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JUN 08 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV



Joseph Unit 1H
Doddridge County WV
Northing: 14276905.49
Easting: 1721743.44
As Drilled



Genie Lightfoot
10/27, December 02, 2014
Scientific Drilling Inter.
11220 NW 10th Street
Yukon, OK 73089

WELL DETAILS Joseph Unit 1H
Ground Level: 1381.0
+N/-S +E/-W Northing Easting Longitude
0.0 14276905.49 1721743.44 38° 18' 55.470 N 80° 42' 44.851 W

Frontier 3 - 1381'GL + 23 @ 1404.0usft
Gr: 1381.0

SITE DETAILS: Heflin/McConnell Pad
Site Center: Heflin Unit 1H
Site Centre Northing: 14276955.47
Easting: 1721742.61
Positional Uncertainty: 2.0
Corner Mark: 0.18
Local North: Grid

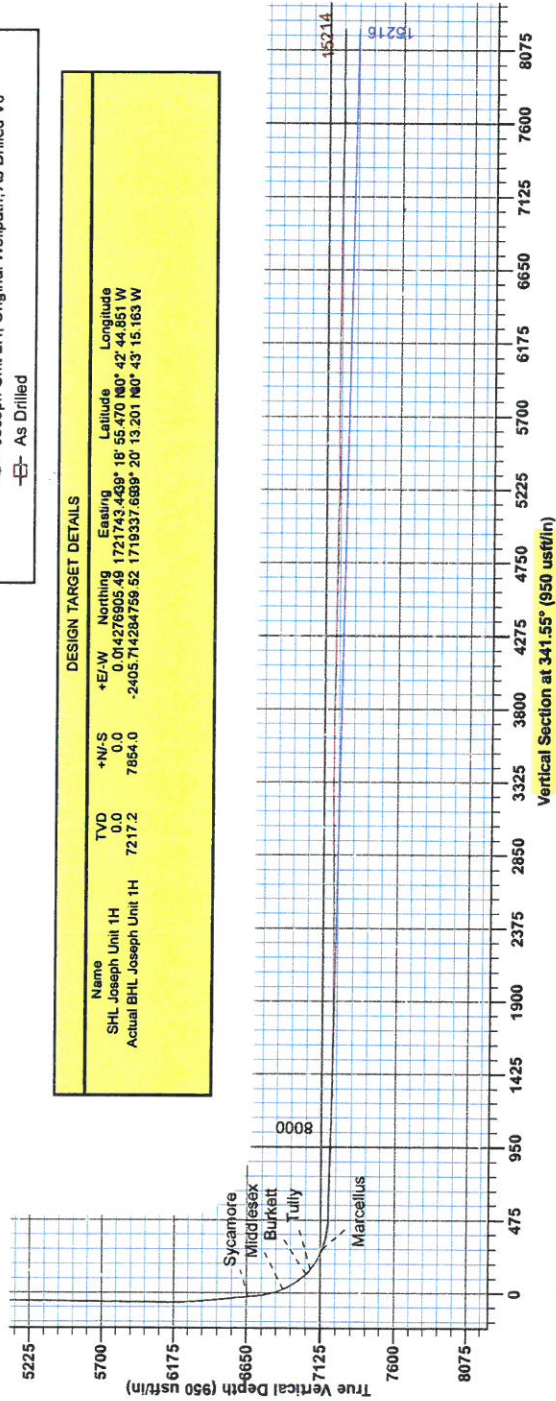
PROJECT DETAILS: Doddridge County WV
Geodetic System: Universal Transverse Mercator (US Survey Foot)
Datum: NAD 1982 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)
System Datum: Mean Sea Level

LEGEND

- ✕ Heflin Unit 1H, Original Wellpath, As Drilled V0
- Joseph Unit 1H, Original Wellpath, Plan 4 V0
- △ McConnell Unit 1H, Original Wellpath, As Drilled V0
- ◇ Olivia Unit 1H, Original Wellpath, As Drilled V0
- Joseph Unit 2H, Original Wellpath, As Drilled V0
- ⊖ As Drilled

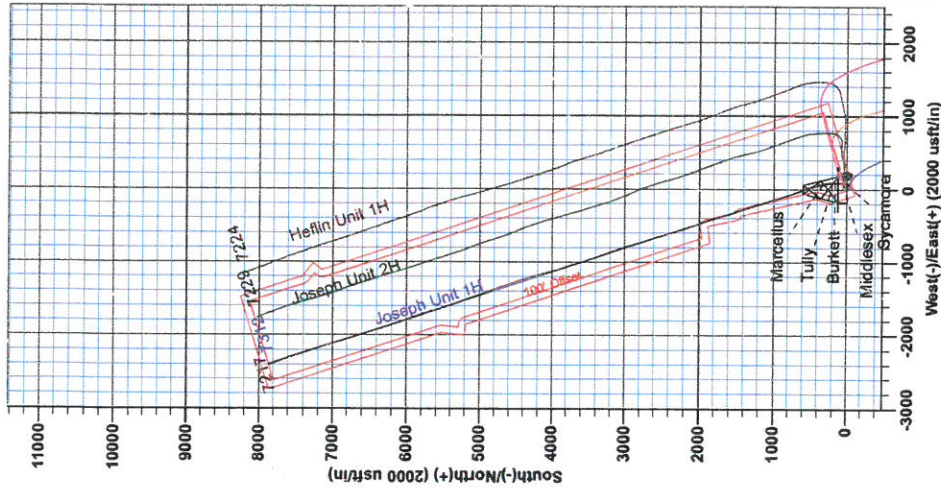
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	East/W	Latitude	Longitude
SHL Joseph Unit 1H	0.0	0.0	0.0	014276905.49	1721743.44	38° 18' 55.470 N	80° 42' 44.851 W
Actual BHL Joseph Unit 1H	7217.2	7854.0	-2405.714	284759.52	1719337.689	20° 13' 20.1 N	0° 43' 15.163 W



Azimuths to Grid North
True North: -0.18°
Magnetic North: -8.71°
Magnetic Field
Strength: 52218.3anT
Dip Angle: 66.85°
Date: 10/15/2014
Model: BGGM2014

To convert Magnetic North to Grid, Subtract 8.71°
To convert True North to Grid, Subtract 0.18°





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Antero Resources

**Doddridge County WV
Heflin/McConnell Pad
Joseph Unit 1H
Original Wellpath**

Design: As Drilled

EOW Completion Report

02 December, 2014



JUN 08 2015



EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Heflin/McConnell Pad
Well: Joseph Unit 1H
Wellbore: Original Wellpath
Design: As Drilled
Local Co-ordinate Reference: Well Joseph Unit 1H
TVD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
MD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

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

Site	Heflin/McConnell Pad				
Site Position:		Northing:	14,276,955.47 usft	Latitude:	39° 18' 55.964 N
From:	Map	Easting:	1,721,742.61 usft	Longitude:	80° 42' 44.860 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.18 °

Well	Joseph Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,276,905.49 usft	Latitude:	39° 18' 55.470 N
	+E/-W	0.0 usft	Easting:	1,721,743.44 usft	Longitude:	80° 42' 44.851 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,404.0 usft	Ground Level:	1,381.0 usft

Wellbore Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	10/15/2014	-8.53	66.85	52,218

Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.0	0.0	0.0	341.55

Survey Program	Date				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
25.0	5,602.9	Survey #5 Def Gyro to 5603 (Original Well	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,632.0	15,214.0	Survey #6 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
25.0	0.06	264.96	25.0	0.0	0.0	0.0	0.24
50.0	0.12	264.96	50.0	0.0	-0.1	0.0	0.24
75.0	0.18	264.96	75.0	0.0	-0.1	0.0	0.24
100.0	0.23	264.96	100.0	0.0	-0.2	0.0	0.20
125.0	0.16	298.60	125.0	0.0	-0.3	0.1	0.52
150.0	0.18	266.49	150.0	0.0	-0.4	0.1	0.38
175.0	0.20	291.42	175.0	0.0	-0.4	0.2	0.34
200.0	0.32	252.78	200.0	0.0	-0.5	0.2	0.82
225.0	0.18	248.38	225.0	0.0	-0.6	0.2	0.56
250.0	0.20	220.42	250.0	-0.1	-0.7	0.2	0.38

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EOW Completion Report



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 Project: Doddridge County WV
 Site: Heflin/McConnell Pad
 Well: Joseph Unit 1H
 Wellbore: Original Wellpath
 Design: As Drilled

Local Co-ordinate Reference: Well Joseph Unit 1H
 TVD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
 MD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
275.0	0.13	291.69	275.0	-0.1	-0.8	0.2	0.80
300.0	0.03	232.23	300.0	-0.1	-0.8	0.2	0.47
325.0	0.09	181.92	325.0	-0.1	-0.8	0.2	0.30
350.0	0.07	162.80	350.0	-0.1	-0.8	0.1	0.13
375.0	0.08	55.25	375.0	-0.1	-0.8	0.1	0.48
400.0	0.03	148.96	400.0	-0.1	-0.8	0.1	0.35
425.0	0.22	88.41	425.0	-0.1	-0.7	0.1	0.83
450.0	0.14	94.16	450.0	-0.1	-0.6	0.1	0.33
475.0	0.19	149.75	475.0	-0.2	-0.6	0.0	0.64
500.0	0.16	64.45	500.0	-0.2	-0.5	0.0	0.95
525.0	0.23	93.34	525.0	-0.2	-0.4	0.0	0.47
550.0	0.27	96.60	550.0	-0.2	-0.3	-0.1	0.17
575.0	0.24	112.97	575.0	-0.2	-0.2	-0.1	0.31
600.0	0.39	117.49	600.0	-0.3	-0.1	-0.2	0.61
625.0	0.35	109.47	625.0	-0.4	0.0	-0.3	0.26
650.0	0.46	107.71	650.0	-0.4	0.2	-0.5	0.44
675.0	0.56	106.90	675.0	-0.5	0.4	-0.6	0.40
700.0	0.49	104.95	700.0	-0.5	0.6	-0.7	0.29
725.0	0.75	108.19	725.0	-0.6	0.9	-0.9	1.05
750.0	1.71	114.01	750.0	-0.8	1.4	-1.2	3.87
775.0	2.72	114.96	775.0	-1.2	2.3	-1.9	4.04
800.0	3.58	112.17	799.9	-1.8	3.5	-2.8	3.49
825.0	3.91	109.47	824.9	-2.3	5.1	-3.8	1.50
850.0	4.91	105.38	849.8	-2.9	6.9	-4.9	4.19
875.0	5.22	106.32	874.7	-3.5	9.0	-6.2	1.28
900.0	5.35	103.59	899.6	-4.1	11.2	-7.5	1.13
925.0	5.76	103.57	924.5	-4.7	13.6	-8.7	1.64
950.0	5.77	102.90	949.4	-5.3	16.0	-10.1	0.27
975.0	5.87	102.36	974.2	-5.8	18.5	-11.4	0.46
1,000.0	5.90	100.28	999.1	-6.3	21.0	-12.6	0.86
1,025.0	6.10	100.95	1,024.0	-6.8	23.6	-13.9	0.85
1,050.0	6.15	102.70	1,048.8	-7.3	26.2	-15.3	0.77
1,075.0	6.15	102.46	1,073.7	-7.9	28.8	-16.6	0.10
1,100.0	6.13	101.86	1,098.5	-8.5	31.4	-18.0	0.27
1,125.0	5.58	99.64	1,123.4	-9.0	33.9	-19.2	2.38
1,150.0	4.58	93.02	1,148.3	-9.2	36.1	-20.2	4.63
1,175.0	4.10	89.37	1,173.2	-9.3	38.0	-20.8	2.21
1,200.0	4.00	89.61	1,198.2	-9.2	39.8	-21.4	0.41
1,225.0	4.06	89.19	1,223.1	-9.2	41.5	-21.9	0.27
1,250.0	3.92	89.56	1,248.0	-9.2	43.3	-22.4	0.57
1,275.0	3.73	93.49	1,273.0	-9.3	45.0	-23.0	1.29
1,300.0	3.57	91.05	1,297.9	-9.3	46.5	-23.6	0.89
1,325.0	3.49	91.23	1,322.9	-9.3	48.1	-24.1	0.32
1,350.0	3.16	92.15	1,347.8	-9.4	49.5	-24.6	1.34

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Project: Doddridge County WV
Site: Heflin/McConnell Pad
Well: Joseph Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Joseph Unit 1H
TVD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
MD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,375.0	3.26	94.95	1,372.8	-9.5	50.9	-25.1	0.74
1,400.0	2.84	95.64	1,397.8	-9.6	52.2	-25.6	1.69
1,425.0	2.73	96.51	1,422.7	-9.7	53.5	-26.1	0.47
1,450.0	2.54	95.51	1,447.7	-9.8	54.6	-26.6	0.78
1,475.0	2.51	95.95	1,472.7	-10.0	55.7	-27.1	0.14
1,500.0	2.36	95.84	1,497.7	-10.1	56.8	-27.5	0.60
1,525.0	2.26	98.29	1,522.6	-10.2	57.8	-27.9	0.56
1,550.0	2.05	100.57	1,547.6	-10.3	58.7	-28.4	0.91
1,575.0	2.02	105.58	1,572.6	-10.5	59.5	-28.8	0.72
1,600.0	1.89	101.25	1,597.6	-10.7	60.4	-29.3	0.79
1,625.0	1.83	101.05	1,622.6	-10.9	61.2	-29.7	0.24
1,650.0	1.80	101.29	1,647.6	-11.1	61.9	-30.1	0.12
1,675.0	1.68	101.58	1,672.6	-11.2	62.7	-30.5	0.48
1,700.0	1.61	101.41	1,697.6	-11.3	63.4	-30.8	0.28
1,725.0	1.60	105.48	1,722.5	-11.5	64.1	-31.2	0.46
1,750.0	1.47	102.45	1,747.5	-11.7	64.7	-31.6	0.61
1,775.0	1.48	104.62	1,772.5	-11.8	65.3	-31.9	0.23
1,800.0	1.49	101.50	1,797.5	-12.0	66.0	-32.2	0.33
1,825.0	1.34	106.40	1,822.5	-12.1	66.6	-32.6	0.77
1,850.0	1.37	100.86	1,847.5	-12.3	67.2	-32.9	0.54
1,875.0	1.36	103.41	1,872.5	-12.4	67.7	-33.2	0.25
1,900.0	1.48	104.71	1,897.5	-12.5	68.3	-33.5	0.50
1,925.0	1.42	101.68	1,922.5	-12.7	69.0	-33.8	0.39
1,950.0	1.36	108.10	1,947.5	-12.8	69.5	-34.2	0.67
1,975.0	1.29	110.64	1,972.5	-13.0	70.1	-34.5	0.37
2,000.0	1.15	104.67	1,997.5	-13.2	70.6	-34.8	0.76
2,025.0	1.14	109.84	2,022.5	-13.3	71.1	-35.1	0.42
2,050.0	1.24	113.92	2,047.4	-13.5	71.5	-35.5	0.52
2,075.0	1.29	116.56	2,072.4	-13.8	72.0	-35.9	0.31
2,100.0	1.36	117.22	2,097.4	-14.0	72.6	-36.3	0.29
2,125.0	1.38	117.10	2,122.4	-14.3	73.1	-36.7	0.08
2,150.0	1.19	124.64	2,147.4	-14.6	73.6	-37.1	1.02
2,175.0	1.17	125.19	2,172.4	-14.9	74.0	-37.5	0.09
2,200.0	1.04	120.13	2,197.4	-15.1	74.4	-37.9	0.65
2,225.0	0.89	124.33	2,222.4	-15.4	74.8	-38.2	0.66
2,250.0	0.78	134.49	2,247.4	-15.6	75.0	-38.5	0.74
2,275.0	0.74	133.04	2,272.4	-15.8	75.3	-38.8	0.18
2,300.0	0.54	134.54	2,297.4	-16.0	75.5	-39.1	0.80
2,325.0	0.56	132.85	2,322.4	-16.2	75.7	-39.3	0.10
2,350.0	0.55	136.95	2,347.4	-16.3	75.8	-39.5	0.16
2,375.0	0.53	147.36	2,372.4	-16.5	76.0	-39.7	0.40
2,400.0	0.50	136.52	2,397.4	-16.7	76.1	-39.9	0.41
2,425.0	0.47	140.13	2,422.4	-16.9	76.2	-40.1	0.17
2,450.0	0.52	122.82	2,447.4	-17.0	76.4	-40.3	0.63
2,475.0	0.58	126.98	2,472.4	-17.1	76.6	-40.5	0.29

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EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Heflin/McConnell Pad
Well: Joseph Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Joseph Unit 1H
TVD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
MD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,500.0	0.52	100.74	2,497.4	-17.2	76.8	-40.7	1.03
2,525.0	0.31	111.43	2,522.4	-17.3	77.0	-40.8	0.89
2,550.0	0.33	109.96	2,547.4	-17.3	77.1	-40.9	0.09
2,575.0	0.35	108.66	2,572.4	-17.4	77.3	-40.9	0.09
2,600.0	0.20	136.42	2,597.4	-17.4	77.4	-41.0	0.79
2,625.0	0.16	128.26	2,622.4	-17.5	77.4	-41.1	0.19
2,650.0	0.12	211.04	2,647.4	-17.5	77.4	-41.1	0.75
2,675.0	0.21	217.92	2,672.4	-17.6	77.4	-41.2	0.37
2,700.0	0.27	226.59	2,697.4	-17.7	77.3	-41.2	0.28
2,725.0	0.42	219.31	2,722.4	-17.8	77.2	-41.3	0.62
2,750.0	0.41	217.74	2,747.4	-17.9	77.1	-41.4	0.06
2,775.0	0.25	203.82	2,772.4	-18.0	77.0	-41.5	0.71
2,800.0	0.32	210.82	2,797.4	-18.2	77.0	-41.6	0.31
2,825.0	0.38	218.21	2,822.4	-18.3	76.9	-41.7	0.30
2,850.0	0.36	213.82	2,847.4	-18.4	76.8	-41.8	0.14
2,875.0	0.38	214.27	2,872.4	-18.5	76.7	-41.9	0.08
2,900.0	0.36	224.46	2,897.4	-18.7	76.6	-42.0	0.27
2,925.0	0.52	217.23	2,922.4	-18.8	76.5	-42.1	0.68
2,950.0	0.45	244.07	2,947.4	-18.9	76.3	-42.1	0.94
2,975.0	0.59	230.85	2,972.4	-19.1	76.1	-42.2	0.73
3,000.0	0.64	233.37	2,997.4	-19.2	75.9	-42.3	0.23
3,025.0	0.59	218.34	3,022.4	-19.4	75.7	-42.4	0.67
3,050.0	0.71	220.42	3,047.4	-19.6	75.5	-42.5	0.49
3,075.0	0.65	223.79	3,072.4	-19.9	75.4	-42.7	0.29
3,100.0	0.63	232.24	3,097.4	-20.0	75.1	-42.8	0.39
3,125.0	0.60	220.18	3,122.4	-20.2	75.0	-42.9	0.53
3,150.0	0.60	227.65	3,147.4	-20.4	74.8	-43.0	0.31
3,175.0	0.62	223.72	3,172.4	-20.6	74.6	-43.2	0.19
3,200.0	0.47	224.97	3,197.4	-20.8	74.4	-43.3	0.60
3,225.0	0.60	224.38	3,222.4	-20.9	74.2	-43.4	0.52
3,250.0	0.56	219.35	3,247.4	-21.1	74.1	-43.5	0.26
3,275.0	0.57	222.49	3,272.4	-21.3	73.9	-43.6	0.13
3,300.0	0.61	220.98	3,297.4	-21.5	73.7	-43.7	0.17
3,325.0	0.60	221.24	3,322.4	-21.7	73.6	-43.9	0.04
3,350.0	0.60	226.56	3,347.4	-21.9	73.4	-44.0	0.22
3,375.0	0.49	213.83	3,372.4	-22.1	73.2	-44.1	0.65
3,400.0	0.61	225.21	3,397.4	-22.3	73.1	-44.2	0.65
3,425.0	0.59	216.69	3,422.4	-22.5	72.9	-44.4	0.37
3,450.0	0.61	216.33	3,447.4	-22.7	72.8	-44.5	0.08
3,475.0	0.69	224.07	3,472.4	-22.9	72.6	-44.7	0.47
3,500.0	0.67	215.49	3,497.4	-23.1	72.4	-44.8	0.41
3,525.0	0.65	215.83	3,522.4	-23.3	72.2	-45.0	0.08
3,550.0	0.55	219.79	3,547.4	-23.5	72.1	-45.1	0.43
3,575.0	0.57	222.08	3,572.4	-23.7	71.9	-45.3	0.12

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EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Heflin/McConnell Pad
Well: Joseph Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Joseph Unit 1H
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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,600.0	0.54	220.83	3,597.4	-23.9	71.7	-45.4	0.13
3,625.0	0.66	224.26	3,622.3	-24.1	71.6	-45.5	0.50
3,650.0	0.55	230.82	3,647.3	-24.3	71.4	-45.6	0.52
3,675.0	0.63	225.61	3,672.3	-24.5	71.2	-45.7	0.38
3,700.0	0.63	233.86	3,697.3	-24.6	71.0	-45.8	0.36
3,725.0	0.73	225.64	3,722.3	-24.8	70.7	-45.9	0.56
3,750.0	0.57	219.80	3,747.3	-25.0	70.5	-46.1	0.69
3,775.0	0.73	220.08	3,772.3	-25.3	70.4	-46.2	0.64
3,800.0	0.61	219.19	3,797.3	-25.5	70.2	-46.4	0.48
3,825.0	0.67	215.60	3,822.3	-25.7	70.0	-46.5	0.29
3,850.0	0.60	216.98	3,847.3	-25.9	69.8	-46.7	0.29
3,875.0	0.40	222.08	3,872.3	-26.1	69.7	-46.8	0.82
3,900.0	0.46	220.99	3,897.3	-26.2	69.6	-46.9	0.24
3,925.0	0.35	230.71	3,922.3	-26.4	69.5	-47.0	0.52
3,950.0	0.55	226.44	3,947.3	-26.5	69.3	-47.1	0.81
3,975.0	0.45	216.44	3,972.3	-26.6	69.2	-47.2	0.53
4,000.0	0.45	221.20	3,997.3	-26.8	69.0	-47.3	0.15
4,025.0	0.50	212.10	4,022.3	-27.0	68.9	-47.4	0.36
4,050.0	0.40	205.34	4,047.3	-27.1	68.8	-47.5	0.45
4,075.0	0.58	217.23	4,072.3	-27.3	68.7	-47.7	0.82
4,100.0	0.53	218.80	4,097.3	-27.5	68.6	-47.8	0.21
4,125.0	0.68	236.22	4,122.3	-27.7	68.4	-47.9	0.94
4,150.0	0.72	224.93	4,147.3	-27.9	68.1	-48.0	0.57
4,175.0	0.66	236.85	4,172.3	-28.1	67.9	-48.1	0.62
4,200.0	0.80	234.16	4,197.3	-28.2	67.6	-48.2	0.58
4,225.0	0.60	216.39	4,222.3	-28.5	67.4	-48.3	1.17
4,250.0	0.69	215.29	4,247.3	-28.7	67.3	-48.5	0.36
4,275.0	0.51	215.19	4,272.3	-28.9	67.1	-48.6	0.72
4,300.0	0.60	207.50	4,297.3	-29.1	67.0	-48.8	0.47
4,325.0	0.56	213.34	4,322.3	-29.3	66.9	-49.0	0.29
4,350.0	0.66	207.58	4,347.3	-29.6	66.7	-49.1	0.47
4,375.0	0.59	189.17	4,372.3	-29.8	66.6	-49.4	0.85
4,400.0	0.46	204.63	4,397.3	-30.0	66.6	-49.5	0.76
4,425.0	0.49	204.90	4,422.3	-30.2	66.5	-49.7	0.12
4,450.0	0.51	205.69	4,447.3	-30.4	66.4	-49.9	0.08
4,475.0	0.48	201.00	4,472.3	-30.6	66.3	-50.0	0.20
4,500.0	0.72	198.61	4,497.3	-30.9	66.2	-50.2	0.96
4,525.0	0.64	195.81	4,522.3	-31.1	66.1	-50.5	0.35
4,550.0	0.58	182.60	4,547.3	-31.4	66.1	-50.7	0.61
4,575.0	0.54	182.75	4,572.3	-31.6	66.1	-50.9	0.16
4,600.0	0.49	174.37	4,597.3	-31.9	66.1	-51.1	0.36
4,625.0	0.49	161.63	4,622.3	-32.1	66.1	-51.4	0.43
4,650.0	0.34	172.31	4,647.3	-32.2	66.2	-51.5	0.67
4,675.0	0.41	181.68	4,672.3	-32.4	66.2	-51.7	0.37

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Heflin/McConnell Pad
Well: Joseph Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Joseph Unit 1H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

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4,700.0	0.48	169.93	4,697.3	-32.6	66.2	-51.9	0.46
4,725.0	0.47	168.68	4,722.3	-32.8	66.2	-52.1	0.06
4,750.0	0.57	178.02	4,747.3	-33.0	66.2	-52.3	0.52
4,775.0	0.59	175.26	4,772.3	-33.3	66.3	-52.5	0.14
4,800.0	0.43	165.83	4,797.3	-33.5	66.3	-52.8	0.72
4,825.0	0.32	183.59	4,822.3	-33.7	66.3	-52.9	0.64
4,850.0	0.38	200.48	4,847.3	-33.8	66.3	-53.1	0.47
4,875.0	0.34	198.01	4,872.3	-34.0	66.2	-53.2	0.17
4,900.0	0.44	194.12	4,897.3	-34.1	66.2	-53.3	0.41
4,925.0	0.36	189.81	4,922.3	-34.3	66.1	-53.5	0.34
4,950.0	0.32	197.95	4,947.3	-34.4	66.1	-53.6	0.25
4,975.0	0.23	207.07	4,972.3	-34.6	66.1	-53.7	0.40
5,000.0	0.39	238.57	4,997.3	-34.6	66.0	-53.7	0.91
5,025.0	0.23	218.47	5,022.3	-34.7	65.9	-53.8	0.76
5,050.0	0.25	208.66	5,047.3	-34.8	65.8	-53.8	0.18
5,075.0	0.30	246.17	5,072.3	-34.9	65.7	-53.9	0.73
5,100.0	0.23	242.46	5,097.3	-34.9	65.6	-53.9	0.29
5,125.0	0.28	230.00	5,122.3	-35.0	65.5	-53.9	0.30
5,150.0	0.33	189.84	5,147.3	-35.1	65.5	-54.0	0.86
5,175.0	0.28	199.74	5,172.3	-35.2	65.4	-54.1	0.29
5,200.0	0.23	207.83	5,197.3	-35.3	65.4	-54.2	0.25
5,225.0	0.40	219.18	5,222.3	-35.4	65.3	-54.3	0.72
5,250.0	0.37	202.04	5,247.3	-35.6	65.2	-54.4	0.47
5,275.0	0.33	197.00	5,272.3	-35.7	65.2	-54.5	0.20
5,300.0	0.14	94.01	5,297.3	-35.8	65.2	-54.6	1.55
5,325.0	0.10	147.43	5,322.3	-35.8	65.2	-54.6	0.45
5,350.0	0.23	198.32	5,347.3	-35.9	65.2	-54.7	0.74
5,375.0	0.46	170.77	5,372.3	-36.0	65.2	-54.8	1.11
5,400.0	0.91	157.74	5,397.3	-36.3	65.3	-55.1	1.89
5,425.0	1.02	150.61	5,422.3	-36.7	65.5	-55.5	0.65
5,450.0	1.05	159.05	5,447.3	-37.1	65.7	-56.0	0.62
5,475.0	1.05	158.40	5,472.3	-37.5	65.9	-56.4	0.05
5,500.0	0.98	152.17	5,497.3	-37.9	66.0	-56.9	0.52
5,525.0	0.95	155.39	5,522.3	-38.3	66.2	-57.3	0.25
5,550.0	0.87	143.11	5,547.3	-38.7	66.4	-57.7	0.84
5,575.0	0.73	142.87	5,572.3	-38.9	66.6	-58.0	0.56
5,600.0	0.74	150.83	5,597.3	-39.2	66.8	-58.3	0.41
5,602.9	0.74	151.76	5,600.1	-39.2	66.8	-58.4	0.42
5,632.0	0.53	215.00	5,629.3	-39.5	66.8	-58.6	2.37
5,664.0	0.71	213.31	5,661.3	-39.8	66.7	-58.8	0.57
5,758.0	0.39	171.83	5,755.2	-40.6	66.4	-59.5	0.52
5,852.0	0.65	192.59	5,849.2	-41.4	66.3	-60.3	0.34
5,947.0	0.46	228.05	5,944.2	-42.2	65.9	-60.9	0.40
6,042.0	0.66	189.59	6,039.2	-43.0	65.5	-61.5	0.44



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6,136.0	0.54	175.09	6,133.2	-44.0	65.5	-62.4	0.20
6,231.0	1.98	27.26	6,228.2	-43.0	66.3	-61.7	2.58
6,325.0	5.16	14.67	6,322.0	-37.4	68.1	-57.1	3.46
6,420.0	6.76	11.94	6,416.5	-27.8	70.3	-48.7	1.71
6,515.0	6.07	2.05	6,510.9	-17.3	71.7	-39.1	1.37
6,609.0	5.99	3.39	6,604.4	-7.5	72.1	-29.9	0.17
6,641.0	5.93	4.35	6,636.2	-4.2	72.4	-26.9	0.36
6,664.0	5.82	4.25	6,659.1	-1.8	72.5	-24.7	0.47
Sycamore							
6,703.0	5.64	4.06	6,697.9	2.1	72.8	-21.1	0.47
6,734.0	8.32	7.96	6,728.7	5.8	73.2	-17.7	8.77
6,766.0	11.79	8.36	6,760.2	11.3	74.0	-12.7	10.85
6,798.0	14.94	9.79	6,791.3	18.6	75.2	-6.1	9.90
6,829.0	18.32	9.37	6,821.0	27.4	76.7	1.7	10.91
6,860.0	21.56	8.51	6,850.1	37.8	78.3	11.1	10.49
6,892.0	25.02	7.31	6,879.5	50.4	80.0	22.4	10.91
6,897.0	25.57	7.16	6,884.0	52.5	80.3	24.4	11.13
Middlesex							
6,923.0	28.45	6.46	6,907.2	64.2	81.7	35.0	11.13
6,954.0	32.38	5.55	6,933.9	79.8	83.3	49.3	12.76
6,986.0	36.03	4.55	6,960.4	97.7	84.9	65.8	11.54
7,017.0	39.80	5.32	6,984.9	116.7	86.6	83.3	12.26
7,048.0	43.37	3.70	7,008.0	137.2	88.2	102.2	12.03
7,079.0	46.81	3.37	7,029.9	159.1	89.5	122.6	11.12
7,081.0	46.98	3.22	7,031.3	160.6	89.6	124.0	10.20
Burkett							
7,109.0	49.41	1.20	7,050.0	181.4	90.4	143.5	10.20
7,125.0	50.97	0.01	7,060.2	193.7	90.5	155.1	11.29
Tully							
7,142.0	52.64	358.81	7,070.7	207.1	90.4	167.8	11.29
7,173.0	56.37	356.74	7,088.7	232.3	89.4	192.1	13.20
7,205.0	60.53	353.89	7,105.4	259.5	87.2	218.5	15.05
7,237.0	65.09	351.11	7,120.1	287.7	83.4	246.5	16.21
7,268.0	69.76	348.69	7,132.0	315.8	78.4	274.8	16.70
7,280.0	71.09	347.92	7,136.0	326.9	76.1	286.0	12.62
Marcellus							
7,300.0	73.31	346.66	7,142.1	345.5	71.9	305.0	12.62
7,332.0	76.16	344.59	7,150.5	375.4	64.3	335.7	10.87
7,364.0	78.92	343.92	7,157.4	405.4	55.8	367.0	8.86
7,395.0	81.31	343.26	7,162.8	434.7	47.1	397.5	7.99
7,427.0	83.10	342.54	7,167.1	465.0	37.8	429.2	6.02
7,458.0	84.69	342.96	7,170.4	494.5	28.7	460.0	5.30
7,487.0	87.21	341.73	7,172.4	522.0	19.9	488.9	9.66
7,520.0	89.90	341.13	7,173.3	553.3	9.4	521.9	8.35
7,536.0	89.53	340.01	7,173.3	568.4	4.1	537.9	7.37

JUN 08 2015



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7,632.0	89.36	337.97	7,174.3	658.0	-30.3	633.8	2.13
7,727.0	88.26	339.85	7,176.2	746.6	-64.5	728.7	2.29
7,821.0	88.62	342.00	7,178.8	835.4	-95.2	822.6	2.32
7,916.0	88.93	342.90	7,180.8	926.0	-123.9	917.6	1.00
8,010.0	88.32	342.83	7,183.1	1,015.8	-151.5	1,011.5	0.65
8,104.0	88.15	341.76	7,186.0	1,105.3	-180.1	1,105.5	1.15
8,199.0	88.66	340.88	7,188.6	1,195.2	-210.5	1,200.4	1.07
8,294.0	89.93	341.71	7,189.8	1,285.2	-241.0	1,295.4	1.60
8,388.0	89.87	340.83	7,190.0	1,374.2	-271.2	1,389.4	0.94
8,483.0	88.86	341.54	7,191.0	1,464.1	-301.8	1,484.4	1.30
8,578.0	88.86	341.00	7,192.9	1,554.1	-332.3	1,579.4	0.57
8,668.0	89.23	343.21	7,194.4	1,639.7	-360.0	1,669.4	2.49
8,758.0	89.26	342.97	7,195.6	1,725.8	-386.1	1,759.3	0.27
8,848.0	90.47	343.76	7,195.8	1,812.1	-411.9	1,849.3	1.61
8,939.0	90.60	341.54	7,195.0	1,898.9	-439.0	1,940.2	2.44
9,030.0	89.77	339.13	7,194.7	1,984.6	-469.7	2,031.2	2.80
9,120.0	90.23	339.52	7,194.7	2,068.8	-501.4	2,121.2	0.67
9,210.0	90.10	340.16	7,194.4	2,153.3	-532.4	2,211.1	0.73
9,301.0	89.63	341.88	7,194.6	2,239.3	-562.0	2,302.1	1.96
9,391.0	90.71	343.37	7,194.4	2,325.2	-588.9	2,392.1	2.04
9,482.0	90.57	342.92	7,193.3	2,412.3	-615.3	2,483.0	0.52
9,572.0	90.30	343.85	7,192.7	2,498.5	-641.0	2,573.0	1.08
9,662.0	89.93	341.52	7,192.5	2,584.5	-667.8	2,663.0	2.62
9,757.0	90.40	340.27	7,192.2	2,674.2	-698.9	2,758.0	1.41
9,853.0	91.74	344.56	7,190.4	2,765.7	-727.9	2,853.9	4.68
9,947.0	90.64	345.26	7,188.5	2,856.4	-752.4	2,947.7	1.39
10,042.0	90.27	343.29	7,187.7	2,947.9	-778.1	3,042.6	2.11
10,137.0	90.20	339.15	7,187.3	3,037.8	-808.7	3,137.6	4.36
10,232.0	90.27	341.88	7,186.9	3,127.3	-840.4	3,232.6	2.87
10,326.0	89.83	339.86	7,186.8	3,216.1	-871.2	3,326.5	2.20
10,421.0	89.53	340.04	7,187.4	3,305.4	-903.7	3,421.5	0.37
10,515.0	89.80	340.97	7,187.9	3,394.0	-935.1	3,515.5	1.03
10,610.0	90.47	339.70	7,187.7	3,483.5	-967.1	3,610.5	1.51
10,702.0	89.53	342.94	7,187.7	3,570.6	-996.5	3,702.5	3.67
10,798.0	89.33	343.66	7,188.6	3,662.5	-1,024.1	3,798.4	0.78
10,893.0	89.13	341.77	7,189.9	3,753.2	-1,052.4	3,893.4	2.00
10,988.0	88.62	340.81	7,191.8	3,843.2	-1,082.8	3,988.3	1.14
11,082.0	89.46	345.78	7,193.4	3,933.2	-1,109.8	4,082.3	5.36
11,177.0	89.23	346.05	7,194.5	4,025.3	-1,132.9	4,177.0	0.37
11,271.0	89.53	345.49	7,195.5	4,116.4	-1,156.0	4,270.7	0.68
11,366.0	89.50	343.09	7,196.3	4,207.9	-1,181.8	4,365.6	2.53
11,462.0	89.43	344.98	7,197.2	4,300.2	-1,208.2	4,461.5	1.97
11,557.0	89.33	343.12	7,198.2	4,391.5	-1,234.3	4,556.4	1.96
11,652.0	89.87	341.33	7,198.9	4,482.0	-1,263.3	4,651.4	1.97



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11,746.0	89.26	339.87	7,199.6	4,570.6	-1,294.5	4,745.4	1.68
11,840.0	90.00	342.42	7,200.2	4,659.6	-1,324.9	4,839.4	2.82
11,934.0	89.30	341.24	7,200.8	4,748.9	-1,354.2	4,933.4	1.46
12,028.0	88.83	339.57	7,202.3	4,837.4	-1,385.7	5,027.3	1.85
12,124.0	87.68	337.46	7,205.2	4,926.7	-1,420.8	5,123.1	2.50
12,218.0	87.92	340.12	7,208.8	5,014.3	-1,454.8	5,216.9	2.84
12,313.0	91.58	343.04	7,209.2	5,104.4	-1,484.8	5,311.9	4.93
12,408.0	90.64	339.66	7,207.4	5,194.3	-1,515.2	5,406.9	3.69
12,503.0	90.54	338.04	7,206.4	5,282.9	-1,549.5	5,501.8	1.71
12,598.0	91.17	340.66	7,205.0	5,371.8	-1,583.0	5,596.7	2.84
12,693.0	89.80	341.58	7,204.2	5,461.7	-1,613.7	5,691.7	1.74
12,787.0	90.00	343.53	7,204.4	5,551.4	-1,641.9	5,785.7	2.09
12,882.0	90.03	345.81	7,204.3	5,643.0	-1,667.0	5,880.5	2.40
12,977.0	89.63	341.71	7,204.6	5,734.2	-1,693.6	5,975.4	4.34
13,072.0	89.90	340.85	7,205.0	5,824.1	-1,724.1	6,070.4	0.95
13,167.0	89.63	340.17	7,205.4	5,913.7	-1,755.8	6,165.4	0.77
13,261.0	89.66	338.54	7,206.0	6,001.7	-1,788.9	6,259.3	1.73
13,356.0	89.39	340.12	7,206.8	6,090.5	-1,822.4	6,354.2	1.69
13,451.0	89.53	340.32	7,207.7	6,179.9	-1,854.6	6,449.2	0.26
13,545.0	89.53	342.80	7,208.4	6,269.1	-1,884.3	6,543.2	2.64
13,640.0	89.66	342.60	7,209.1	6,359.8	-1,912.5	6,638.2	0.25
13,735.0	89.97	341.59	7,209.4	6,450.2	-1,941.8	6,733.2	1.11
13,830.0	89.26	342.12	7,210.1	6,540.5	-1,971.3	6,828.2	0.93
13,924.0	89.40	342.77	7,211.2	6,630.1	-1,999.7	6,922.1	0.71
14,020.0	89.70	341.06	7,211.9	6,721.3	-2,029.5	7,018.1	1.81
14,114.0	90.44	343.14	7,211.8	6,810.8	-2,058.4	7,112.1	2.35
14,210.0	88.89	343.68	7,212.4	6,902.8	-2,085.8	7,208.1	1.71
14,304.0	88.96	343.52	7,214.1	6,992.9	-2,112.3	7,302.0	0.19
14,399.0	88.79	343.01	7,216.0	7,083.9	-2,139.7	7,396.9	0.57
14,494.0	89.76	342.68	7,217.2	7,174.7	-2,167.7	7,491.9	1.08
14,589.0	90.17	341.77	7,217.2	7,265.1	-2,196.7	7,586.9	1.05
14,684.0	90.27	340.84	7,216.9	7,355.1	-2,227.1	7,681.9	0.98
14,779.0	90.00	341.38	7,216.7	7,445.0	-2,257.9	7,776.9	0.64
14,873.0	90.10	341.13	7,216.6	7,534.0	-2,288.1	7,870.9	0.29
14,968.0	89.80	339.14	7,216.7	7,623.3	-2,320.4	7,965.9	2.12
15,063.0	89.80	338.94	7,217.0	7,712.1	-2,354.4	8,060.8	0.21
15,154.0	89.96	340.25	7,217.2	7,797.3	-2,386.1	8,151.7	1.45
15,214.0	89.96	341.50	7,217.2	7,854.0	-2,405.8	8,211.7	2.08

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GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Heflin/McConnell Pad
Well: Joseph Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Joseph Unit 1H
TVD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
MD Reference: Frontier 3 - 1381' GL + 23 @ 1404.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,664.0	6,659.1	-1.8	72.5	Sycamore
6,897.0	6,884.0	52.5	80.3	Middlesex
7,081.0	7,031.3	160.6	89.6	Burkett
7,125.0	7,060.2	193.7	90.5	Tully
7,280.0	7,136.0	326.9	76.1	Marcellus

Checked By: _____ Approved By: _____ Date: _____