	258.61	4,707.3	-66.4	-719.7	-207.6	0.74	
4,862.0	21.60	258.38	4,730.5	-68.2	-728.8	-209.3	0.72	
4,887.0	21.56	258.25	4,753.8	-70.1	-737.8	-210.9	0.25	
4,912.0	21.73	258.44	4,777.0	-71.9	-746.8	-212.6	0.74	
4,937.0	21.81	258.68	4,800.2	-73.8	-755.9	-214.3	0.48	
4,962.0	22.18	259.30	4,823.4	-75.5	-765.1	-216.0	1.75	
4,987.0	21.99	260.07	4,846.6	-77.2	-774.3	-217.9	1.39	
5,012.0	21.65	259.90	4,869.8	-78.8	-783.5	-219.9	1.38	
5,037.0	21.08	259.17	4,893.1	-80.5	-792.4	-221.7	2.52	
5,062.0	21.19	258.66	4,916.4	-82.2	-801.3	-223.4	0.86	
5,087.0	21.06	258.63	4,939.7	-84.0	-810.1	-225.0	0.52	
5,112.0	20.88	258.83	4,963.1	-85.8	-818.9	-226.7	0.77	
5,137.0	20.86	259.03	4,986.4	-87.5	-827.6	-228.4	0.30	
5,162.0	20.64	259.29	5,009.8	-89.1	-836.3	-230.1	0.95	
5,187.0	20.85	259.34	5,033.2	-90.8	-845.0	-231.8	0.84	
5,212.0	21.27	259.94	5,056.5	-92.4	-853.9	-233.6	1.89	
5,237.0	21.59	261.09	5,079.8	-93.9	-862.9	-235.6	2.11	
5,262.0	21.68	261.64	5,103.0	-95.3	-872.0	-237.7	0.89	
5,287.0	21.93	261.96	5,126.2	-96.6	-881.2	-239.9	1.11	
5,312.0	22.00	262.41	5,149.4	-97.9	-890.4	-242.2	0.73	
5,337.0	22.16	262.79	5,172.6	-99.1	-899.8	-244.6	0.86	
5,362.0	22.49	262.64	5,195.7	-100.3	-909.2	-247.0	1.34	
5,387.0	22.51	262.21	5,218.8	-101.6	-918.7	-249.4	0.66	
5,412.0	22.76	261.69	5,241.9	-102.9	-928.2	-251.7	1.28	
5,437.0	22.85	261.10	5,264.9	-104.3	-937.8	-253.9	0.98	
5,462.0	23.11	260.91	5,287.9	-105.9	-947.4	-256.1	1.08	
5,487.0	23.48	260.58	5,310.9	-107.5	-957.2	-258.3	1.57	
5,512.0	23.91	260.75	5,333.8	-109.1	-967.1	-260.5	1.74	
5,537.0	23.87	260.72	5,356.7	-110.7	-977.1	-262.7	0.17	
5,562.0	23.68	260.87	5,379.5	-112.3	-987.0	-264.9	0.80	
5,587.0	23.67	260.77	5,402.4	-113.9	-996.9	-267.1	0.17	
5,612.0	23.65	261.09	5,425.3	-115.5	-1,006.8	-269.4	0.52	
5,637.0	23.85	261.20	5,448.2	-117.1	-1,016.8	-271.7	0.82	
5,662.0	23.91	261.45	5,471.1	-118.6	-1,026.8	-274.0	0.47	
5,687.0	23.50	261.54	5,494.0	-120.1	-1,036.7	-276.3	1.65	
5,712.0	23.80	262.07	5,516.9	-121.5	-1,046.7	-278.7	1.47	
5,737.0	23.89	262.74	5,539.7	-122.8	-1,056.7	-281.2	1.14	
5,762.0	24.16	262.89	5,562.6	-124.1	-1,066.8	-283.8	1.11	
5,787.0	23.67	263.01	5,585.4	-125.4	-1,076.8	-286.4	1.97	

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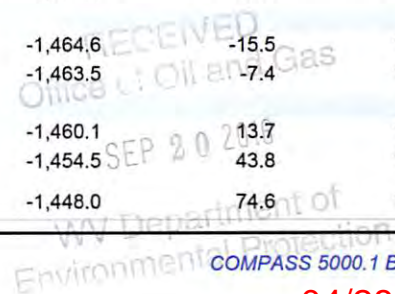


EOW Completion Report



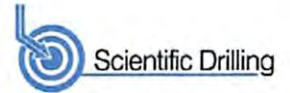
<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
5,812.0	23.39	263.13	5,608.3	-126.6	-1,086.7	-289.0	1.14	
5,837.0	23.52	262.46	5,631.3	-127.8	-1,096.6	-291.5	1.19	
5,862.0	23.45	262.22	5,654.2	-129.1	-1,106.5	-294.0	0.47	
5,874.1	23.46	262.13	5,665.3	-129.8	-1,111.3	-295.2	0.31	
5,975.0	23.18	259.84	5,758.0	-136.1	-1,150.7	-304.1	0.94	
6,071.0	19.94	249.93	5,847.3	-145.0	-1,184.7	-308.5	5.07	
6,168.0	18.86	245.34	5,938.8	-157.2	-1,214.5	-308.3	1.93	
6,264.0	19.14	243.79	6,029.5	-170.7	-1,242.7	-306.5	0.60	
6,361.0	21.33	240.16	6,120.5	-186.5	-1,272.3	-302.9	2.60	
6,457.0	22.22	239.81	6,209.7	-204.3	-1,303.1	-297.9	0.94	
6,553.0	23.77	243.70	6,298.1	-222.0	-1,336.2	-293.8	2.26	
6,649.0	22.77	245.84	6,386.2	-238.2	-1,370.4	-291.6	1.36	
6,681.0	22.78	240.51	6,415.8	-243.7	-1,381.5	-290.6	6.45	
6,699.0	23.66	235.55	6,432.3	-247.5	-1,387.5	-289.3	11.91	
<b>SCMA</b>								
6,713.0	24.45	231.95	6,445.1	-250.9	-1,392.1	-287.9	11.91	
6,745.0	26.63	227.24	6,474.0	-259.8	-1,402.6	-283.5	9.31	
6,777.0	28.61	225.52	6,502.3	-270.1	-1,413.3	-278.1	6.67	
6,809.0	29.79	217.86	6,530.3	-281.7	-1,423.7	-271.1	12.24	
6,841.0	31.11	209.70	6,557.9	-295.2	-1,432.6	-262.0	13.56	
6,873.0	33.25	203.30	6,584.9	-310.4	-1,440.2	-250.7	12.57	
6,904.0	35.70	199.26	6,610.5	-326.8	-1,446.6	-237.9	10.81	
6,905.0	35.79	199.17	6,611.3	-327.3	-1,446.8	-237.5	10.73	
<b>MDLX</b>								
6,936.0	38.70	196.50	6,636.0	-345.2	-1,452.5	-223.0	10.73	
6,968.0	41.68	192.85	6,660.4	-365.1	-1,457.7	-206.5	11.87	
7,000.0	45.20	189.29	6,683.7	-386.7	-1,461.9	-188.0	13.39	
7,032.0	48.57	186.41	6,705.5	-409.9	-1,465.1	-167.7	12.41	
7,064.0	51.66	184.14	6,726.1	-434.3	-1,467.3	-145.9	11.08	
7,082.0	53.84	183.47	6,737.0	-448.6	-1,468.3	-133.0	12.45	
<b>BAKT</b>								
7,096.0	55.53	182.97	6,745.0	-460.0	-1,468.9	-122.7	12.45	
7,128.0	59.56	180.86	6,762.2	-487.0	-1,469.8	-98.0	13.77	
7,135.0	60.29	180.17	6,765.7	-493.1	-1,469.9	-92.4	13.51	
<b>TLLY</b>								
7,161.0	63.04	177.68	6,778.1	-515.9	-1,469.4	-71.0	13.51	
7,193.0	65.38	175.40	6,792.0	-544.7	-1,467.7	-43.7	9.73	
7,211.0	66.66	173.82	6,799.3	-561.1	-1,466.1	-27.9	10.71	
<b>HMLN</b>								
7,225.0	67.67	172.62	6,804.7	-573.9	-1,464.6	-15.5	10.71	
7,234.0	68.68	171.93	6,808.1	-582.1	-1,463.5	-7.4	13.30	
<b>MRCL_HOT</b>								
7,257.0	71.28	170.21	6,816.0	-603.5	-1,460.1	13.7	13.30	
7,289.0	75.89	168.59	6,825.0	-633.7	-1,454.5	43.8	15.20	
7,321.0	79.74	167.36	6,831.7	-664.2	-1,448.0	74.6	12.60	





EOW Completion Report



<b>Company:</b> Antero	<b>Local Co-ordinate Reference:</b> Well Outback Unit 1H
<b>Project:</b> Doddridge County WV	<b>TVD Reference:</b> Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b> Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b> Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b> Outback Unit 1H	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Wellpath	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> As Drilled	<b>Database:</b> Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,353.0	82.45	166.29	6,836.7	-695.0	-1,440.8	105.8	9.09
7,385.0	86.26	163.93	6,839.8	-725.8	-1,432.6	137.4	13.99
7,445.0	87.95	156.07	6,842.9	-782.0	-1,412.1	197.2	13.38
7,480.0	88.26	156.03	6,844.0	-814.0	-1,397.9	232.2	0.89
7,577.0	89.60	158.66	6,845.9	-903.5	-1,360.5	329.2	3.04
7,673.0	89.73	157.47	6,846.4	-992.6	-1,324.7	425.2	1.25
7,769.0	88.52	157.16	6,847.9	-1,081.1	-1,287.7	521.1	1.30
7,860.0	87.79	156.71	6,850.8	-1,164.8	-1,252.0	612.1	0.94
7,950.0	87.82	155.69	6,854.3	-1,247.1	-1,215.7	702.0	1.13
8,041.0	90.40	161.75	6,855.7	-1,331.8	-1,182.7	792.9	7.24
8,131.0	90.54	160.48	6,854.9	-1,417.0	-1,153.6	882.8	1.42
8,222.0	89.70	157.63	6,854.7	-1,502.0	-1,121.1	973.7	3.27
8,312.0	88.86	155.99	6,855.9	-1,584.7	-1,085.6	1,063.7	2.05
8,403.0	89.13	155.46	6,857.5	-1,667.6	-1,048.2	1,154.6	0.65
8,493.0	87.99	155.90	6,859.7	-1,749.6	-1,011.2	1,244.5	1.36
8,584.0	88.35	157.53	6,862.6	-1,833.1	-975.2	1,335.4	1.83
8,674.0	88.86	159.92	6,864.8	-1,917.0	-942.6	1,425.4	2.71
8,765.0	89.97	158.96	6,865.8	-2,002.2	-910.6	1,516.4	1.61
8,855.0	90.30	156.25	6,865.5	-2,085.4	-876.3	1,606.4	3.03
8,952.0	89.39	156.02	6,865.8	-2,174.1	-837.1	1,703.3	0.97
9,048.0	88.53	155.81	6,867.6	-2,261.7	-797.9	1,799.2	0.92
9,144.0	89.53	161.48	6,869.2	-2,351.1	-763.0	1,895.2	6.00
9,241.0	90.37	164.14	6,869.3	-2,443.7	-734.3	1,991.8	2.88
9,337.0	90.60	167.03	6,868.4	-2,536.7	-710.4	2,087.0	3.02
9,433.0	89.33	164.63	6,868.5	-2,629.8	-686.9	2,182.1	2.83
9,529.0	90.44	163.20	6,868.7	-2,722.0	-660.3	2,277.6	1.89
9,625.0	88.86	159.38	6,869.3	-2,812.9	-629.5	2,373.4	4.31
9,722.0	88.39	156.07	6,871.6	-2,902.6	-592.8	2,470.3	3.45
9,818.0	88.15	156.26	6,874.5	-2,990.4	-554.0	2,566.2	0.32
9,914.0	90.03	156.60	6,876.0	-3,078.4	-515.6	2,662.2	1.99
10,010.0	89.40	154.93	6,876.5	-3,165.9	-476.2	2,758.1	1.86
10,107.0	91.28	155.99	6,875.9	-3,254.1	-436.0	2,855.0	2.22
10,203.0	91.44	157.31	6,873.7	-3,342.2	-397.9	2,950.9	1.38
10,299.0	90.54	155.28	6,872.0	-3,430.1	-359.3	3,046.9	2.31
10,396.0	89.03	153.47	6,872.4	-3,517.6	-317.4	3,143.7	2.43
10,492.0	90.30	156.28	6,872.9	-3,604.5	-276.6	3,239.5	3.21
10,588.0	91.04	157.20	6,871.8	-3,692.7	-238.7	3,335.5	1.23
10,685.0	89.70	156.16	6,871.2	-3,781.7	-200.3	3,432.5	1.75
10,781.0	89.87	157.95	6,871.5	-3,870.1	-162.9	3,528.4	1.87
10,877.0	91.75	161.96	6,870.2	-3,960.3	-130.0	3,624.3	4.61
10,973.0	90.74	158.41	6,868.1	-4,050.6	-60.7	3,717.2	3.84
11,070.0	89.33	157.01	6,868.0	-4,140.3	-25.4	3,813.2	2.05
11,166.0	89.43	159.90	6,869.1	-4,229.6	9.1	3,909.2	3.01
11,262.0	89.33	157.96	6,870.1	-4,319.2		4,009.2	2.02

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EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,359.0	91.38	158.10	6,869.5	-4,409.1	45.4	4,106.2	2.12
11,455.0	90.54	156.72	6,867.9	-4,497.7	82.2	4,202.2	1.68
11,551.0	90.24	155.55	6,867.3	-4,585.5	121.1	4,298.1	1.26
11,647.0	91.18	156.42	6,866.1	-4,673.2	160.1	4,394.0	1.33
11,744.0	90.87	156.12	6,864.3	-4,762.0	199.2	4,491.0	0.44
11,840.0	90.84	156.59	6,862.9	-4,849.9	237.7	4,586.9	0.49
11,936.0	90.50	157.04	6,861.8	-4,938.2	275.5	4,682.9	0.59
12,032.0	91.04	156.65	6,860.5	-5,026.4	313.2	4,778.9	0.69
12,129.0	90.47	157.27	6,859.2	-5,115.7	351.2	4,875.8	0.87
12,225.0	91.95	158.96	6,857.2	-5,204.7	386.9	4,971.8	2.34
12,321.0	93.19	161.88	6,852.9	-5,295.1	419.1	5,067.6	3.30
12,418.0	91.98	160.65	6,848.5	-5,386.8	450.2	5,164.4	1.78
12,514.0	92.01	160.28	6,845.2	-5,477.3	482.3	5,260.2	0.39
12,610.0	90.94	158.29	6,842.7	-5,567.0	516.2	5,356.2	2.35
12,707.0	89.80	156.36	6,842.1	-5,656.5	553.6	5,453.1	2.31
12,803.0	90.47	157.23	6,841.8	-5,744.8	591.4	5,549.1	1.14
12,899.0	91.21	158.33	6,840.4	-5,833.6	627.7	5,645.1	1.38
12,996.0	91.48	157.90	6,838.1	-5,923.6	663.9	5,742.1	0.52
13,092.0	90.37	156.81	6,836.6	-6,012.2	700.8	5,838.1	1.62
13,188.0	91.01	157.24	6,835.4	-6,100.6	738.3	5,934.0	0.80
13,284.0	90.74	157.66	6,834.0	-6,189.2	775.1	6,030.0	0.52
13,380.0	91.21	158.75	6,832.3	-6,278.3	810.8	6,126.0	1.24
13,476.0	91.44	158.78	6,830.1	-6,367.8	845.5	6,222.0	0.24
13,573.0	91.41	157.99	6,827.7	-6,457.9	881.2	6,318.9	0.81
13,669.0	91.84	158.98	6,825.0	-6,547.2	916.4	6,414.9	1.12
13,766.0	91.34	158.21	6,822.3	-6,637.5	951.8	6,511.8	0.95
13,862.0	91.04	157.83	6,820.3	-6,726.5	987.7	6,607.8	0.50
13,958.0	90.34	156.74	6,819.1	-6,815.0	1,024.8	6,703.8	1.35
14,055.0	89.83	157.71	6,819.0	-6,904.5	1,062.4	6,800.8	1.13
14,151.0	90.07	157.64	6,819.1	-6,993.3	1,098.8	6,896.8	0.26
14,248.0	90.23	156.55	6,818.8	-7,082.6	1,136.6	6,993.8	1.14
14,312.0	91.21	157.58	6,818.0	-7,141.6	1,161.5	7,057.8	2.22
14,376.0	91.21	157.58	6,816.7	-7,200.7	1,185.9	7,121.7	0.00

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<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Outback Unit 1H
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<b>Site:</b>	Cofor Pad/Outback Morton Nova Grape Rainer	<b>MD Reference:</b>	Frontier 22: GL 1189' + KB 25' @ 1214.0usft
<b>Well:</b>	Outback Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,699.0	6,432.3	-247.5	-1,387.5	SCMA
6,905.0	6,611.3	-327.3	-1,446.8	MDLX
7,082.0	6,737.0	-448.6	-1,468.3	BAKT
7,135.0	6,765.7	-493.1	-1,469.9	TLLY
7,211.0	6,799.3	-561.1	-1,466.1	HMLN
7,234.0	6,808.1	-582.1	-1,463.5	MRCL_HOT

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

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