



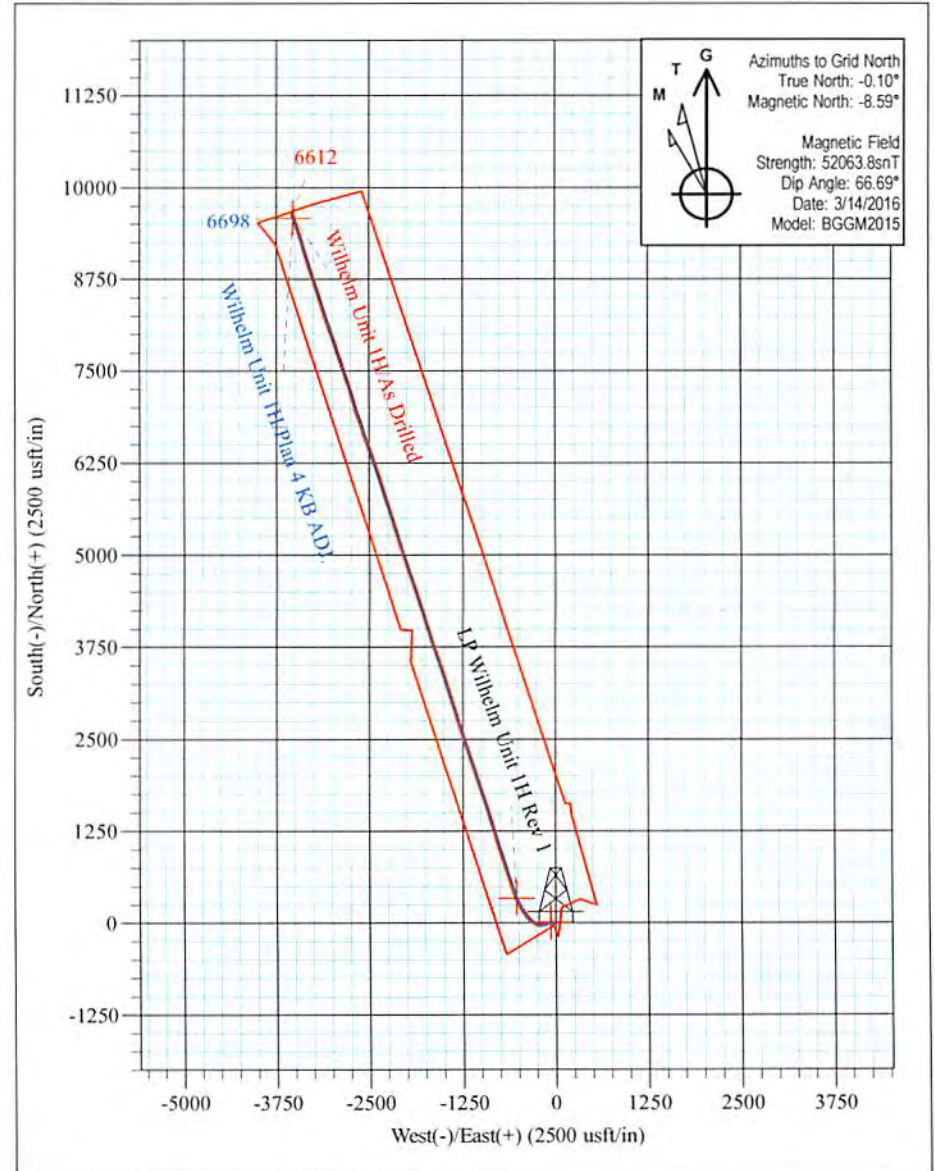
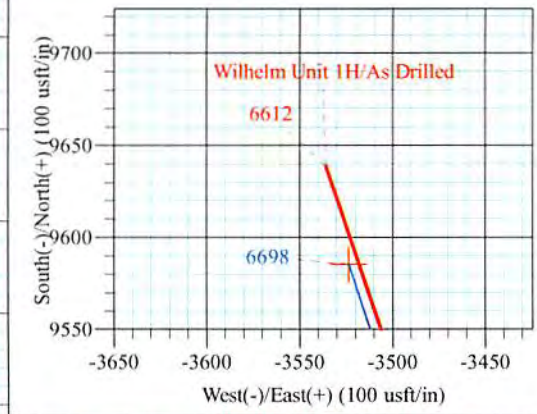
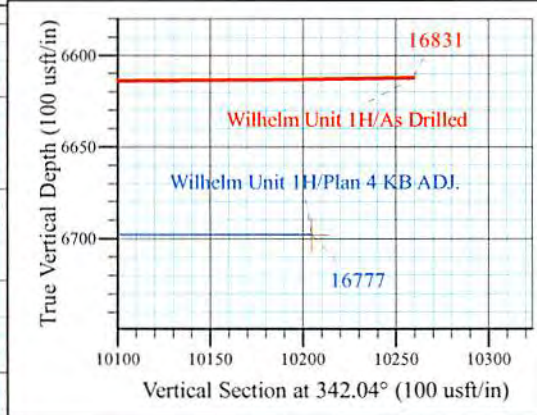
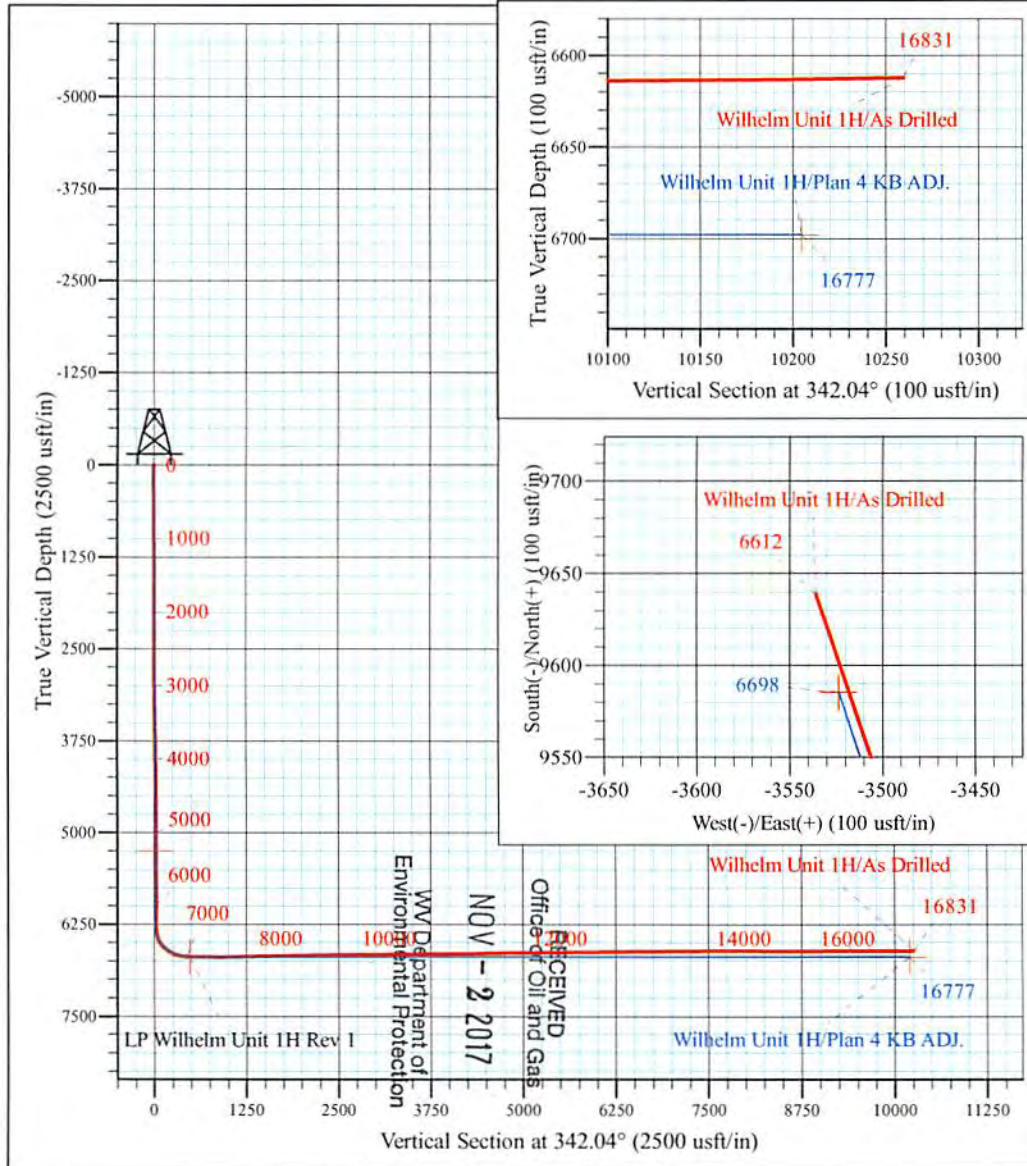
McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm  
 Wilhelm Unit 1H  
 Plan 4 KB ADJ.  
 PD 525 GL 1164 + 19' RKB @ 1183.0usft  
 Doddridge County WV

PROJECT DETAILS:  
 Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level



WELL DETAILS: **Wilhelm Unit 1H SHL**

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14261989.21	1683177.56	39° 16' 28.908 N	80° 50' 56.043 W



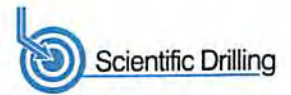
**Wilhelm Unit 1H**  
**Approx. BHL**  
**39° 18' 4.270 N 80° 51' 40.832 W**

Shane Rhodes  
 10:11, March 29 2016  
 Scientific Drilling International  
 124 Vista Drive  
 Charleroi, PA 15022

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Survey Report - Geographic



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Wilhelm Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Site:</b>	McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm	<b>MD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Well:</b>	Wilhelm 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>	Antero NE

<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>	McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm				
<b>Site Position:</b>	<b>Northing:</b>	14,261,930.17 usft	<b>Latitude:</b>	39° 16' 28.324 N	
<b>From:</b> Map	<b>Easting:</b>	1,683,174.55 usft	<b>Longitude:</b>	80° 50' 56.082 W	
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.10 °

<b>Well</b>	Wilhelm Unit 1H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,261,989.21 usft	<b>Latitude:</b>	39° 16' 28.908 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,683,177.56 usft	<b>Longitude:</b>	80° 50' 56.043 W
<b>Position Uncertainty</b>	2.0 usft	<b>Wellhead Elevation:</b>	1,164.0 usft	<b>Ground Level:</b>	1,164.0 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	11/6/2014	-8.43	66.83	52,209
	BGGM2015	3/14/2016	-8.50	66.69	52,064

<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	342.04	

<b>Survey Program</b>	<b>Date</b>	3/29/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
32.0	5,872.2	Survey #6 Def KOP Gyro (Original Wellpa	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,902.0	16,831.0	Survey #7 - SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

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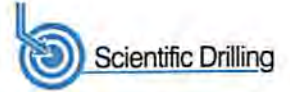
<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>	
0.0	0.00	0.00	0.0	0.0	0.0	14,261,989.21	1,683,177.56	39° 16' 28.908 N	80° 50' 56.043 W	
32.0	0.18	73.32	32.0	0.0	0.0	14,261,989.22	1,683,177.61	39° 16' 28.908 N	80° 50' 56.042 W	
<b>First Gyro @ 32</b>										
57.0	0.36	73.32	57.0	0.0	0.2	14,261,989.26	1,683,177.72	39° 16' 28.908 N	80° 50' 56.041 W	
82.0	0.54	73.32	82.0	0.1	0.3	14,261,989.31	1,683,177.91	39° 16' 28.909 N	80° 50' 56.038 W	
107.0	0.72	73.32	107.0	0.2	0.6	14,261,989.39	1,683,178.17	39° 16' 28.910 N	80° 50' 56.035 W	
132.0	0.66	73.09	132.0	0.3	0.9	14,261,989.48	1,683,178.46	39° 16' 28.910 N	80° 50' 56.031 W	
157.0	0.64	73.85	157.0	0.4	1.2	14,261,989.56	1,683,178.73	39° 16' 28.911 N	80° 50' 56.028 W	
182.0	0.56	67.88	182.0	0.4	1.4	14,261,989.64	1,683,178.98	39° 16' 28.912 N	80° 50' 56.025 W	
207.0	0.51	72.57	207.0	0.5	1.6	14,261,989.72	1,683,179.20	39° 16' 28.913 N	80° 50' 56.022 W	

WV Department of Environmental Protection



# Scientific Drilling International

Survey Report - Geographic



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Wilhelm Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Site:</b>	McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm	<b>MD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Well:</b>	Wilhelm 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>	Antero NE

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WV Department of Environmental Protection

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
232.0	0.29	83.17	232.0	0.6	1.8	14,261,989.76	1,683,179.37	39° 16' 28.913 N	80° 50' 56.020 W
257.0	0.10	154.57	257.0	0.5	1.9	14,261,989.75	1,683,179.44	39° 16' 28.913 N	80° 50' 56.019 W
282.0	0.13	222.20	282.0	0.5	1.9	14,261,989.71	1,683,179.43	39° 16' 28.913 N	80° 50' 56.019 W
307.0	0.15	223.59	307.0	0.5	1.8	14,261,989.67	1,683,179.39	39° 16' 28.912 N	80° 50' 56.019 W
332.0	0.17	237.22	332.0	0.4	1.8	14,261,989.62	1,683,179.34	39° 16' 28.912 N	80° 50' 56.020 W
357.0	0.18	216.17	357.0	0.4	1.7	14,261,989.57	1,683,179.28	39° 16' 28.911 N	80° 50' 56.021 W
382.0	0.20	233.02	382.0	0.3	1.7	14,261,989.51	1,683,179.22	39° 16' 28.911 N	80° 50' 56.022 W
407.0	0.20	225.51	407.0	0.2	1.6	14,261,989.46	1,683,179.16	39° 16' 28.910 N	80° 50' 56.022 W
432.0	0.20	243.18	432.0	0.2	1.5	14,261,989.40	1,683,179.09	39° 16' 28.910 N	80° 50' 56.023 W
457.0	0.27	235.58	457.0	0.1	1.4	14,261,989.35	1,683,179.00	39° 16' 28.909 N	80° 50' 56.024 W
482.0	0.36	241.62	482.0	0.1	1.3	14,261,989.28	1,683,178.88	39° 16' 28.908 N	80° 50' 56.026 W
507.0	1.11	235.51	507.0	-0.1	1.1	14,261,989.11	1,683,178.61	39° 16' 28.907 N	80° 50' 56.029 W
532.0	1.67	235.63	532.0	-0.4	0.6	14,261,988.76	1,683,178.11	39° 16' 28.903 N	80° 50' 56.036 W
557.0	2.32	241.41	557.0	-0.9	-0.2	14,261,988.32	1,683,177.37	39° 16' 28.899 N	80° 50' 56.045 W
582.0	2.88	248.41	581.9	-1.4	-1.2	14,261,987.84	1,683,176.34	39° 16' 28.894 N	80° 50' 56.058 W
607.0	3.41	252.91	606.9	-1.8	-2.5	14,261,987.39	1,683,175.05	39° 16' 28.890 N	80° 50' 56.075 W
632.0	3.73	255.29	631.9	-2.2	-4.0	14,261,986.97	1,683,173.55	39° 16' 28.886 N	80° 50' 56.094 W
657.0	3.86	256.94	656.8	-2.6	-5.6	14,261,986.57	1,683,171.94	39° 16' 28.882 N	80° 50' 56.114 W
682.0	4.16	260.53	681.7	-3.0	-7.3	14,261,986.23	1,683,170.23	39° 16' 28.878 N	80° 50' 56.136 W
707.0	4.25	262.67	706.7	-3.2	-9.1	14,261,985.96	1,683,168.41	39° 16' 28.876 N	80° 50' 56.159 W
732.0	4.29	263.54	731.6	-3.5	-11.0	14,261,985.74	1,683,166.57	39° 16' 28.874 N	80° 50' 56.183 W
757.0	4.29	262.91	756.5	-3.7	-12.9	14,261,985.52	1,683,164.71	39° 16' 28.872 N	80° 50' 56.206 W
782.0	4.38	262.13	781.5	-3.9	-14.7	14,261,985.27	1,683,162.84	39° 16' 28.869 N	80° 50' 56.230 W
807.0	4.42	263.61	806.4	-4.2	-16.6	14,261,985.04	1,683,160.93	39° 16' 28.867 N	80° 50' 56.254 W
832.0	4.47	263.01	831.3	-4.4	-18.6	14,261,984.81	1,683,159.01	39° 16' 28.865 N	80° 50' 56.279 W
857.0	4.37	263.05	856.2	-4.6	-20.5	14,261,984.58	1,683,157.10	39° 16' 28.862 N	80° 50' 56.303 W
882.0	4.50	262.68	881.2	-4.9	-22.4	14,261,984.34	1,683,155.18	39° 16' 28.860 N	80° 50' 56.327 W
907.0	4.49	263.06	906.1	-5.1	-24.3	14,261,984.09	1,683,153.23	39° 16' 28.858 N	80° 50' 56.352 W
932.0	4.30	262.86	931.0	-5.3	-26.2	14,261,983.86	1,683,151.33	39° 16' 28.855 N	80° 50' 56.376 W
957.0	4.32	262.55	955.9	-5.6	-28.1	14,261,983.62	1,683,149.47	39° 16' 28.853 N	80° 50' 56.400 W
982.0	4.16	261.31	980.9	-5.8	-29.9	14,261,983.36	1,683,147.64	39° 16' 28.850 N	80° 50' 56.423 W
1,007.0	3.57	254.81	1,005.8	-6.2	-31.6	14,261,983.02	1,683,145.99	39° 16' 28.847 N	80° 50' 56.444 W
1,032.0	3.10	252.47	1,030.8	-6.6	-33.0	14,261,982.61	1,683,144.60	39° 16' 28.843 N	80° 50' 56.462 W
1,057.0	2.99	251.14	1,055.7	-7.0	-34.2	14,261,982.20	1,683,143.33	39° 16' 28.839 N	80° 50' 56.478 W
1,082.0	2.76	249.36	1,080.7	-7.4	-35.4	14,261,981.78	1,683,142.15	39° 16' 28.835 N	80° 50' 56.493 W
1,107.0	2.53	250.07	1,105.7	-7.8	-36.5	14,261,981.38	1,683,141.07	39° 16' 28.831 N	80° 50' 56.507 W
1,132.0	2.41	250.73	1,130.7	-8.2	-37.5	14,261,981.01	1,683,140.06	39° 16' 28.827 N	80° 50' 56.520 W
1,157.0	2.20	251.39	1,155.6	-8.5	-38.5	14,261,980.69	1,683,139.11	39° 16' 28.824 N	80° 50' 56.532 W
1,182.0	1.84	251.50	1,180.6	-8.8	-39.3	14,261,980.41	1,683,138.27	39° 16' 28.821 N	80° 50' 56.543 W
1,207.0	1.64	249.78	1,205.6	-9.1	-40.0	14,261,980.16	1,683,137.55	39° 16' 28.819 N	80° 50' 56.552 W
1,232.0	1.60	249.44	1,230.6	-9.3	-40.7	14,261,979.91	1,683,136.89	39° 16' 28.816 N	80° 50' 56.560 W
1,257.0	1.52	248.54	1,255.6	-9.5	-41.3	14,261,979.67	1,683,136.26	39° 16' 28.814 N	80° 50' 56.568 W
1,282.0	1.36	250.02	1,280.6	-9.8	-41.9	14,261,979.44	1,683,135.67	39° 16' 28.812 N	80° 50' 56.576 W
1,307.0	1.15	248.82	1,305.6	-10.0	-42.4	14,261,979.25	1,683,135.16	39° 16' 28.810 N	80° 50' 56.582 W
1,332.0	1.19	252.65	1,330.6	-10.1	-42.9	14,261,979.08	1,683,134.67	39° 16' 28.808 N	80° 50' 56.588 W
1,357.0	1.20	248.21	1,355.6	-10.3	-43.4	14,261,978.91	1,683,134.18	39° 16' 28.807 N	80° 50' 56.595 W
1,382.0	1.13	247.66	1,380.6	-10.5	-43.8	14,261,978.72	1,683,133.71	39° 16' 28.805 N	80° 50' 56.601 W
1,407.0	0.97	250.89	1,405.6	-10.7	-44.3	14,261,978.55	1,683,133.28	39° 16' 28.803 N	80° 50' 56.606 W
1,432.0	0.91	250.11	1,430.6	-10.8	-44.7	14,261,978.42	1,683,132.90	39° 16' 28.802 N	80° 50' 56.611 W
1,457.0	0.93	254.14	1,455.5	-10.9	-45.0	14,261,978.29	1,683,132.52	39° 16' 28.801 N	80° 50' 56.616 W
1,482.0	0.91	254.99	1,480.5	-11.0	-45.4	14,261,978.19	1,683,132.13	39° 16' 28.800 N	80° 50' 56.621 W
1,507.0	0.84	251.68	1,505.5	-11.1	-45.8	14,261,978.08	1,683,131.76	39° 16' 28.798 N	80° 50' 56.625 W
1,532.0	0.88	257.85	1,530.5	-11.2	-46.2	14,261,977.98	1,683,131.40	39° 16' 28.798 N	80° 50' 56.630 W
1,557.0	0.86	260.94	1,555.5	-11.3	-46.5	14,261,977.91	1,683,131.03	39° 16' 28.797 N	80° 50' 56.635 W
1,582.0	0.71	267.60	1,580.5	-11.3	-46.9	14,261,977.87	1,683,130.69	39° 16' 28.796 N	80° 50' 56.639 W



# Scientific Drilling International

Survey Report - Geographic



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<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Site:</b>	McGill Pad; Hormels/Mash/Nero/Vonda/Wilhelm	<b>MD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Well:</b>	Wilhelm 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>	Antero NE

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,607.0	0.57	263.06	1,605.5	-11.4	-47.2	14,261,977.85	1,683,130.41	39° 16' 28.796 N	80° 50' 56.643 W
1,632.0	0.60	267.39	1,630.5	-11.4	-47.4	14,261,977.83	1,683,130.16	39° 16' 28.796 N	80° 50' 56.646 W
1,657.0	0.53	280.76	1,655.5	-11.4	-47.6	14,261,977.85	1,683,129.91	39° 16' 28.796 N	80° 50' 56.649 W
1,682.0	0.40	266.47	1,680.5	-11.3	-47.8	14,261,977.86	1,683,129.71	39° 16' 28.796 N	80° 50' 56.652 W
1,707.0	0.33	288.44	1,705.5	-11.3	-48.0	14,261,977.88	1,683,129.56	39° 16' 28.797 N	80° 50' 56.654 W
1,732.0	0.39	290.16	1,730.5	-11.3	-48.2	14,261,977.93	1,683,129.41	39° 16' 28.797 N	80° 50' 56.655 W
1,757.0	0.31	286.30	1,755.5	-11.2	-48.3	14,261,977.98	1,683,129.26	39° 16' 28.798 N	80° 50' 56.657 W
1,782.0	0.21	289.72	1,780.5	-11.2	-48.4	14,261,978.02	1,683,129.15	39° 16' 28.798 N	80° 50' 56.659 W
1,807.0	0.13	300.09	1,805.5	-11.2	-48.5	14,261,978.05	1,683,129.09	39° 16' 28.798 N	80° 50' 56.660 W
1,832.0	0.05	355.39	1,830.5	-11.1	-48.5	14,261,978.07	1,683,129.06	39° 16' 28.798 N	80° 50' 56.660 W
1,857.0	0.06	347.09	1,855.5	-11.1	-48.5	14,261,978.09	1,683,129.06	39° 16' 28.799 N	80° 50' 56.660 W
1,882.0	0.10	339.42	1,880.5	-11.1	-48.5	14,261,978.13	1,683,129.05	39° 16' 28.799 N	80° 50' 56.660 W
1,907.0	0.15	299.34	1,905.5	-11.0	-48.5	14,261,978.16	1,683,129.01	39° 16' 28.799 N	80° 50' 56.660 W
1,932.0	0.04	189.46	1,930.5	-11.0	-48.6	14,261,978.17	1,683,128.98	39° 16' 28.799 N	80° 50' 56.661 W
1,957.0	0.15	308.23	1,955.5	-11.0	-48.6	14,261,978.18	1,683,128.95	39° 16' 28.800 N	80° 50' 56.661 W
1,982.0	0.10	297.27	1,980.5	-11.0	-48.7	14,261,978.21	1,683,128.91	39° 16' 28.800 N	80° 50' 56.662 W
2,007.0	0.15	331.44	2,005.5	-11.0	-48.7	14,261,978.25	1,683,128.87	39° 16' 28.800 N	80° 50' 56.662 W
2,032.0	0.21	334.58	2,030.5	-10.9	-48.7	14,261,978.32	1,683,128.84	39° 16' 28.801 N	80° 50' 56.663 W
2,057.0	0.16	299.33	2,055.5	-10.8	-48.8	14,261,978.38	1,683,128.79	39° 16' 28.802 N	80° 50' 56.663 W
2,082.0	0.18	336.93	2,080.5	-10.8	-48.8	14,261,978.43	1,683,128.74	39° 16' 28.802 N	80° 50' 56.664 W
2,107.0	0.23	311.17	2,105.5	-10.7	-48.9	14,261,978.50	1,683,128.69	39° 16' 28.803 N	80° 50' 56.665 W
2,132.0	0.15	343.78	2,130.5	-10.6	-48.9	14,261,978.57	1,683,128.64	39° 16' 28.803 N	80° 50' 56.665 W
2,157.0	0.10	340.47	2,155.5	-10.6	-48.9	14,261,978.62	1,683,128.63	39° 16' 28.804 N	80° 50' 56.665 W
2,182.0	0.15	331.88	2,180.5	-10.5	-49.0	14,261,978.67	1,683,128.60	39° 16' 28.804 N	80° 50' 56.666 W
2,207.0	0.16	342.07	2,205.5	-10.5	-49.0	14,261,978.73	1,683,128.58	39° 16' 28.805 N	80° 50' 56.666 W
2,232.0	0.19	352.72	2,230.5	-10.4	-49.0	14,261,978.81	1,683,128.56	39° 16' 28.806 N	80° 50' 56.666 W
2,257.0	0.15	22.31	2,255.5	-10.3	-49.0	14,261,978.88	1,683,128.57	39° 16' 28.806 N	80° 50' 56.666 W
2,282.0	0.20	328.65	2,280.5	-10.3	-49.0	14,261,978.94	1,683,128.56	39° 16' 28.807 N	80° 50' 56.666 W
2,307.0	0.15	331.88	2,305.5	-10.2	-49.0	14,261,979.01	1,683,128.52	39° 16' 28.808 N	80° 50' 56.667 W
2,332.0	0.21	346.01	2,330.5	-10.1	-49.1	14,261,979.08	1,683,128.49	39° 16' 28.808 N	80° 50' 56.667 W
2,357.0	0.17	336.87	2,355.5	-10.0	-49.1	14,261,979.16	1,683,128.47	39° 16' 28.809 N	80° 50' 56.667 W
2,382.0	0.27	330.39	2,380.5	-10.0	-49.1	14,261,979.25	1,683,128.42	39° 16' 28.810 N	80° 50' 56.668 W
2,407.0	0.31	349.82	2,405.5	-9.8	-49.2	14,261,979.37	1,683,128.38	39° 16' 28.811 N	80° 50' 56.668 W
2,432.0	0.23	341.81	2,430.5	-9.7	-49.2	14,261,979.48	1,683,128.36	39° 16' 28.812 N	80° 50' 56.669 W
2,457.0	0.29	334.94	2,455.5	-9.6	-49.2	14,261,979.59	1,683,128.31	39° 16' 28.813 N	80° 50' 56.669 W
2,482.0	0.22	354.77	2,480.5	-9.5	-49.3	14,261,979.69	1,683,128.28	39° 16' 28.814 N	80° 50' 56.670 W
2,507.0	0.20	14.34	2,505.5	-9.4	-49.3	14,261,979.78	1,683,128.29	39° 16' 28.815 N	80° 50' 56.670 W
2,532.0	0.31	333.34	2,530.5	-9.3	-49.3	14,261,979.88	1,683,128.27	39° 16' 28.816 N	80° 50' 56.670 W
2,557.0	0.31	333.93	2,555.5	-9.2	-49.4	14,261,980.00	1,683,128.21	39° 16' 28.818 N	80° 50' 56.671 W
2,582.0	0.31	334.19	2,580.5	-9.1	-49.4	14,261,980.13	1,683,128.15	39° 16' 28.819 N	80° 50' 56.671 W
2,607.0	0.34	326.25	2,605.5	-9.0	-49.5	14,261,980.25	1,683,128.08	39° 16' 28.820 N	80° 50' 56.672 W
2,632.0	0.37	324.79	2,630.5	-8.8	-49.6	14,261,980.38	1,683,127.99	39° 16' 28.821 N	80° 50' 56.673 W
2,657.0	0.37	324.63	2,655.5	-8.7	-49.7	14,261,980.51	1,683,127.90	39° 16' 28.823 N	80° 50' 56.675 W
2,682.0	0.27	322.77	2,680.5	-8.6	-49.7	14,261,980.62	1,683,127.82	39° 16' 28.824 N	80° 50' 56.676 W
2,707.0	0.40	325.04	2,705.5	-8.5	-49.8	14,261,980.74	1,683,127.73	39° 16' 28.825 N	80° 50' 56.677 W
2,732.0	0.33	322.04	2,730.5	-8.3	-49.9	14,261,980.87	1,683,127.64	39° 16' 28.826 N	80° 50' 56.678 W
2,757.0	0.45	321.95	2,755.5	-8.2	-50.0	14,261,981.00	1,683,127.53	39° 16' 28.827 N	80° 50' 56.679 W
2,782.0	0.39	320.10	2,780.5	-8.1	-50.1	14,261,981.14	1,683,127.42	39° 16' 28.829 N	80° 50' 56.681 W
2,807.0	0.42	326.90	2,805.5	-7.9	-50.2	14,261,981.29	1,683,127.31	39° 16' 28.830 N	80° 50' 56.682 W
2,832.0	0.51	320.73	2,830.5	-7.8	-50.4	14,261,981.45	1,683,127.19	39° 16' 28.832 N	80° 50' 56.684 W
2,857.0	0.46	317.85	2,855.5	-7.6	-50.5	14,261,981.61	1,683,127.05	39° 16' 28.833 N	80° 50' 56.685 W
2,882.0	0.52	321.26	2,880.5	-7.4	-50.6	14,261,981.77	1,683,126.91	39° 16' 28.835 N	80° 50' 56.687 W
2,907.0	0.61	319.30	2,905.5	-7.2	-50.8	14,261,981.96	1,683,126.76	39° 16' 28.837 N	80° 50' 56.689 W
2,932.0	0.59	323.28	2,930.5	-7.0	-51.0	14,261,982.17	1,683,126.59	39° 16' 28.839 N	80° 50' 56.691 W
2,957.0	0.52	330.74	2,955.5	-6.8	-51.1	14,261,982.37	1,683,126.46	39° 16' 28.841 N	80° 50' 56.693 W



Scientific Drilling International  
Survey Report - Geographic



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm  
**Well:** Wilhelm Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Wilhelm Unit 1H  
**TVD Reference:** PD 525 GL 1164 + 19' RKB @ 1183.0usft  
**MD Reference:** PD 525 GL 1164 + 19' RKB @ 1183.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Antero NE

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Survey

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,982.0	0.51	328.46	2,980.5	-6.6	-51.2	14,261,982.56	1,683,126.35	39° 16' 28.843 N	80° 50' 56.694 W
3,007.0	0.57	328.90	3,005.5	-6.4	-51.3	14,261,982.76	1,683,126.22	39° 16' 28.845 N	80° 50' 56.696 W
3,032.0	0.55	319.18	3,030.5	-6.2	-51.5	14,261,982.96	1,683,126.08	39° 16' 28.847 N	80° 50' 56.698 W
3,057.0	0.54	320.37	3,055.5	-6.1	-51.6	14,261,983.14	1,683,125.93	39° 16' 28.849 N	80° 50' 56.700 W
3,082.0	0.51	320.49	3,080.5	-5.9	-51.8	14,261,983.32	1,683,125.78	39° 16' 28.850 N	80° 50' 56.701 W
3,107.0	0.55	316.12	3,105.5	-5.7	-51.9	14,261,983.49	1,683,125.63	39° 16' 28.852 N	80° 50' 56.703 W
3,132.0	0.64	317.64	3,130.5	-5.5	-52.1	14,261,983.68	1,683,125.45	39° 16' 28.854 N	80° 50' 56.706 W
3,157.0	0.55	315.70	3,155.5	-5.3	-52.3	14,261,983.87	1,683,125.27	39° 16' 28.856 N	80° 50' 56.708 W
3,182.0	0.58	313.96	3,180.5	-5.2	-52.5	14,261,984.04	1,683,125.10	39° 16' 28.858 N	80° 50' 56.710 W
3,207.0	0.59	315.62	3,205.5	-5.0	-52.6	14,261,984.22	1,683,124.92	39° 16' 28.859 N	80° 50' 56.712 W
3,232.0	0.56	312.23	3,230.5	-4.8	-52.8	14,261,984.40	1,683,124.74	39° 16' 28.861 N	80° 50' 56.715 W
3,257.0	0.66	315.98	3,255.5	-4.6	-53.0	14,261,984.58	1,683,124.55	39° 16' 28.863 N	80° 50' 56.717 W
3,282.0	0.60	321.03	3,280.5	-4.4	-53.2	14,261,984.79	1,683,124.36	39° 16' 28.865 N	80° 50' 56.719 W
3,307.0	0.62	319.57	3,305.5	-4.2	-53.4	14,261,984.99	1,683,124.19	39° 16' 28.867 N	80° 50' 56.722 W
3,332.0	0.67	319.95	3,330.5	-4.0	-53.5	14,261,985.21	1,683,124.01	39° 16' 28.869 N	80° 50' 56.724 W
3,357.0	0.64	320.79	3,355.5	-3.8	-53.7	14,261,985.43	1,683,123.83	39° 16' 28.871 N	80° 50' 56.726 W
3,382.0	0.72	324.31	3,380.5	-3.5	-53.9	14,261,985.66	1,683,123.65	39° 16' 28.874 N	80° 50' 56.729 W
3,407.0	0.69	320.05	3,405.5	-3.3	-54.1	14,261,985.91	1,683,123.46	39° 16' 28.876 N	80° 50' 56.731 W
3,432.0	0.65	321.25	3,430.5	-3.1	-54.3	14,261,986.13	1,683,123.28	39° 16' 28.878 N	80° 50' 56.733 W
3,457.0	0.71	322.00	3,455.5	-2.8	-54.5	14,261,986.36	1,683,123.09	39° 16' 28.881 N	80° 50' 56.736 W
3,482.0	0.64	325.07	3,480.5	-2.6	-54.6	14,261,986.60	1,683,122.92	39° 16' 28.883 N	80° 50' 56.738 W
3,507.0	0.61	323.50	3,505.5	-2.4	-54.8	14,261,986.82	1,683,122.76	39° 16' 28.885 N	80° 50' 56.740 W
3,532.0	0.66	323.84	3,530.5	-2.2	-55.0	14,261,987.05	1,683,122.59	39° 16' 28.887 N	80° 50' 56.742 W
3,557.0	0.65	323.59	3,555.5	-1.9	-55.1	14,261,987.28	1,683,122.42	39° 16' 28.890 N	80° 50' 56.744 W
3,582.0	0.60	322.52	3,580.5	-1.7	-55.3	14,261,987.49	1,683,122.26	39° 16' 28.892 N	80° 50' 56.746 W
3,607.0	0.63	317.82	3,605.5	-1.5	-55.5	14,261,987.70	1,683,122.09	39° 16' 28.894 N	80° 50' 56.748 W
3,632.0	0.61	315.07	3,630.5	-1.3	-55.7	14,261,987.90	1,683,121.90	39° 16' 28.896 N	80° 50' 56.751 W
3,657.0	0.69	317.52	3,655.5	-1.1	-55.9	14,261,988.10	1,683,121.71	39° 16' 28.898 N	80° 50' 56.753 W
3,682.0	0.66	314.90	3,680.5	-0.9	-56.1	14,261,988.31	1,683,121.50	39° 16' 28.900 N	80° 50' 56.756 W
3,707.0	0.72	314.23	3,705.5	-0.7	-56.3	14,261,988.53	1,683,121.29	39° 16' 28.902 N	80° 50' 56.759 W
3,732.0	0.68	317.88	3,730.5	-0.5	-56.5	14,261,988.74	1,683,121.08	39° 16' 28.904 N	80° 50' 56.761 W
3,757.0	0.75	311.13	3,755.5	-0.2	-56.7	14,261,988.96	1,683,120.85	39° 16' 28.906 N	80° 50' 56.764 W
3,782.0	0.71	318.66	3,780.5	0.0	-56.9	14,261,989.19	1,683,120.63	39° 16' 28.908 N	80° 50' 56.767 W
3,807.0	0.76	320.21	3,805.5	0.2	-57.1	14,261,989.43	1,683,120.42	39° 16' 28.911 N	80° 50' 56.770 W
3,832.0	0.72	317.77	3,830.5	0.5	-57.4	14,261,989.67	1,683,120.21	39° 16' 28.913 N	80° 50' 56.772 W
3,857.0	0.75	311.67	3,855.5	0.7	-57.6	14,261,989.90	1,683,119.98	39° 16' 28.916 N	80° 50' 56.775 W
3,882.0	0.75	320.08	3,880.5	0.9	-57.8	14,261,990.13	1,683,119.75	39° 16' 28.918 N	80° 50' 56.778 W
3,907.0	0.77	319.60	3,905.5	1.2	-58.0	14,261,990.39	1,683,119.54	39° 16' 28.920 N	80° 50' 56.781 W
3,932.0	0.84	317.78	3,930.4	1.4	-58.3	14,261,990.65	1,683,119.31	39° 16' 28.923 N	80° 50' 56.784 W
3,957.0	0.76	319.10	3,955.4	1.7	-58.5	14,261,990.91	1,683,119.08	39° 16' 28.926 N	80° 50' 56.787 W
3,982.0	0.79	322.17	3,980.4	2.0	-58.7	14,261,991.17	1,683,118.86	39° 16' 28.928 N	80° 50' 56.789 W
4,007.0	0.79	317.91	4,005.4	2.2	-58.9	14,261,991.44	1,683,118.64	39° 16' 28.931 N	80° 50' 56.792 W
4,032.0	0.68	316.29	4,030.4	2.5	-59.1	14,261,991.67	1,683,118.42	39° 16' 28.933 N	80° 50' 56.795 W
4,057.0	0.70	315.37	4,055.4	2.7	-59.3	14,261,991.89	1,683,118.21	39° 16' 28.935 N	80° 50' 56.798 W
4,082.0	0.68	311.25	4,080.4	2.9	-59.6	14,261,992.09	1,683,117.99	39° 16' 28.937 N	80° 50' 56.800 W
4,107.0	0.68	310.88	4,105.4	3.1	-59.8	14,261,992.29	1,683,117.77	39° 16' 28.939 N	80° 50' 56.803 W
4,132.0	0.74	316.42	4,130.4	3.3	-60.0	14,261,992.50	1,683,117.55	39° 16' 28.941 N	80° 50' 56.806 W
4,157.0	0.74	313.86	4,155.4	3.5	-60.2	14,261,992.73	1,683,117.32	39° 16' 28.944 N	80° 50' 56.809 W
4,182.0	0.78	311.54	4,180.4	3.8	-60.5	14,261,992.96	1,683,117.07	39° 16' 28.946 N	80° 50' 56.812 W
4,207.0	0.76	313.98	4,205.4	4.0	-60.7	14,261,993.18	1,683,116.83	39° 16' 28.948 N	80° 50' 56.815 W
4,232.0	0.76	315.92	4,230.4	4.2	-61.0	14,261,993.42	1,683,116.59	39° 16' 28.950 N	80° 50' 56.818 W
4,257.0	0.67	315.86	4,255.4	4.4	-61.2	14,261,993.64	1,683,116.38	39° 16' 28.953 N	80° 50' 56.821 W
4,282.0	0.66	320.80	4,280.4	4.7	-61.4	14,261,993.86	1,683,116.18	39° 16' 28.955 N	80° 50' 56.823 W
4,307.0	0.64	314.26	4,305.4	4.9	-61.6	14,261,994.07	1,683,115.99	39° 16' 28.957 N	80° 50' 56.826 W
4,332.0	0.58	311.51	4,330.4	5.0	-61.8	14,261,994.25	1,683,115.80	39° 16' 28.959 N	80° 50' 56.828 W



# Scientific Drilling International

Survey Report - Geographic



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm  
**Well:** Wilhelm Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Wilhelm Unit 1H  
**TVD Reference:** PD 525 GL 1164 + 19' RKB @ 1183.0usft  
**MD Reference:** PD 525 GL 1164 + 19' RKB @ 1183.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Antero NE

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**Survey**

WV Department of Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,357.0	0.52	311.25	4,355.4	5.2	-61.9	14,261,994.41	1,683,115.62	39° 16' 28.960 N	80° 50' 56.831 W
4,382.0	0.47	304.84	4,380.4	5.3	-62.1	14,261,994.54	1,683,115.45	39° 16' 28.962 N	80° 50' 56.833 W
4,407.0	0.43	311.13	4,405.4	5.5	-62.3	14,261,994.66	1,683,115.29	39° 16' 28.963 N	80° 50' 56.835 W
4,432.0	0.45	316.02	4,430.4	5.6	-62.4	14,261,994.79	1,683,115.15	39° 16' 28.964 N	80° 50' 56.836 W
4,457.0	0.33	325.09	4,455.4	5.7	-62.5	14,261,994.92	1,683,115.05	39° 16' 28.965 N	80° 50' 56.838 W
4,482.0	0.31	310.94	4,480.4	5.8	-62.6	14,261,995.03	1,683,114.95	39° 16' 28.966 N	80° 50' 56.839 W
4,507.0	0.16	305.49	4,505.4	5.9	-62.7	14,261,995.09	1,683,114.87	39° 16' 28.967 N	80° 50' 56.840 W
4,532.0	0.24	290.74	4,530.4	5.9	-62.8	14,261,995.13	1,683,114.80	39° 16' 28.967 N	80° 50' 56.841 W
4,557.0	0.14	295.10	4,555.4	6.0	-62.8	14,261,995.16	1,683,114.72	39° 16' 28.968 N	80° 50' 56.842 W
4,582.0	0.16	308.05	4,580.4	6.0	-62.9	14,261,995.20	1,683,114.66	39° 16' 28.968 N	80° 50' 56.843 W
4,607.0	0.11	330.56	4,605.4	6.0	-62.9	14,261,995.24	1,683,114.63	39° 16' 28.968 N	80° 50' 56.843 W
4,632.0	0.14	350.38	4,630.4	6.1	-63.0	14,261,995.29	1,683,114.61	39° 16' 28.969 N	80° 50' 56.843 W
4,657.0	0.16	332.26	4,655.4	6.1	-63.0	14,261,995.35	1,683,114.59	39° 16' 28.970 N	80° 50' 56.844 W
4,682.0	0.08	24.26	4,680.4	6.2	-63.0	14,261,995.40	1,683,114.58	39° 16' 28.970 N	80° 50' 56.844 W
4,707.0	0.12	326.14	4,705.4	6.2	-63.0	14,261,995.44	1,683,114.57	39° 16' 28.970 N	80° 50' 56.844 W
4,732.0	0.06	326.41	4,730.4	6.3	-63.0	14,261,995.47	1,683,114.55	39° 16' 28.971 N	80° 50' 56.844 W
4,757.0	0.07	316.84	4,755.4	6.3	-63.0	14,261,995.49	1,683,114.53	39° 16' 28.971 N	80° 50' 56.844 W
4,782.0	0.09	359.22	4,780.4	6.3	-63.0	14,261,995.52	1,683,114.52	39° 16' 28.971 N	80° 50' 56.844 W
4,807.0	0.23	3.24	4,805.4	6.4	-63.0	14,261,995.59	1,683,114.52	39° 16' 28.972 N	80° 50' 56.844 W
4,832.0	0.25	36.04	4,830.4	6.5	-63.0	14,261,995.69	1,683,114.56	39° 16' 28.973 N	80° 50' 56.844 W
4,857.0	0.31	47.66	4,855.4	6.6	-62.9	14,261,995.77	1,683,114.64	39° 16' 28.974 N	80° 50' 56.843 W
4,882.0	0.38	45.94	4,880.4	6.7	-62.8	14,261,995.88	1,683,114.75	39° 16' 28.975 N	80° 50' 56.842 W
4,907.0	0.28	55.58	4,905.4	6.8	-62.7	14,261,995.97	1,683,114.86	39° 16' 28.976 N	80° 50' 56.840 W
4,932.0	0.23	35.46	4,930.4	6.8	-62.6	14,261,996.05	1,683,114.94	39° 16' 28.976 N	80° 50' 56.839 W
4,957.0	0.31	35.27	4,955.4	6.9	-62.6	14,261,996.14	1,683,115.01	39° 16' 28.977 N	80° 50' 56.838 W
4,982.0	0.19	45.32	4,980.4	7.0	-62.5	14,261,996.23	1,683,115.08	39° 16' 28.978 N	80° 50' 56.837 W
5,007.0	0.27	32.88	5,005.4	7.1	-62.4	14,261,996.30	1,683,115.14	39° 16' 28.979 N	80° 50' 56.837 W
5,032.0	0.31	38.38	5,030.4	7.2	-62.3	14,261,996.41	1,683,115.21	39° 16' 28.980 N	80° 50' 56.836 W
5,057.0	0.31	58.15	5,055.4	7.3	-62.3	14,261,996.50	1,683,115.31	39° 16' 28.981 N	80° 50' 56.834 W
5,082.0	0.32	42.87	5,080.4	7.4	-62.1	14,261,996.58	1,683,115.42	39° 16' 28.982 N	80° 50' 56.833 W
5,107.0	0.35	39.79	5,105.4	7.5	-62.0	14,261,996.69	1,683,115.51	39° 16' 28.983 N	80° 50' 56.832 W
5,132.0	0.29	72.39	5,130.4	7.6	-61.9	14,261,996.77	1,683,115.62	39° 16' 28.984 N	80° 50' 56.830 W
5,157.0	0.25	12.85	5,155.4	7.6	-61.9	14,261,996.84	1,683,115.69	39° 16' 28.984 N	80° 50' 56.830 W
5,182.0	0.22	47.88	5,180.4	7.7	-61.8	14,261,996.93	1,683,115.74	39° 16' 28.985 N	80° 50' 56.829 W
5,207.0	0.18	12.13	5,205.4	7.8	-61.8	14,261,997.00	1,683,115.78	39° 16' 28.986 N	80° 50' 56.828 W
5,232.0	0.23	17.39	5,230.4	7.9	-61.8	14,261,997.08	1,683,115.81	39° 16' 28.987 N	80° 50' 56.828 W
5,257.0	0.27	19.93	5,255.4	8.0	-61.7	14,261,997.19	1,683,115.84	39° 16' 28.988 N	80° 50' 56.828 W
5,282.0	0.19	44.64	5,280.4	8.1	-61.7	14,261,997.27	1,683,115.89	39° 16' 28.989 N	80° 50' 56.827 W
5,307.0	0.23	65.64	5,305.4	8.1	-61.6	14,261,997.32	1,683,115.97	39° 16' 28.989 N	80° 50' 56.826 W
5,332.0	0.17	51.70	5,330.4	8.2	-61.5	14,261,997.37	1,683,116.04	39° 16' 28.989 N	80° 50' 56.825 W
5,357.0	0.15	68.93	5,355.4	8.2	-61.5	14,261,997.40	1,683,116.10	39° 16' 28.990 N	80° 50' 56.824 W
5,382.0	0.33	38.10	5,380.4	8.3	-61.4	14,261,997.47	1,683,116.18	39° 16' 28.990 N	80° 50' 56.823 W
5,407.0	0.24	45.48	5,405.4	8.4	-61.3	14,261,997.56	1,683,116.26	39° 16' 28.991 N	80° 50' 56.822 W
5,432.0	0.11	36.95	5,430.4	8.4	-61.3	14,261,997.62	1,683,116.31	39° 16' 28.992 N	80° 50' 56.822 W
5,457.0	0.09	79.59	5,455.4	8.4	-61.2	14,261,997.64	1,683,116.34	39° 16' 28.992 N	80° 50' 56.821 W
5,482.0	0.21	72.63	5,480.4	8.5	-61.2	14,261,997.66	1,683,116.41	39° 16' 28.992 N	80° 50' 56.820 W
5,507.0	0.17	15.57	5,505.4	8.5	-61.1	14,261,997.71	1,683,116.46	39° 16' 28.993 N	80° 50' 56.820 W
5,532.0	0.16	16.35	5,530.4	8.6	-61.1	14,261,997.78	1,683,116.48	39° 16' 28.993 N	80° 50' 56.819 W
5,557.0	0.26	52.26	5,555.4	8.6	-61.0	14,261,997.85	1,683,116.53	39° 16' 28.994 N	80° 50' 56.819 W
5,582.0	0.28	58.80	5,580.4	8.7	-60.9	14,261,997.91	1,683,116.63	39° 16' 28.995 N	80° 50' 56.818 W
5,607.0	0.21	110.45	5,605.4	8.7	-60.8	14,261,997.93	1,683,116.73	39° 16' 28.995 N	80° 50' 56.816 W
5,632.0	0.08	46.61	5,630.4	8.7	-60.8	14,261,997.92	1,683,116.78	39° 16' 28.995 N	80° 50' 56.816 W
5,657.0	0.14	65.51	5,655.4	8.7	-60.7	14,261,997.95	1,683,116.82	39° 16' 28.995 N	80° 50' 56.815 W
5,682.0	0.13	98.53	5,680.4	8.8	-60.7	14,261,997.96	1,683,116.88	39° 16' 28.995 N	80° 50' 56.814 W
5,707.0	0.14	71.05	5,705.4	8.8	-60.6	14,261,997.96	1,683,116.94	39° 16' 28.995 N	80° 50' 56.814 W



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Survey Report - Geographic



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Wilhelm Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Site:</b>	McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm	<b>MD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Well:</b>	Wilhelm 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>	Antero NE

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Survey

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,732.0	0.23	83.95	5,730.4	8.8	-60.5	14,261,997.98	1,683,117.01	39° 16' 28.995 N	80° 50' 56.813 W
5,757.0	0.22	85.27	5,755.4	8.8	-60.4	14,261,997.99	1,683,117.11	39° 16' 28.996 N	80° 50' 56.811 W
5,782.0	0.26	58.75	5,780.4	8.8	-60.4	14,261,998.02	1,683,117.21	39° 16' 28.996 N	80° 50' 56.810 W
5,807.0	0.26	83.69	5,805.4	8.8	-60.2	14,261,998.06	1,683,117.31	39° 16' 28.996 N	80° 50' 56.809 W
5,832.0	0.34	64.07	5,830.4	8.9	-60.1	14,261,998.10	1,683,117.44	39° 16' 28.997 N	80° 50' 56.807 W
5,857.0	0.36	100.58	5,855.4	8.9	-60.0	14,261,998.11	1,683,117.58	39° 16' 28.997 N	80° 50' 56.805 W
5,872.0	0.37	101.82	5,870.4	8.9	-59.9	14,261,998.09	1,683,117.67	39° 16' 28.997 N	80° 50' 56.804 W
<b>Last Gyro @ 5872</b>									
5,872.2	0.37	101.84	5,870.6	8.9	-59.9	14,261,998.09	1,683,117.68	39° 16' 28.997 N	80° 50' 56.804 W
5,902.0	0.27	102.67	5,900.4	8.9	-59.7	14,261,998.06	1,683,117.84	39° 16' 28.996 N	80° 50' 56.802 W
<b>First SDI MWD @ 5902</b>									
5,947.0	0.34	124.85	5,945.4	8.8	-59.5	14,261,997.96	1,683,118.05	39° 16' 28.995 N	80° 50' 56.799 W
5,992.0	2.39	259.10	5,990.4	8.5	-60.3	14,261,997.71	1,683,117.24	39° 16' 28.993 N	80° 50' 56.810 W
6,037.0	9.15	249.21	6,035.1	7.0	-64.6	14,261,996.26	1,683,112.97	39° 16' 28.979 N	80° 50' 56.864 W
6,082.0	15.50	250.54	6,079.1	3.8	-73.6	14,261,992.98	1,683,103.94	39° 16' 28.946 N	80° 50' 56.979 W
6,126.0	18.73	252.00	6,121.1	-0.4	-85.9	14,261,988.84	1,683,091.68	39° 16' 28.906 N	80° 50' 57.135 W
6,171.0	22.10	249.71	6,163.3	-5.5	-100.7	14,261,983.67	1,683,076.86	39° 16' 28.855 N	80° 50' 57.324 W
6,216.0	25.31	246.91	6,204.5	-12.2	-117.5	14,261,976.96	1,683,060.07	39° 16' 28.789 N	80° 50' 57.537 W
6,261.0	29.20	247.93	6,244.5	-20.1	-136.5	14,261,969.06	1,683,041.04	39° 16' 28.711 N	80° 50' 57.780 W
6,308.0	29.63	256.81	6,283.7	-26.8	-157.5	14,261,962.39	1,683,020.03	39° 16' 28.645 N	80° 50' 58.047 W
6,351.0	28.82	263.40	6,323.0	-30.6	-179.1	14,261,958.61	1,682,998.42	39° 16' 28.608 N	80° 50' 58.322 W
6,368.0	28.24	266.13	6,337.9	-31.3	-187.2	14,261,957.86	1,682,990.33	39° 16' 28.601 N	80° 50' 58.425 W
6,395.0	28.12	268.85	6,361.7	-31.9	-200.0	14,261,957.30	1,682,977.60	39° 16' 28.596 N	80° 50' 58.587 W
6,440.0	28.43	272.36	6,401.4	-31.7	-221.3	14,261,957.53	1,682,956.29	39° 16' 28.598 N	80° 50' 58.858 W
6,485.0	30.73	282.15	6,440.5	-28.8	-243.2	14,261,960.40	1,682,934.33	39° 16' 28.627 N	80° 50' 59.137 W
6,530.0	35.72	291.84	6,478.2	-21.5	-266.7	14,261,967.71	1,682,910.87	39° 16' 28.700 N	80° 50' 59.436 W
6,562.0	39.43	299.99	6,503.5	-12.9	-284.2	14,261,976.28	1,682,893.38	39° 16' 28.785 N	80° 50' 59.658 W
<b>Middlesex @ 6562</b>									
6,574.0	40.95	302.71	6,512.7	-8.9	-290.8	14,261,980.31	1,682,886.77	39° 16' 28.825 N	80° 50' 59.742 W
6,619.0	45.36	309.73	6,545.5	9.3	-315.5	14,261,998.53	1,682,862.02	39° 16' 29.005 N	80° 51' 0.056 W
6,664.0	50.11	314.32	6,575.8	31.6	-340.2	14,262,020.84	1,682,837.34	39° 16' 29.226 N	80° 51' 0.370 W
6,709.0	55.68	319.66	6,603.0	57.9	-364.6	14,262,047.10	1,682,812.93	39° 16' 29.486 N	80° 51' 0.680 W
6,745.0	59.79	322.04	6,622.2	81.5	-383.8	14,262,070.71	1,682,793.73	39° 16' 29.720 N	80° 51' 0.924 W
<b>Burket @ 6745</b>									
6,754.0	60.82	322.60	6,626.6	87.7	-388.6	14,262,076.89	1,682,788.95	39° 16' 29.781 N	80° 51' 0.984 W
6,799.0	66.12	325.78	6,646.7	120.3	-412.1	14,262,109.54	1,682,765.42	39° 16' 30.104 N	80° 51' 1.283 W
6,809.0	67.25	326.16	6,650.7	127.9	-417.3	14,262,117.15	1,682,760.28	39° 16' 30.180 N	80° 51' 1.348 W
<b>Tully @ 6809</b>									
6,844.0	71.21	327.45	6,663.1	155.3	-435.2	14,262,144.53	1,682,742.38	39° 16' 30.451 N	80° 51' 1.575 W
6,865.0	72.81	328.58	6,669.6	172.3	-445.8	14,262,161.48	1,682,731.80	39° 16' 30.618 N	80° 51' 1.710 W
6,908.0	76.53	330.04	6,681.0	207.9	-466.9	14,262,197.13	1,682,710.64	39° 16' 30.971 N	80° 51' 1.978 W
<b>Marcellus @ 6908</b>									
6,914.0	77.05	330.24	6,682.3	213.0	-469.8	14,262,202.20	1,682,707.73	39° 16' 31.021 N	80° 51' 2.015 W
6,959.0	81.70	331.90	6,690.6	251.7	-491.2	14,262,240.90	1,682,686.35	39° 16' 31.404 N	80° 51' 2.286 W
7,004.0	85.96	333.30	6,695.5	291.4	-511.8	14,262,280.61	1,682,665.77	39° 16' 31.797 N	80° 51' 2.547 W
7,049.0	87.90	338.26	6,697.9	332.4	-530.2	14,262,321.57	1,682,647.34	39° 16' 32.203 N	80° 51' 2.781 W
7,094.0	89.42	339.72	6,698.9	374.4	-546.3	14,262,363.57	1,682,631.21	39° 16' 32.618 N	80° 51' 2.985 W
7,183.0	90.02	341.58	6,699.4	458.3	-575.8	14,262,447.54	1,682,601.72	39° 16' 33.449 N	80° 51' 3.358 W
7,273.0	90.24	343.20	6,699.2	544.1	-603.1	14,262,533.32	1,682,574.50	39° 16' 34.298 N	80° 51' 3.703 W
7,363.0	88.93	342.32	6,699.8	630.1	-629.7	14,262,619.27	1,682,547.82	39° 16' 35.148 N	80° 51' 4.040 W
7,453.0	89.64	342.24	6,700.9	715.8	-657.1	14,262,704.99	1,682,520.43	39° 16' 35.996 N	80° 51' 4.387 W
7,542.0	91.38	342.39	6,700.1	800.6	-684.2	14,262,789.78	1,682,493.40	39° 16' 36.835 N	80° 51' 4.729 W
7,632.0	91.08	342.13	6,698.2	886.3	-711.6	14,262,875.48	1,682,465.98	39° 16' 37.683 N	80° 51' 5.076 W
7,722.0	90.39	341.32	6,697.1	971.7	-739.8	14,262,960.93	1,682,437.76	39° 16' 38.528 N	80° 51' 5.433 W



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Survey Report - Geographic



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Wilhelm Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Site:</b>	McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm	<b>MD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Well:</b>	Wilhelm 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>	Antero NE

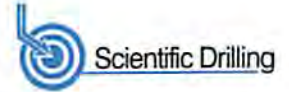
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Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,811.0	91.78	341.98	6,695.4	1,056.2	-767.8	14,263,045.39	1,682,409.75	39° 16' 39.363 N	80° 51' 5.788 W
7,901.0	91.35	343.13	6,692.9	1,142.0	-794.8	14,263,131.21	1,682,382.78	39° 16' 40.213 N	80° 51' 6.129 W
7,991.0	91.43	343.67	6,690.7	1,228.2	-820.5	14,263,217.44	1,682,357.08	39° 16' 41.066 N	80° 51' 6.454 W
8,080.0	91.81	343.22	6,688.2	1,313.5	-845.8	14,263,302.71	1,682,331.73	39° 16' 41.909 N	80° 51' 6.775 W
8,170.0	90.30	342.69	6,686.6	1,399.5	-872.2	14,263,388.74	1,682,305.35	39° 16' 42.760 N	80° 51' 7.109 W
8,260.0	90.70	342.66	6,685.8	1,485.4	-899.0	14,263,474.66	1,682,278.55	39° 16' 43.610 N	80° 51' 7.448 W
8,349.0	90.76	340.89	6,684.6	1,570.0	-926.8	14,263,559.18	1,682,250.72	39° 16' 44.446 N	80° 51' 7.800 W
8,439.0	90.88	342.74	6,683.3	1,655.5	-954.9	14,263,644.67	1,682,222.64	39° 16' 45.292 N	80° 51' 8.156 W
8,529.0	91.14	342.12	6,681.8	1,741.3	-982.1	14,263,730.46	1,682,195.47	39° 16' 46.141 N	80° 51' 8.500 W
8,618.0	90.97	341.42	6,680.1	1,825.8	-1,009.9	14,263,814.98	1,682,167.63	39° 16' 46.977 N	80° 51' 8.852 W
8,708.0	91.01	341.62	6,678.6	1,911.1	-1,038.4	14,263,900.33	1,682,139.11	39° 16' 47.821 N	80° 51' 9.213 W
8,798.0	90.58	341.19	6,677.3	1,996.4	-1,067.1	14,263,985.62	1,682,110.41	39° 16' 48.665 N	80° 51' 9.576 W
8,887.0	91.24	342.84	6,675.9	2,081.0	-1,094.6	14,264,070.26	1,682,082.94	39° 16' 49.502 N	80° 51' 9.924 W
8,977.0	90.85	342.53	6,674.3	2,167.0	-1,121.4	14,264,156.16	1,682,056.16	39° 16' 50.352 N	80° 51' 10.263 W
9,067.0	90.75	342.01	6,673.0	2,252.7	-1,148.8	14,264,241.88	1,682,028.75	39° 16' 51.200 N	80° 51' 10.610 W
9,157.0	90.57	341.47	6,672.0	2,338.1	-1,177.0	14,264,327.34	1,682,000.55	39° 16' 52.046 N	80° 51' 10.967 W
9,246.0	91.28	340.95	6,670.5	2,422.4	-1,205.7	14,264,411.59	1,681,971.89	39° 16' 52.879 N	80° 51' 11.330 W
9,336.0	90.50	341.69	6,669.1	2,507.6	-1,234.5	14,264,496.83	1,681,943.07	39° 16' 53.722 N	80° 51' 11.695 W
9,426.0	89.56	341.56	6,669.1	2,593.0	-1,262.9	14,264,582.24	1,681,914.70	39° 16' 54.567 N	80° 51' 12.054 W
9,515.0	89.96	343.00	6,669.5	2,677.8	-1,289.9	14,264,667.02	1,681,887.61	39° 16' 55.406 N	80° 51' 12.397 W
9,605.0	90.73	343.71	6,668.9	2,764.0	-1,315.7	14,264,753.24	1,681,861.83	39° 16' 56.259 N	80° 51' 12.723 W
9,695.0	89.83	344.16	6,668.5	2,850.5	-1,340.6	14,264,839.73	1,681,836.93	39° 16' 57.115 N	80° 51' 13.038 W
9,785.0	89.66	341.75	6,668.9	2,936.6	-1,367.0	14,264,925.77	1,681,810.55	39° 16' 57.966 N	80° 51' 13.372 W
9,875.0	90.49	342.63	6,668.8	3,022.2	-1,394.5	14,265,011.45	1,681,783.02	39° 16' 58.813 N	80° 51' 13.720 W
9,964.0	90.49	341.97	6,668.0	3,107.0	-1,421.6	14,265,096.24	1,681,755.96	39° 16' 59.652 N	80° 51' 14.063 W
10,054.0	91.37	344.07	6,666.5	3,193.1	-1,447.9	14,265,182.29	1,681,729.69	39° 17' 0.503 N	80° 51' 14.395 W
10,144.0	90.22	340.61	6,665.3	3,278.8	-1,475.2	14,265,268.03	1,681,702.39	39° 17' 1.352 N	80° 51' 14.741 W
10,233.0	91.56	341.91	6,663.9	3,363.1	-1,503.8	14,265,352.30	1,681,673.80	39° 17' 2.185 N	80° 51' 15.103 W
10,323.0	91.09	341.03	6,661.8	3,448.4	-1,532.4	14,265,437.61	1,681,645.21	39° 17' 3.029 N	80° 51' 15.465 W
10,413.0	91.79	341.59	6,659.6	3,533.6	-1,561.2	14,265,522.83	1,681,616.38	39° 17' 3.872 N	80° 51' 15.830 W
10,503.0	91.93	342.17	6,656.6	3,619.1	-1,589.2	14,265,608.33	1,681,588.40	39° 17' 4.718 N	80° 51' 16.184 W
10,592.0	90.62	341.42	6,654.7	3,703.6	-1,617.0	14,265,692.85	1,681,560.60	39° 17' 5.554 N	80° 51' 16.536 W
10,682.0	90.48	340.44	6,653.8	3,788.7	-1,646.4	14,265,777.90	1,681,531.20	39° 17' 6.396 N	80° 51' 16.908 W
10,772.0	91.18	343.98	6,652.5	3,874.4	-1,673.9	14,265,863.58	1,681,503.71	39° 17' 7.243 N	80° 51' 17.256 W
10,862.0	91.58	343.45	6,650.3	3,960.7	-1,699.1	14,265,949.94	1,681,478.48	39° 17' 8.098 N	80° 51' 17.576 W
10,951.0	90.34	342.09	6,648.8	4,045.7	-1,725.4	14,266,034.93	1,681,452.12	39° 17' 8.938 N	80° 51' 17.909 W
11,041.0	90.27	342.05	6,648.4	4,131.4	-1,753.1	14,266,120.56	1,681,424.41	39° 17' 9.786 N	80° 51' 18.260 W
11,131.0	91.31	340.90	6,647.1	4,216.7	-1,781.7	14,266,205.86	1,681,395.82	39° 17' 10.630 N	80° 51' 18.622 W
11,221.0	91.69	341.21	6,644.8	4,301.8	-1,810.9	14,266,290.98	1,681,366.61	39° 17' 11.472 N	80° 51' 18.992 W
11,310.0	91.01	341.58	6,642.7	4,386.1	-1,839.3	14,266,375.30	1,681,338.23	39° 17' 12.306 N	80° 51' 19.351 W
11,400.0	90.17	340.72	6,641.7	4,471.3	-1,868.4	14,266,460.47	1,681,309.15	39° 17' 13.148 N	80° 51' 19.720 W
11,490.0	90.30	341.11	6,641.4	4,556.3	-1,897.8	14,266,545.52	1,681,279.72	39° 17' 13.990 N	80° 51' 20.092 W
11,580.0	90.87	341.81	6,640.4	4,641.6	-1,926.5	14,266,630.85	1,681,251.11	39° 17' 14.834 N	80° 51' 20.455 W
11,669.0	90.60	343.34	6,639.3	4,726.5	-1,953.1	14,266,715.75	1,681,224.46	39° 17' 15.674 N	80° 51' 20.792 W
11,759.0	90.53	341.67	6,638.4	4,812.4	-1,980.2	14,266,801.58	1,681,197.41	39° 17' 16.523 N	80° 51' 21.134 W
11,849.0	91.24	341.18	6,637.0	4,897.7	-2,008.8	14,266,886.88	1,681,168.74	39° 17' 17.367 N	80° 51' 21.497 W
11,938.0	90.53	341.89	6,635.7	4,982.1	-2,037.0	14,266,971.29	1,681,140.56	39° 17' 18.202 N	80° 51' 21.854 W
12,028.0	91.07	342.75	6,634.4	5,067.8	-2,064.3	14,267,057.03	1,681,113.23	39° 17' 19.050 N	80° 51' 22.200 W
12,118.0	89.02	343.03	6,634.3	5,153.8	-2,090.8	14,267,143.04	1,681,086.75	39° 17' 19.901 N	80° 51' 22.535 W
12,207.0	90.26	343.27	6,634.9	5,239.0	-2,116.6	14,267,228.22	1,681,060.95	39° 17' 20.743 N	80° 51' 22.862 W
12,297.0	90.80	343.32	6,634.1	5,325.2	-2,142.5	14,267,314.42	1,681,035.08	39° 17' 21.596 N	80° 51' 23.189 W
12,387.0	90.86	343.38	6,632.7	5,411.4	-2,168.3	14,267,400.63	1,681,009.30	39° 17' 22.449 N	80° 51' 23.516 W
12,476.0	90.83	342.44	6,631.4	5,496.5	-2,194.4	14,267,486.69	1,680,983.15	39° 17' 23.291 N	80° 51' 23.847 W
12,566.0	91.17	342.73	6,629.9	5,582.3	-2,221.3	14,267,571.55	1,680,956.21	39° 17' 24.140 N	80° 51' 24.188 W
12,656.0	89.99	342.54	6,629.0	5,668.2	-2,248.2	14,267,657.45	1,680,929.36	39° 17' 24.990 N	80° 51' 24.528 W





Scientific Drilling International  
Survey Report - Geographic



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm  
**Well:** Wilhelm Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Wilhelm Unit 1H  
**TVD Reference:** PD 525 GL 1164 + 19' RKB @ 1183.0usft  
**MD Reference:** PD 525 GL 1164 + 19' RKB @ 1183.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Antero NE

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Survey

WV Department of  
Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
12,746.0	89.89	342.69	6,629.0	5,754.1	-2,275.1	14,267,743.34	1,680,902.46	39° 17' 25.839 N	80° 51' 24.868 W
12,836.0	90.42	342.60	6,628.8	5,840.0	-2,301.9	14,267,829.24	1,680,875.62	39° 17' 26.689 N	80° 51' 25.208 W
12,925.0	90.86	342.41	6,627.8	5,924.9	-2,328.7	14,267,914.12	1,680,848.86	39° 17' 27.529 N	80° 51' 25.547 W
13,015.0	91.29	342.57	6,626.1	6,010.7	-2,355.8	14,267,999.93	1,680,821.79	39° 17' 28.378 N	80° 51' 25.889 W
13,105.0	91.23	341.68	6,624.1	6,096.4	-2,383.4	14,268,085.56	1,680,794.17	39° 17' 29.225 N	80° 51' 26.239 W
13,195.0	91.70	342.06	6,621.8	6,181.9	-2,411.4	14,268,171.07	1,680,766.18	39° 17' 30.071 N	80° 51' 26.594 W
13,284.0	89.95	340.99	6,620.6	6,266.3	-2,439.6	14,268,255.47	1,680,737.98	39° 17' 30.906 N	80° 51' 26.951 W
13,374.0	90.25	340.14	6,620.4	6,351.1	-2,469.5	14,268,340.34	1,680,708.03	39° 17' 31.745 N	80° 51' 27.330 W
13,464.0	90.45	339.43	6,619.9	6,435.6	-2,500.6	14,268,424.79	1,680,676.93	39° 17' 32.581 N	80° 51' 27.724 W
13,554.0	90.65	340.69	6,619.0	6,520.2	-2,531.3	14,268,509.39	1,680,646.24	39° 17' 33.418 N	80° 51' 28.113 W
13,643.0	90.28	342.14	6,618.3	6,604.5	-2,559.7	14,268,593.74	1,680,617.88	39° 17' 34.252 N	80° 51' 28.472 W
13,733.0	90.79	341.61	6,617.4	6,690.1	-2,587.7	14,268,679.27	1,680,589.88	39° 17' 35.098 N	80° 51' 28.827 W
13,823.0	90.08	340.66	6,616.7	6,775.2	-2,616.8	14,268,764.44	1,680,560.78	39° 17' 35.941 N	80° 51' 29.195 W
13,912.0	90.62	341.10	6,616.2	6,859.3	-2,645.9	14,268,848.52	1,680,531.63	39° 17' 36.773 N	80° 51' 29.564 W
14,002.0	90.48	343.10	6,615.3	6,945.0	-2,673.6	14,268,934.16	1,680,503.97	39° 17' 37.620 N	80° 51' 29.915 W
14,092.0	89.41	343.57	6,615.4	7,031.2	-2,699.4	14,269,020.38	1,680,478.16	39° 17' 38.473 N	80° 51' 30.241 W
14,182.0	89.34	343.13	6,616.4	7,117.4	-2,725.2	14,269,106.60	1,680,452.38	39° 17' 39.326 N	80° 51' 30.568 W
14,271.0	89.38	343.09	6,617.4	7,202.5	-2,751.0	14,269,191.75	1,680,426.52	39° 17' 40.168 N	80° 51' 30.895 W
14,361.0	89.81	342.03	6,618.0	7,288.4	-2,778.0	14,269,277.61	1,680,399.55	39° 17' 41.018 N	80° 51' 31.237 W
14,451.0	90.42	341.76	6,617.9	7,373.9	-2,806.0	14,269,363.16	1,680,371.58	39° 17' 41.864 N	80° 51' 31.591 W
14,541.0	89.88	342.97	6,617.6	7,459.7	-2,833.2	14,269,448.92	1,680,344.32	39° 17' 42.712 N	80° 51' 31.936 W
14,630.0	90.11	342.02	6,617.6	7,544.6	-2,860.0	14,269,533.80	1,680,317.55	39° 17' 43.552 N	80° 51' 32.275 W
14,720.0	90.68	342.40	6,617.0	7,630.3	-2,887.5	14,269,619.50	1,680,290.05	39° 17' 44.400 N	80° 51' 32.623 W
14,810.0	90.01	341.61	6,616.5	7,715.9	-2,915.3	14,269,705.09	1,680,262.25	39° 17' 45.246 N	80° 51' 32.975 W
14,900.0	90.25	341.82	6,616.3	7,801.3	-2,943.6	14,269,790.55	1,680,234.01	39° 17' 46.092 N	80° 51' 33.333 W
14,989.0	90.18	341.00	6,615.9	7,885.7	-2,971.9	14,269,874.90	1,680,205.64	39° 17' 46.926 N	80° 51' 33.692 W
15,079.0	90.61	340.70	6,615.3	7,970.7	-3,001.4	14,269,959.92	1,680,176.11	39° 17' 47.767 N	80° 51' 34.066 W
15,169.0	89.71	340.88	6,615.1	8,055.7	-3,031.1	14,270,044.91	1,680,146.50	39° 17' 48.608 N	80° 51' 34.441 W
15,259.0	89.64	339.68	6,615.6	8,140.4	-3,061.4	14,270,129.63	1,680,116.13	39° 17' 49.446 N	80° 51' 34.826 W
15,348.0	89.41	342.08	6,616.3	8,224.5	-3,090.6	14,270,213.71	1,680,086.99	39° 17' 50.278 N	80° 51' 35.195 W
15,438.0	89.84	342.33	6,616.9	8,310.2	-3,118.1	14,270,299.40	1,680,059.48	39° 17' 51.126 N	80° 51' 35.544 W
15,527.0	90.08	342.89	6,617.0	8,395.1	-3,144.7	14,270,384.33	1,680,032.88	39° 17' 51.966 N	80° 51' 35.880 W
15,617.0	90.55	343.75	6,616.5	8,481.3	-3,170.5	14,270,470.54	1,680,007.05	39° 17' 52.819 N	80° 51' 36.207 W
15,707.0	90.82	342.95	6,615.4	8,567.6	-3,196.3	14,270,556.76	1,679,981.26	39° 17' 53.672 N	80° 51' 36.534 W
15,796.0	90.08	342.51	6,614.7	8,652.5	-3,222.7	14,270,641.74	1,679,954.84	39° 17' 54.512 N	80° 51' 36.868 W
15,886.0	89.64	341.04	6,614.9	8,738.0	-3,250.9	14,270,727.23	1,679,926.70	39° 17' 55.358 N	80° 51' 37.225 W
15,976.0	90.01	340.91	6,615.2	8,823.1	-3,280.2	14,270,812.31	1,679,897.36	39° 17' 56.200 N	80° 51' 37.597 W
16,065.0	89.81	342.49	6,615.3	8,907.6	-3,308.1	14,270,896.81	1,679,869.42	39° 17' 57.036 N	80° 51' 37.951 W
16,155.0	89.71	343.33	6,615.7	8,993.6	-3,334.6	14,270,982.83	1,679,842.97	39° 17' 57.887 N	80° 51' 38.285 W
16,245.0	90.14	343.78	6,615.8	9,079.9	-3,360.1	14,271,069.15	1,679,817.49	39° 17' 58.741 N	80° 51' 38.608 W
16,335.0	90.48	343.69	6,615.3	9,166.3	-3,385.3	14,271,155.54	1,679,792.28	39° 17' 59.595 N	80° 51' 38.927 W
16,424.0	90.51	344.02	6,614.6	9,251.8	-3,410.0	14,271,241.03	1,679,767.53	39° 18' 0.441 N	80° 51' 39.240 W
16,514.0	89.64	341.99	6,614.4	9,337.9	-3,436.3	14,271,327.10	1,679,741.23	39° 18' 1.292 N	80° 51' 39.573 W
16,604.0	90.38	341.45	6,614.4	9,423.3	-3,464.6	14,271,412.55	1,679,713.00	39° 18' 2.138 N	80° 51' 39.931 W
16,693.0	90.17	341.90	6,614.0	9,507.8	-3,492.5	14,271,497.04	1,679,685.02	39° 18' 2.973 N	80° 51' 40.285 W
16,767.0	90.88	341.71	6,613.3	9,578.1	-3,515.6	14,271,567.33	1,679,661.91	39° 18' 3.669 N	80° 51' 40.578 W
<b>Lasat SDI MWD @ 16767</b>									
16,831.0	90.88	341.71	6,612.3	9,638.9	-3,535.7	14,271,628.09	1,679,641.83	39° 18' 4.270 N	80° 51' 40.832 W
<b>Projection To Bit @ 16831 MD / 6612 TVD</b>									



**Scientific Drilling International**  
Survey Report - Geographic



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Wilhelm Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Site:</b>	McGill Pad: Hormels/Mash/Nero/Vonda/Wilhelm	<b>MD Reference:</b>	PD 525 GL 1164 + 19' RKB @ 1183.0usft
<b>Well:</b>	Wilhelm 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>	Antero NE

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Formations						NOV - 2 2017
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction	WV Department of Environmental Protection
6,562.0	6,503.5	Middlesex @ 6562		0.00		
6,745.0	6,622.2	Burket @ 6745		0.00		
6,809.0	6,650.7	Tully @ 6809		0.00		
6,908.0	6,681.0	Marcellus @ 6908		0.00		

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
32.0	32.0	0.0	0.0	First Gyro @ 32	
5,872.0	5,870.4	8.9	-59.9	Last Gyro @ 5872	
5,902.0	5,900.4	8.9	-59.7	First SDI MWD @ 5902	
16,767.0	6,613.3	9,578.1	-3,515.6	Lasat SDI MWD @ 16767	
16,831.0	6,612.3	9,638.9	-3,535.7	Projection To Bit @ 16831 MD / 6612 TVD	

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