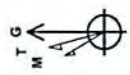


17-06561

Azimuth to Grid North
True North: -0.03°
Magnetic North: -8.52°
Magnetic Field
Strength: 52189.9nT
Dip Angle: 66.80°
Date: 11/20/2014
Model: BGS042014

To convert Magnetic North to Grid, Subtract 8.52°
To convert True North to Grid, Subtract 0.03°



Gene Lightfoot
14-40, April 20 2015
Scientific Drilling
11220 NW 10th Street
Yukon OK 73099

Bierstadt Unit 1H
Doddridge County WV
Northing: 14249825.45
Easting: 1682072.81
As Drilled

WELL DETAILS		Bierstadt Unit 1H	
+N/-S	+E/-W	Northing	Longitude
0.0	0.0	14249825.45	108.0
		Easting	Latitude
		1682072.81	14° 28.654' N 0° 51' 10.348" W

SITE DETAILS: Primm Pad Above Bierstadt/Callie/Shella Pad

Site Center: House Unit 1H
Site Centre Northing: 14249870.09
Easting: 1682112.06

Positional Uncertainty: 2.0
Convergence: 0.09
Local North: Grid

PROJECT DETAILS: Doddridge County WV

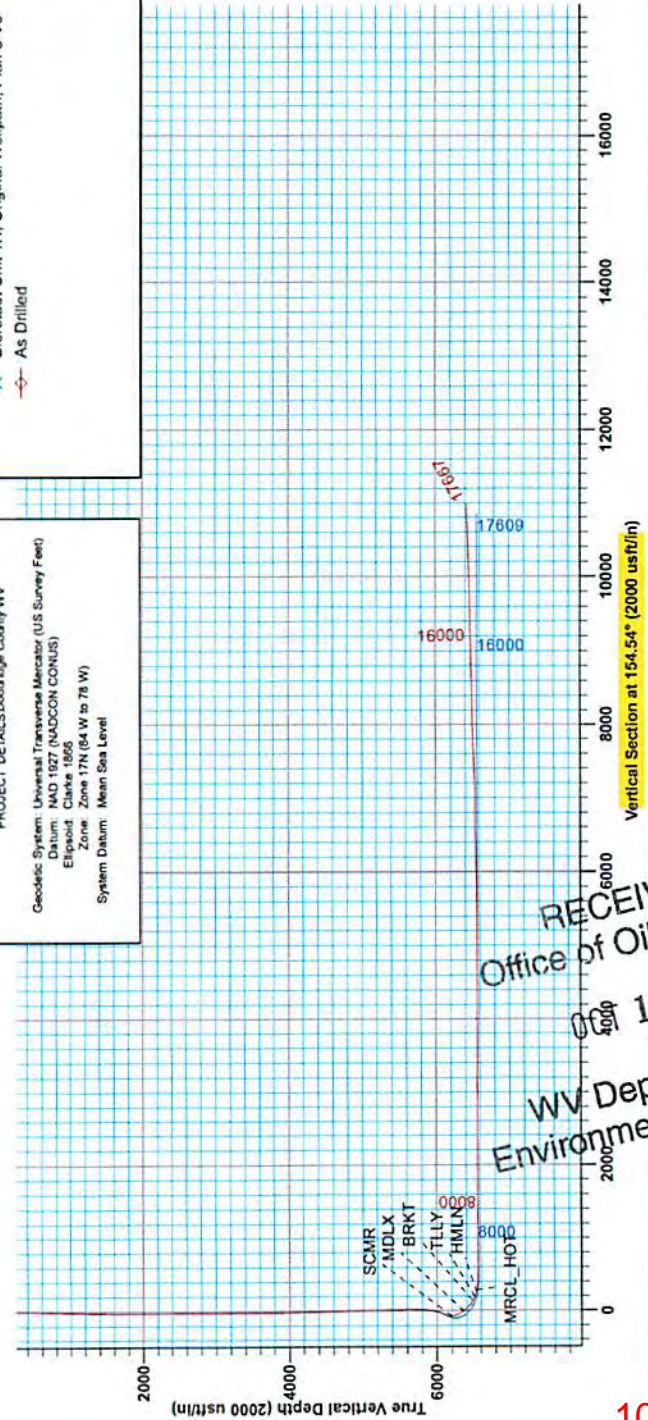
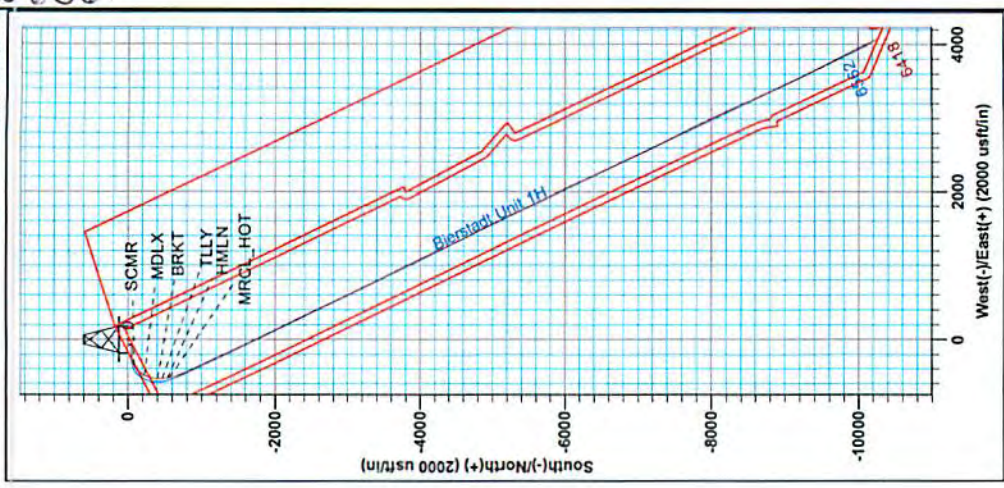
Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1983 (NAD83 CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)
System Datum: Mean Sea Level

LEGEND

- ✕ Bierstadt Unit 1H, Original Wellpath, Plan 5 V0
- As Drilled



Precision 52.5 GL 1008° + KB 1P @ 1027.0usft
Gr. 1008.0



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Antero

Doddridge County WV

Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad

Bierstadt Unit 1H

Original Wellpath

Design: As Drilled

EOW Completion Report

20 April, 2015

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10/30/2015

Company:	Antero	Local Co-ordinate Reference:	Well Bierstadt Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site:	Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference:	Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well:	Bierstadt Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

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

Site	Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad				
Site Position:	Northing:	14,249,870.09 usft	Latitude:	39° 14' 29.095 N	
From: Map	Easting:	1,682,112.06 usft	Longitude:	80° 51' 9.848 W	
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.09 °

Well	Bierstadt Unit 1H, Marcellus				
Well Position	+N/-S	0.0 usft	Northing:	14,249,825.45 usft	
	+E/-W	0.0 usft	Easting:	1,682,072.81 usft	
Position Uncertainty	2.0 usft	Wellhead Elevation:	1,027.0 usft	Ground Level:	1,008.0 usft

Wellbore	Original Wellpath			
-----------------	-------------------	--	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	11/20/2014	-8.43	66.80	52,189

Design	As Drilled			
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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	154.54	

Survey Program	Date 4/20/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
56.0	5,529.1	Survey #6 Def Gyro to KOP (Original Well)	Standard Keeper 104	Standard Wireline Keeper ver 104
5,529.1	17,667.0	Survey #7 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD Standard ver

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Leg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
56.0	0.09	278.29	56.0	0.0	0.0	0.0	0.16
80.9	0.06	74.34	80.9	0.0	-0.1	0.0	0.59
105.1	0.07	97.26	105.1	0.0	0.0	0.0	0.11
106.0	0.07	95.20	106.0	0.0	0.0	0.0	0.28
131.0	0.06	31.73	131.0	0.0	0.0	0.0	0.28
156.0	0.12	126.14	156.0	0.0	0.0	0.0	0.55
181.0	0.14	77.50	181.0	0.0	0.1	0.0	0.43
206.0	0.06	58.42	206.0	0.0	0.1	0.0	0.34
231.0	0.27	87.93	231.0	0.0	0.2	0.1	0.88
256.0	0.20	108.23	256.0	0.0	0.3	0.1	0.43

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Company: Antero	Local Co-ordinate Reference: Well Bierstadt Unit 1H
Project: Doddridge County WV	TVD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
281.0	0.22	98.05	281.0	0.0	0.4	0.2	0.17	
306.0	0.23	86.82	306.0	0.0	0.5	0.2	0.18	
331.0	0.17	106.03	331.0	0.0	0.6	0.3	0.36	
356.0	0.40	95.21	356.0	0.0	0.7	0.3	0.94	
381.0	0.25	135.25	381.0	-0.1	0.8	0.4	1.05	
406.0	0.17	86.14	406.0	-0.1	0.9	0.5	0.76	
431.0	0.06	92.79	431.0	-0.1	0.9	0.5	0.44	
456.0	0.14	270.27	456.0	-0.1	0.9	0.5	0.80	
481.0	0.93	270.28	481.0	-0.1	0.7	0.4	3.16	
506.0	1.69	269.49	506.0	-0.1	0.1	0.1	3.04	
531.0	2.55	268.36	531.0	-0.1	-0.8	-0.2	3.44	
556.0	3.42	270.05	555.9	-0.1	-2.1	-0.8	3.50	
581.0	4.14	268.43	580.9	-0.2	-3.8	-1.5	2.91	
606.0	4.36	270.28	605.8	-0.2	-5.6	-2.2	1.04	
631.0	4.62	270.56	630.7	-0.2	-7.6	-3.1	1.04	
656.0	4.73	270.55	655.7	-0.2	-9.6	-4.0	0.44	
681.0	4.73	269.90	680.6	-0.1	-11.7	-4.9	0.21	
706.0	4.77	269.77	705.5	-0.2	-13.7	-5.8	0.17	
731.0	4.78	270.86	730.4	-0.1	-15.8	-6.7	0.37	
756.0	4.88	270.13	755.3	-0.1	-17.9	-7.6	0.47	
781.0	4.83	270.74	780.2	-0.1	-20.0	-8.5	0.29	
806.0	4.90	269.71	805.1	-0.1	-22.2	-9.4	0.45	
831.0	4.92	270.43	830.0	-0.1	-24.3	-10.4	0.26	
856.0	4.88	270.08	854.9	-0.1	-26.4	-11.3	0.20	
881.0	4.93	269.67	879.9	-0.1	-28.6	-12.2	0.24	
906.0	4.81	269.24	904.8	-0.1	-30.7	-13.1	0.50	
931.0	4.27	267.21	929.7	-0.2	-32.7	-13.9	2.25	
956.0	4.25	266.59	954.6	-0.3	-34.5	-14.6	0.20	
981.0	4.19	266.51	979.5	-0.4	-36.4	-15.3	0.24	
1,006.0	4.14	266.67	1,004.5	-0.5	-38.2	-16.0	0.21	
1,031.0	4.00	266.39	1,029.4	-0.6	-39.9	-16.8	0.57	
1,056.0	3.90	266.55	1,054.4	-0.7	-41.7	-17.3	0.40	
1,081.0	3.76	268.73	1,079.3	-0.8	-43.3	-17.9	0.84	
1,106.0	3.69	267.09	1,104.3	-0.8	-45.0	-18.6	0.51	
1,131.0	3.69	266.22	1,129.2	-0.9	-46.6	-19.2	0.22	
1,156.0	3.48	266.52	1,154.2	-1.0	-48.1	-19.8	0.84	
1,181.0	3.40	267.25	1,179.1	-1.1	-49.6	-20.4	0.36	
1,206.0	3.28	264.26	1,204.1	-1.2	-51.1	-20.9	0.85	
1,231.0	3.17	264.27	1,229.0	-1.4	-52.5	-21.3	0.44	
1,256.0	3.09	264.90	1,254.0	-1.5	-53.8	-21.8	0.35	
1,281.0	2.97	264.47	1,279.0	-1.6	-55.1	-22.3	0.49	
1,306.0	2.94	264.59	1,303.9	-1.7	-56.4	-22.7	0.12	
1,331.0	2.83	263.66	1,328.9	-1.9	-57.7	-23.1	0.48	
1,356.0	2.73	263.86	1,353.9	-2.0	-58.9	-23.5	0.40	

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EOW Completion Report



Company: Antero	Local Co-ordinate Reference: Well Bierstadt Unit 1H
Project: Doddridge County WV	TVD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,381.0	2.62	262.34	1,378.8	-2.1	-60.0	-23.9	0.52
1,406.0	2.52	261.24	1,403.8	-2.3	-61.2	-24.2	0.45
1,431.0	2.38	261.60	1,428.8	-2.4	-62.2	-24.5	0.56
1,456.0	2.24	260.49	1,453.8	-2.6	-63.2	-24.8	0.59
1,481.0	2.13	260.36	1,478.7	-2.8	-64.1	-25.1	0.44
1,506.0	2.08	259.42	1,503.7	-2.9	-65.1	-25.3	0.24
1,531.0	1.99	260.26	1,528.7	-3.1	-65.9	-25.6	0.38
1,556.0	1.98	258.27	1,553.7	-3.2	-66.8	-25.8	0.28
1,581.0	1.96	260.04	1,578.7	-3.4	-67.6	-26.0	0.26
1,606.0	1.89	258.75	1,603.7	-3.6	-68.4	-26.2	0.33
1,631.0	1.87	256.70	1,628.7	-3.7	-69.2	-26.4	0.28
1,656.0	1.67	257.74	1,653.6	-3.9	-70.0	-26.6	0.81
1,681.0	1.71	253.95	1,678.6	-4.1	-70.7	-26.7	0.47
1,706.0	1.57	255.87	1,703.6	-4.3	-71.4	-26.8	0.60
1,731.0	1.45	251.66	1,728.6	-4.5	-72.0	-26.9	0.65
1,756.0	1.28	250.69	1,753.6	-4.6	-72.6	-27.0	0.69
1,781.0	1.25	248.32	1,778.6	-4.8	-73.1	-27.1	0.24
1,806.0	1.27	245.22	1,803.6	-5.1	-73.6	-27.1	0.28
1,831.0	1.21	244.02	1,828.6	-5.3	-74.1	-27.1	0.26
1,856.0	1.07	241.66	1,853.6	-5.5	-74.6	-27.1	0.59
1,881.0	1.19	238.78	1,878.6	-5.8	-75.0	-27.0	0.53
1,906.0	1.17	239.75	1,903.6	-6.0	-75.4	-27.0	0.11
1,931.0	1.06	240.96	1,928.6	-6.3	-75.8	-26.9	0.45
1,956.0	0.97	240.28	1,953.6	-6.5	-76.2	-26.9	0.36
1,981.0	1.00	241.87	1,978.6	-6.7	-76.6	-26.9	0.16
2,006.0	1.03	241.49	2,003.6	-6.9	-77.0	-26.9	0.12
2,031.0	0.97	240.35	2,028.6	-7.1	-77.4	-26.8	0.25
2,056.0	0.84	241.24	2,053.5	-7.3	-77.7	-26.8	0.52
2,081.0	0.93	240.14	2,078.5	-7.5	-78.1	-26.8	0.37
2,106.0	0.94	241.18	2,103.5	-7.7	-78.4	-26.8	0.98
2,131.0	0.84	236.31	2,128.5	-7.9	-78.7	-26.7	0.50
2,156.0	0.78	239.59	2,153.5	-8.1	-79.0	-26.7	0.36
2,181.0	0.78	241.23	2,178.5	-8.2	-79.3	-26.7	0.69
2,206.0	0.85	231.56	2,203.5	-8.4	-79.6	-26.6	0.62
2,231.0	0.67	235.54	2,228.5	-8.6	-79.9	-26.6	0.75
2,256.0	0.74	237.25	2,253.5	-8.8	-80.2	-26.5	0.29
2,281.0	0.56	238.72	2,278.5	-9.0	-80.4	-26.5	0.72
2,306.0	0.64	241.54	2,303.5	-9.1	-80.6	-26.4	0.34
2,331.0	0.65	233.12	2,328.5	-9.2	-80.9	-26.4	0.38
2,356.0	0.59	233.28	2,353.5	-9.4	-81.1	-26.4	0.24
2,381.0	0.65	244.33	2,378.5	-9.5	-81.3	-26.3	0.53
2,406.0	0.69	231.20	2,403.5	-9.7	-81.6	-26.3	0.63
2,431.0	0.75	228.07	2,428.5	-9.9	-81.8	-26.2	0.29
2,456.0	0.87	227.92	2,453.5	-10.1	-82.1	-26.1	0.48
2,481.0	0.43	219.85	2,478.5	-10.3	-82.3	-26.0	1.79

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EOW Completion Report



Company: Antero	Local Co-ordinate Reference: Well Bierstadt Unit 1H
Project: Doddridge County WV	TVD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,506.0	0.42	221.58	2,503.5	-10.5	-82.4	-25.9	0.07
2,531.0	0.42	221.33	2,528.5	-10.6	-82.5	-25.9	0.01
2,556.0	0.37	214.66	2,553.5	-10.8	-82.6	-25.8	0.27
2,581.0	0.32	217.01	2,578.5	-10.9	-82.7	-25.7	0.21
2,606.0	0.36	217.98	2,603.5	-11.0	-82.8	-25.7	0.16
2,631.0	0.40	220.41	2,628.5	-11.1	-82.9	-25.6	0.17
2,656.0	0.31	213.54	2,653.5	-11.2	-83.0	-25.5	0.40
2,681.0	0.32	226.84	2,678.5	-11.4	-83.1	-25.5	0.29
2,706.0	0.33	223.37	2,703.5	-11.5	-83.2	-25.4	0.09
2,731.0	0.34	225.73	2,728.5	-11.6	-83.3	-25.4	0.07
2,756.0	0.27	235.13	2,753.5	-11.6	-83.4	-25.3	0.34
2,781.0	0.28	214.80	2,778.5	-11.7	-83.5	-25.3	0.39
2,806.0	0.30	225.38	2,803.5	-11.8	-83.5	-25.2	0.23
2,831.0	0.28	219.64	2,828.5	-11.9	-83.6	-25.2	0.14
2,856.0	0.34	222.62	2,853.5	-12.0	-83.7	-25.1	0.25
2,881.0	0.30	221.38	2,878.5	-12.1	-83.8	-25.1	0.16
2,906.0	0.36	217.17	2,903.5	-12.2	-83.9	-25.0	0.26
2,931.0	0.35	218.35	2,928.5	-12.4	-84.0	-25.0	0.05
2,956.0	0.29	215.43	2,953.5	-12.5	-84.1	-24.9	0.25
2,981.0	0.34	210.05	2,978.5	-12.6	-84.2	-24.8	0.23
3,006.0	0.28	208.56	3,003.5	-12.7	-84.2	-24.7	0.24
3,031.0	0.36	207.98	3,028.5	-12.8	-84.3	-24.7	0.32
3,056.0	0.42	196.69	3,053.5	-13.0	-84.4	-24.5	0.39
3,081.0	0.38	188.95	3,078.5	-13.1	-84.4	-24.4	0.27
3,106.0	0.30	189.83	3,103.5	-13.3	-84.4	-24.3	0.32
3,131.0	0.36	183.57	3,128.5	-13.4	-84.4	-24.2	0.28
3,156.0	0.35	183.26	3,153.5	-13.6	-84.4	-24.0	0.04
3,181.0	0.32	183.76	3,178.5	-13.7	-84.4	-23.9	0.12
3,206.0	0.35	186.11	3,203.5	-13.9	-84.5	-23.8	0.13
3,231.0	0.32	180.13	3,228.5	-14.0	-84.5	-23.8	0.18
3,256.0	0.36	183.96	3,253.5	-14.2	-84.5	-23.5	0.18
3,281.0	0.33	173.67	3,278.5	-14.3	-84.5	-23.4	0.27
3,306.0	0.26	179.52	3,303.5	-14.5	-84.5	-23.3	0.30
3,331.0	0.30	173.25	3,328.5	-14.6	-84.5	-23.1	0.28
3,356.0	0.24	181.51	3,353.5	-14.7	-84.4	-23.0	0.29
3,381.0	0.26	188.61	3,378.5	-14.8	-84.5	-22.8	0.15
3,406.0	0.25	180.38	3,403.5	-14.9	-84.5	-22.8	0.15
3,431.0	0.28	184.89	3,428.5	-15.0	-84.5	-22.7	0.15
3,456.0	0.30	193.62	3,453.5	-15.2	-84.5	-22.6	0.19
3,481.0	0.24	193.00	3,478.5	-15.3	-84.5	-22.5	0.24
3,506.0	0.30	191.51	3,503.5	-15.4	-84.5	-22.5	0.24
3,531.0	0.26	182.48	3,528.5	-15.5	-84.6	-22.4	0.24
3,556.0	0.26	187.44	3,553.5	-15.6	-84.6	-22.3	0.09
3,581.0	0.27	179.57	3,578.5	-15.7	-84.6	-22.2	0.15

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Company:	Antero	Local Co-ordinate Reference:	Well Bierstadt Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site:	Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference:	Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well:	Bierstadt Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
3,606.0	0.28	183.00	3,603.5	-15.9	-84.6	-22.0	0.08	
3,631.0	0.33	191.86	3,628.5	-16.0	-84.6	-21.9	0.27	
3,656.0	0.34	190.10	3,653.5	-16.1	-84.6	-21.8	0.06	
3,681.0	0.36	181.21	3,678.5	-16.3	-84.6	-21.7	0.23	
3,706.0	0.34	178.23	3,703.5	-16.4	-84.6	-21.6	0.11	
3,731.0	0.34	163.68	3,728.5	-16.6	-84.6	-21.4	0.34	
3,756.0	0.33	159.38	3,753.5	-16.7	-84.6	-21.3	0.11	
3,781.0	0.29	167.89	3,778.5	-16.8	-84.5	-21.1	0.24	
3,806.0	0.34	174.50	3,803.5	-17.0	-84.5	-21.0	0.25	
3,831.0	0.40	171.90	3,828.5	-17.1	-84.5	-20.8	0.25	
3,856.0	0.35	159.21	3,853.5	-17.3	-84.5	-20.7	0.39	
3,881.0	0.44	162.89	3,878.5	-17.5	-84.4	-20.5	0.37	
3,906.0	0.40	157.35	3,903.5	-17.6	-84.3	-20.3	0.23	
3,931.0	0.43	148.49	3,928.5	-17.8	-84.3	-20.2	0.28	
3,956.0	0.32	132.36	3,953.5	-17.9	-84.2	-20.0	0.61	
3,981.0	0.34	142.95	3,978.5	-18.0	-84.1	-19.9	0.26	
4,006.0	0.42	154.77	4,003.5	-18.2	-84.0	-19.7	0.45	
4,031.0	0.49	152.00	4,028.5	-18.3	-83.9	-19.5	0.29	
4,056.0	0.53	139.55	4,053.5	-18.5	-83.8	-19.3	0.47	
4,081.0	0.72	146.96	4,078.5	-18.7	-83.6	-19.0	0.82	
4,106.0	0.76	131.97	4,103.5	-19.0	-83.4	-18.7	0.79	
4,131.0	0.80	137.08	4,128.5	-19.2	-83.1	-18.4	0.32	
4,156.0	0.77	135.27	4,153.5	-19.5	-82.9	-18.1	0.16	
4,181.0	0.80	138.60	4,178.5	-19.7	-82.7	-17.7	0.22	
4,206.0	0.92	131.77	4,203.5	-20.0	-82.4	-17.4	0.63	
4,231.0	1.06	133.92	4,228.5	-20.3	-82.1	-17.0	0.58	
4,256.0	1.19	132.94	4,253.5	-20.6	-81.7	-16.5	0.53	
4,281.0	1.24	133.82	4,278.5	-21.0	-81.4	-16.0	0.21	
4,306.0	1.30	133.08	4,303.5	-21.4	-81.0	-15.5	0.25	
4,331.0	1.44	133.46	4,328.4	-21.8	-80.5	-15.0	0.56	
4,356.0	1.48	133.40	4,353.4	-22.2	-80.1	-14.5	0.16	
4,381.0	1.54	133.48	4,378.4	-22.7	-79.6	-13.7	0.24	
4,406.0	1.58	132.50	4,403.4	-23.1	-79.1	-13.0	0.19	
4,431.0	1.59	132.14	4,428.4	-23.6	-78.6	-12.5	0.08	
4,456.0	1.59	132.63	4,453.4	-24.1	-78.1	-11.8	0.08	
4,481.0	1.63	133.39	4,478.4	-24.5	-77.5	-11.0	0.18	
4,506.0	1.62	130.01	4,503.4	-25.0	-77.0	-10.5	0.39	
4,531.0	1.67	132.69	4,528.4	-25.5	-76.5	-9.9	0.37	
4,556.0	1.70	132.48	4,553.4	-26.0	-75.9	-9.2	0.12	
4,581.0	1.73	133.03	4,578.3	-26.5	-75.4	-8.5	0.14	
4,606.0	1.78	131.89	4,603.3	-27.0	-74.8	-7.8	0.24	
4,631.0	1.73	136.52	4,628.3	-27.5	-74.3	-7.1	0.60	
4,656.0	1.83	133.93	4,653.3	-28.1	-73.7	-6.3	0.51	
4,681.0	1.81	133.99	4,678.3	-28.6	-73.1	-5.6	0.08	

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EOW Completion Report



Company: Antero	Local Co-ordinate Reference: Well Bierstadt Unit 1H
Project: Doddridge County WV	TVD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
4,706.0	1.80	136.00	4,703.3	-29.2	-72.6	-4.8	0.26
4,731.0	1.87	136.04	4,728.3	-29.8	-72.0	-4.1	0.28
4,756.0	1.86	137.42	4,753.3	-30.4	-71.5	-3.3	0.18
4,781.0	1.94	135.42	4,778.2	-31.0	-70.9	-2.5	0.42
4,806.0	1.93	137.50	4,803.2	-31.6	-70.3	-1.7	0.28
4,831.0	1.91	137.90	4,828.2	-32.2	-69.8	-0.9	0.10
4,856.0	1.92	136.83	4,853.2	-32.8	-69.2	-0.1	0.15
4,881.0	1.93	138.86	4,878.2	-33.4	-68.6	0.7	0.28
4,906.0	1.90	140.94	4,903.2	-34.1	-68.1	1.5	0.30
4,931.0	1.82	142.41	4,928.2	-34.7	-67.6	2.3	0.37
4,956.0	1.75	141.18	4,953.2	-35.3	-67.1	3.0	0.32
4,981.0	1.67	142.06	4,978.1	-35.9	-66.6	3.8	0.34
5,006.0	1.52	144.39	5,003.1	-36.5	-66.2	4.5	0.65
5,031.0	1.43	148.22	5,028.1	-37.0	-65.9	5.1	0.53
5,056.0	1.40	141.42	5,053.1	-37.5	-65.5	5.7	0.68
5,081.0	1.29	144.89	5,078.1	-38.0	-65.2	6.3	0.55
5,106.0	1.22	145.54	5,103.1	-38.4	-64.9	6.8	0.29
5,131.0	1.12	146.86	5,128.1	-38.9	-64.6	7.3	0.41
5,156.0	1.19	145.38	5,153.1	-39.3	-64.3	7.8	0.30
5,181.0	1.04	145.45	5,178.1	-39.7	-64.0	8.3	0.60
5,206.0	0.84	154.93	5,203.1	-40.0	-63.8	8.7	1.01
5,231.0	0.73	147.15	5,228.1	-40.3	-63.6	9.0	0.61
5,256.0	0.59	158.53	5,253.1	-40.6	-63.5	9.3	0.76
5,281.0	0.71	151.05	5,278.1	-40.8	-63.4	9.6	0.59
5,306.0	0.67	146.39	5,303.1	-41.1	-63.2	9.9	0.28
5,331.0	0.79	147.57	5,328.1	-41.4	-63.1	10.2	0.48
5,356.0	0.85	154.10	5,353.1	-41.7	-62.9	10.6	0.44
5,381.0	0.77	145.88	5,378.1	-42.0	-62.7	10.9	0.56
5,406.0	0.89	159.14	5,403.1	-42.3	-62.5	11.3	0.90
5,431.0	1.00	141.37	5,428.1	-42.6	-62.3	11.7	1.25
5,456.0	0.97	134.62	5,453.1	-43.0	-62.1	12.1	0.48
5,481.0	0.97	132.73	5,478.1	-43.3	-61.7	12.5	0.13
5,506.0	0.99	139.40	5,503.1	-43.6	-61.4	12.9	0.46
5,529.1	1.01	139.54	5,526.1	-43.9	-61.2	13.3	0.09
5,562.0	1.04	137.18	5,559.0	-44.3	-60.8	13.9	0.16
5,607.0	0.88	149.68	5,604.0	-44.9	-60.3	14.6	0.58
5,652.0	1.00	146.79	5,649.0	-45.5	-60.0	15.3	0.29
5,697.0	0.88	143.88	5,694.0	-46.1	-59.5	16.1	0.29
5,742.0	2.58	251.25	5,739.0	-46.7	-60.3	16.3	6.59
5,787.0	8.97	260.07	5,783.8	-47.7	-64.7	15.2	14.29
5,832.0	14.16	264.45	5,827.8	-48.8	-73.7	12.4	11.69
5,877.0	19.08	265.60	5,870.9	-49.9	-86.5	7.9	10.96
5,921.0	24.06	265.31	5,911.8	-51.2	-102.6	2.1	11.32
5,966.0	29.11	265.43	5,952.1	-52.8	-122.7	-5.0	11.22

Company: Antero	Local Co-ordinate Reference: Well Bierstadt Unit 1H
Project: Doddridge County WV	TVD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey

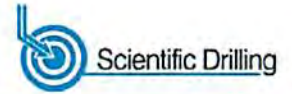
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
6,011.0	33.96	267.05	5,990.4	-54.3	-146.1	-13.8	10.94
6,056.0	38.12	267.58	6,026.8	-55.6	-172.6	-24.0	9.27
6,101.0	43.35	267.72	6,060.9	-56.8	-201.9	-35.5	11.62
6,146.0	47.99	267.33	6,092.3	-58.2	-234.1	-48.1	10.33
6,190.0	50.47	265.44	6,121.1	-60.3	-267.3	-60.5	6.51
6,235.0	49.57	257.21	6,150.0	-65.5	-301.3	-70.4	14.15
6,280.0	50.26	248.87	6,179.0	-75.5	-334.2	-75.5	14.26
6,307.0	50.60	242.86	6,196.2	-84.0	-353.2	-76.0	17.21
SCMR							
6,325.0	51.00	238.89	6,207.6	-90.8	-365.4	-75.1	17.21
6,370.0	50.78	232.14	6,236.0	-110.5	-394.1	-69.6	11.65
6,415.0	49.95	224.56	6,264.7	-133.5	-420.0	-60.0	13.10
6,459.0	49.22	219.37	6,293.3	-158.4	-442.4	-47.1	9.13
6,504.0	49.77	215.78	6,322.5	-185.5	-463.2	-31.6	6.19
6,549.0	50.68	211.09	6,351.3	-214.4	-482.3	-13.8	8.26
6,566.0	51.22	208.33	6,362.0	-225.8	-488.8	-6.2	13.02
MDLX							
6,594.0	52.24	203.87	6,379.4	-245.6	-498.5	7.4	13.02
6,639.0	54.31	197.44	6,406.3	-279.3	-511.2	32.4	12.34
6,684.0	56.63	192.40	6,431.8	-315.1	-520.7	60.7	10.57
6,728.0	59.47	187.53	6,455.1	-351.9	-527.1	91.1	11.39
6,773.0	63.08	183.53	6,476.7	-391.1	-530.9	124.9	11.18
6,786.0	64.11	182.47	6,482.5	-402.8	-531.5	135.2	10.73
BRKT							
6,818.0	66.66	179.95	6,495.8	-431.8	-532.1	161.2	10.73
6,855.0	69.43	177.21	6,509.7	-466.1	-531.3	192.5	10.15
TLLY							
6,863.0	70.03	176.63	6,512.4	-473.6	-530.9	179.9	10.15
6,908.0	73.88	172.52	6,526.4	-516.2	-526.8	239.8	12.19
6,930.0	75.64	171.05	6,532.2	-537.2	-523.8	258.9	10.27
HMLN							
6,953.0	77.48	169.53	6,537.5	-559.3	-520.0	281.9	10.27
6,957.0	77.77	169.27	6,538.4	-563.1	-519.3	285.2	9.63
MRCL_HOT							
6,998.0	80.73	166.61	6,546.0	-602.5	-510.8	324.4	9.63
7,042.0	83.71	163.54	6,552.0	-644.6	-499.6	367.2	9.68
7,087.0	86.24	159.92	6,555.9	-687.2	-485.6	411.7	9.79
7,153.0	89.43	155.25	6,558.4	-748.1	-460.4	477.5	8.56
7,243.0	89.66	155.00	6,559.1	-829.7	-422.6	567.5	0.38
7,333.0	89.63	154.79	6,559.7	-911.2	-384.4	657.5	0.24
7,422.0	89.80	154.67	6,560.1	-991.7	-346.4	746.5	0.23
7,512.0	89.63	155.21	6,560.6	-1,073.3	-308.3	836.5	0.63
7,602.0	89.87	154.86	6,561.0	-1,154.8	-270.3	926.5	0.47
7,691.0	89.60	154.96	6,561.4	-1,235.4	-232.5	1,015.5	0.32
7,781.0	90.84	155.42	6,561.0	-1,317.1	-194.8	1,105.5	1.47

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EOW Completion Report



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Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

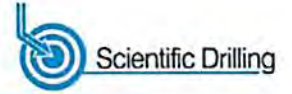
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,871.0	90.40	155.10	6,560.1	-1,398.9	-157.1	1,195.5	0.60
7,960.0	90.00	154.97	6,559.7	-1,479.6	-119.6	1,284.5	0.47
8,050.0	89.80	154.29	6,559.9	-1,560.9	-81.0	1,374.5	0.79
8,140.0	89.76	153.54	6,560.2	-1,641.7	-41.4	1,464.5	0.83
8,229.0	89.53	155.03	6,560.8	-1,721.9	-2.8	1,553.5	1.69
8,319.0	89.30	154.52	6,561.7	-1,803.3	35.5	1,643.5	0.62
8,409.0	90.30	155.04	6,562.0	-1,884.7	73.9	1,733.4	1.25
8,498.0	90.10	154.21	6,561.7	-1,965.1	112.0	1,822.4	0.96
8,588.0	89.40	153.56	6,562.1	-2,045.9	151.6	1,912.4	1.06
8,678.0	90.30	155.13	6,562.4	-2,127.1	190.6	2,002.4	2.01
8,768.0	90.20	154.52	6,562.0	-2,208.5	228.9	2,092.4	0.69
8,857.0	89.73	154.28	6,562.0	-2,288.8	267.4	2,181.4	0.59
8,947.0	89.90	154.61	6,562.3	-2,370.0	306.2	2,271.4	0.41
9,037.0	90.47	154.22	6,562.0	-2,451.1	345.0	2,361.4	0.77
9,126.0	90.47	155.51	6,561.3	-2,531.7	382.8	2,450.4	1.45
9,216.0	90.40	155.50	6,560.6	-2,613.6	420.2	2,540.4	0.08
9,306.0	89.67	155.58	6,560.5	-2,695.5	457.4	2,630.4	0.82
9,395.0	89.66	155.54	6,561.1	-2,776.6	494.2	2,719.4	0.05
9,485.0	89.70	154.99	6,561.6	-2,858.3	531.9	2,809.4	0.61
9,575.0	91.14	155.70	6,560.9	-2,940.1	569.4	2,899.4	1.78
9,664.0	90.13	155.46	6,559.9	-3,021.1	606.2	2,988.3	1.17
9,754.0	90.10	154.96	6,559.7	-3,102.8	644.0	3,078.3	0.56
9,843.0	90.54	154.58	6,559.2	-3,183.3	681.9	3,167.3	0.65
9,933.0	88.36	154.41	6,560.1	-3,264.6	720.7	3,257.3	2.43
10,023.0	88.12	154.25	6,562.9	-3,345.6	759.6	3,347.3	0.32
10,113.0	89.30	153.47	6,564.9	-3,426.4	799.3	3,437.2	1.57
10,202.0	90.03	153.88	6,565.4	-3,506.2	838.7	3,526.2	0.94
10,292.0	89.87	153.01	6,565.5	-3,586.7	879.0	3,616.2	0.98
10,382.0	89.83	153.15	6,565.7	-3,666.9	919.7	3,706.2	0.16
10,471.0	90.61	154.52	6,565.4	-3,746.8	959.0	3,795.2	1.77
10,561.0	90.37	153.49	6,564.6	-3,827.7	998.4	3,885.2	1.18
10,651.0	91.01	155.07	6,563.5	-3,908.8	1,037.5	3,975.2	1.89
10,740.0	90.81	153.90	6,562.1	-3,989.1	1,075.8	4,064.1	1.33
10,830.0	90.27	155.11	6,561.3	-4,070.3	1,114.5	4,154.1	1.44
10,920.0	89.97	155.66	6,561.1	-4,152.1	1,152.0	4,244.1	0.70
11,009.0	89.83	155.78	6,561.2	-4,233.3	1,188.6	4,333.1	0.21
11,099.0	89.73	155.67	6,561.6	-4,315.3	1,225.6	4,423.1	0.17
11,189.0	89.40	155.29	6,562.3	-4,397.2	1,263.0	4,513.1	0.56
11,278.0	91.21	155.08	6,561.8	-4,478.0	1,300.3	4,602.1	2.05
11,368.0	90.84	154.13	6,560.2	-4,559.2	1,338.9	4,692.0	1.13
11,458.0	90.40	153.29	6,559.2	-4,639.9	1,378.8	4,782.0	1.05
11,548.0	90.03	153.03	6,558.9	-4,720.2	1,419.4	4,872.0	0.50
11,637.0	90.00	152.56	6,558.9	-4,799.4	1,460.1	4,961.0	0.53
11,727.0	90.03	154.71	6,558.8	-4,880.0	1,500.0	5,050.9	2.39

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Department of

17-06561



EOW Completion Report



Company: Antero	Local Co-ordinate Reference: Well Bierstadt Unit 1H
Project: Doddridge County WV	TVD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey

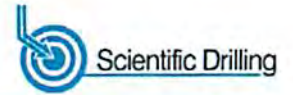
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,817.0	89.97	155.34	6,558.8	-4,961.6	1,538.0	5,140.9	0.70
11,906.0	90.60	154.61	6,558.4	-5,042.2	1,575.7	5,229.9	1.08
11,996.0	88.83	152.74	6,558.8	-5,122.9	1,615.6	5,319.9	2.86
12,085.0	89.13	154.21	6,560.4	-5,202.5	1,655.3	5,408.9	1.69
12,175.0	89.97	155.73	6,561.1	-5,284.1	1,693.4	5,498.9	1.93
12,265.0	90.87	156.19	6,560.5	-5,366.3	1,730.1	5,588.8	1.12
12,354.0	91.28	156.80	6,558.8	-5,447.9	1,765.6	5,677.8	0.83
12,444.0	90.60	156.40	6,557.3	-5,530.4	1,801.3	5,767.7	0.88
12,534.0	90.94	154.83	6,556.1	-5,612.4	1,838.5	5,857.7	1.78
12,624.0	91.85	153.75	6,553.9	-5,693.5	1,877.5	5,947.6	1.57
12,713.0	91.21	152.12	6,551.5	-5,772.7	1,918.0	6,036.6	1.97
12,803.0	90.71	152.38	6,550.0	-5,852.3	1,959.9	6,126.5	0.63
12,893.0	92.32	153.56	6,547.7	-5,932.5	2,000.8	6,216.4	2.22
12,982.0	92.24	152.14	6,544.1	-6,011.6	2,041.3	6,305.3	1.60
13,072.0	94.26	155.81	6,539.0	-6,092.3	2,080.7	6,395.1	4.65
13,162.0	92.58	156.53	6,533.6	-6,174.5	2,117.0	6,484.9	2.03
13,251.0	92.52	156.50	6,529.7	-6,256.0	2,152.5	6,573.8	0.08
13,341.0	90.91	156.23	6,527.0	-6,338.5	2,188.5	6,663.7	1.81
13,431.0	88.93	154.85	6,527.1	-6,420.4	2,225.8	6,753.7	2.68
13,521.0	89.36	154.14	6,528.5	-6,501.6	2,264.6	6,843.7	0.92
13,610.0	89.46	154.53	6,529.4	-6,581.8	2,303.1	6,932.7	0.45
13,700.0	90.70	154.35	6,529.2	-6,663.0	2,341.9	7,022.7	1.39
13,790.0	90.91	153.98	6,528.0	-6,744.0	2,381.1	7,112.7	0.47
13,879.0	92.15	156.19	6,525.6	-6,824.7	2,418.6	7,201.6	2.85
13,969.0	92.22	155.60	6,522.2	-6,906.8	2,455.4	7,291.5	0.66
14,059.0	91.58	155.25	6,519.2	-6,988.6	2,492.8	7,381.5	0.81
14,148.0	91.68	154.72	6,516.7	-7,069.2	2,530.4	7,470.4	0.61
14,238.0	90.34	153.29	6,515.1	-7,150.1	2,569.8	7,560.4	2.18
14,328.0	92.82	154.06	6,512.6	-7,230.7	2,609.7	7,650.4	2.89
14,417.0	91.74	153.39	6,509.1	-7,310.4	2,649.1	7,739.3	1.43
14,507.0	92.12	154.55	6,506.0	-7,391.3	2,688.5	7,829.3	1.36
14,597.0	91.14	152.86	6,503.5	-7,471.9	2,728.4	7,919.2	2.17
14,687.0	92.05	153.72	6,501.0	-7,552.3	2,768.8	8,009.1	1.39
14,776.0	90.23	150.58	6,499.2	-7,630.9	2,810.4	8,099.0	1.08
14,866.0	91.07	153.37	6,498.2	-7,710.4	2,852.7	8,187.9	3.24
14,956.0	90.67	152.01	6,496.8	-7,790.3	2,894.0	8,277.8	1.57
15,045.0	90.81	154.20	6,495.6	-7,869.7	2,934.2	8,366.8	2.47
15,135.0	92.62	155.90	6,493.0	-7,951.2	2,972.2	8,456.7	2.76
15,225.0	92.92	154.47	6,488.6	-8,032.8	3,009.9	8,546.6	1.62
15,315.0	91.61	156.25	6,485.0	-8,114.6	3,047.4	8,636.5	2.45
15,404.0	90.17	155.28	6,483.7	-8,195.7	3,083.9	8,725.5	1.95
15,494.0	90.97	155.71	6,482.8	-8,277.6	3,121.2	8,815.5	1.01
15,584.0	92.02	155.75	6,480.4	-8,359.6	3,158.2	8,905.4	1.17
15,673.0	92.25	155.26	6,477.1	-8,440.6	3,195.1	8,994.4	0.61
15,763.0	91.54	155.16	6,474.1	-8,522.2	3,232.8	9,084.3	0.80

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Site: Primm Pad: Ahouse/Bierstadt/Callie/Stella Pad	MD Reference: Precision 525: GL 1008' + KB 19' @ 1027.0usft
Well: Bierstadt Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
15,853.0	91.01	155.19	6,472.1	-8,603.9	3,270.6	9,174.3	0.59
15,942.0	91.51	156.12	6,470.2	-8,684.9	3,307.3	9,263.2	1.19
16,032.0	91.68	155.79	6,467.7	-8,767.1	3,343.9	9,353.2	0.41
16,122.0	90.84	155.02	6,465.7	-8,848.9	3,381.4	9,443.1	1.27
16,212.0	90.10	155.21	6,464.9	-8,930.6	3,419.2	9,533.1	0.85
16,301.0	91.21	155.20	6,463.9	-9,011.3	3,456.6	9,622.1	1.25
16,391.0	92.45	155.07	6,461.1	-9,093.0	3,494.4	9,712.1	1.39
16,481.0	92.39	154.38	6,457.3	-9,174.3	3,532.8	9,802.0	0.77
16,571.0	91.71	153.68	6,454.0	-9,255.1	3,572.2	9,891.9	1.08
16,660.0	89.46	151.99	6,453.1	-9,334.3	3,612.8	9,980.9	3.16
16,750.0	90.13	153.68	6,453.4	-9,414.4	3,653.9	10,070.8	2.02
16,840.0	91.92	153.88	6,451.8	-9,495.1	3,693.6	10,160.8	2.00
16,930.0	92.28	152.87	6,448.5	-9,575.5	3,733.9	10,250.7	1.19
17,019.0	92.75	152.33	6,444.6	-9,654.4	3,774.9	10,339.6	0.80
17,109.0	91.65	154.30	6,441.2	-9,734.8	3,815.2	10,429.5	2.51
17,199.0	91.68	153.87	6,438.6	-9,815.7	3,854.6	10,519.5	0.48
17,288.0	91.78	152.67	6,435.9	-9,895.1	3,894.6	10,608.4	1.35
17,378.0	92.59	154.93	6,432.4	-9,975.8	3,934.3	10,698.3	2.67
17,468.0	92.79	154.86	6,428.2	-10,057.2	3,972.4	10,788.2	0.24
17,557.0	92.76	153.92	6,423.9	-10,137.4	4,010.8	10,877.1	1.06
17,607.0	93.21	152.67	6,421.3	-10,182.0	4,033.3	10,927.0	2.65
17,667.0	93.21	152.67	6,417.9	-10,235.2	4,060.8	10,986.9	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,307.0	6,196.2	-84.0	-353.2	SCMR
6,566.0	6,362.0	-225.8	-488.8	MDLX
6,786.0	6,482.5	-402.8	-531.5	BRKT
6,855.0	6,509.7	-466.1	-531.3	TLTY
6,930.0	6,532.2	-537.2	-523.8	HMLN
6,957.0	6,538.4	-563.1	-519.3	MRCL_HOT

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