



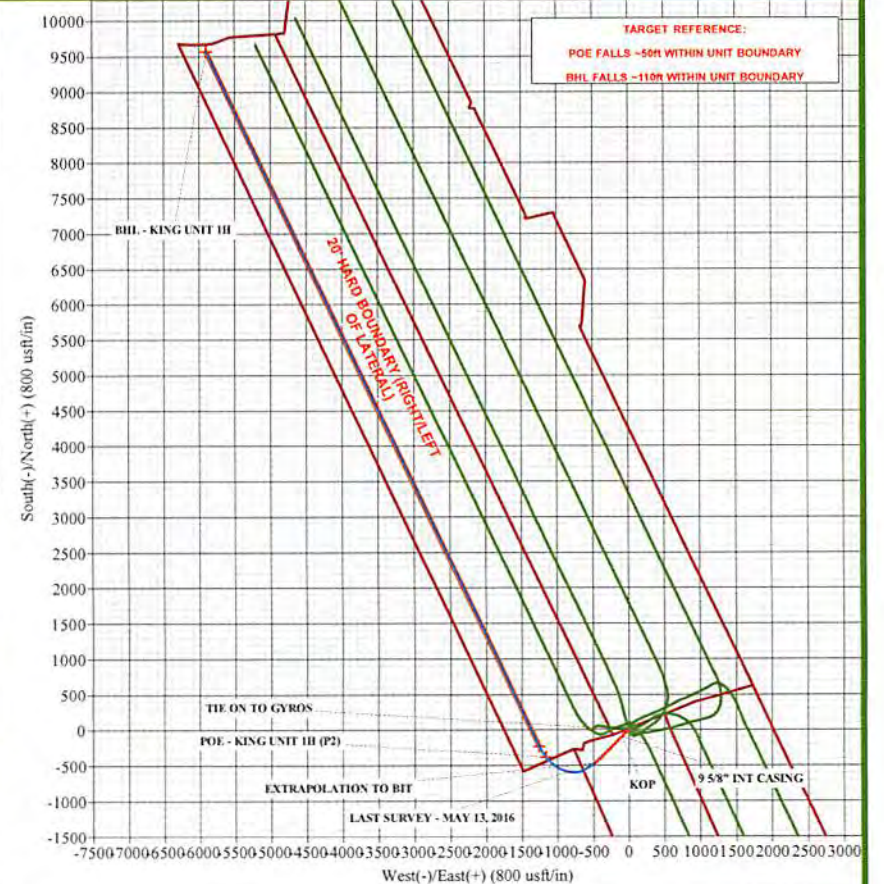
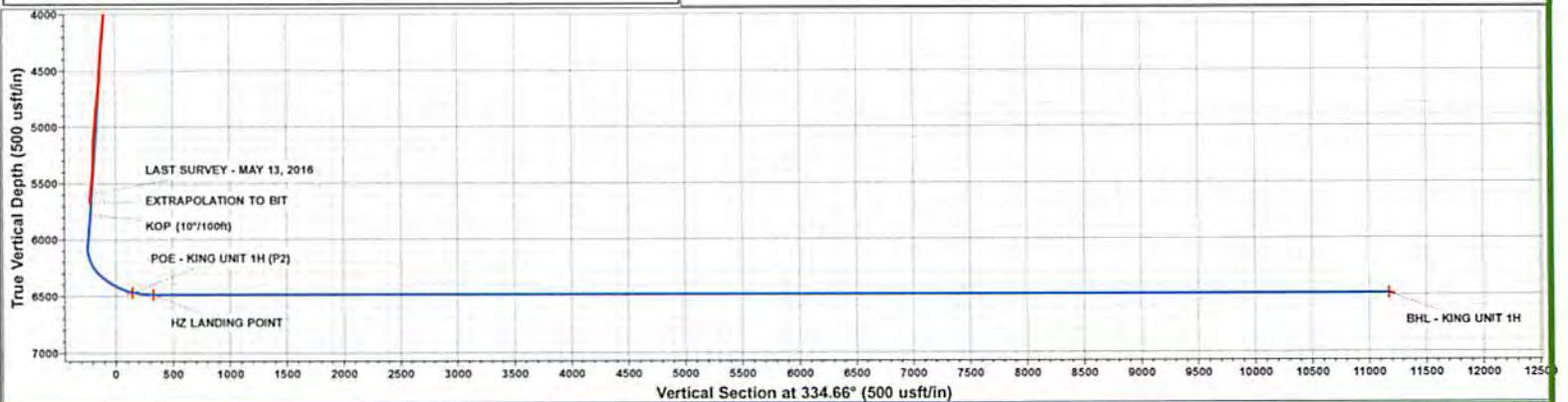
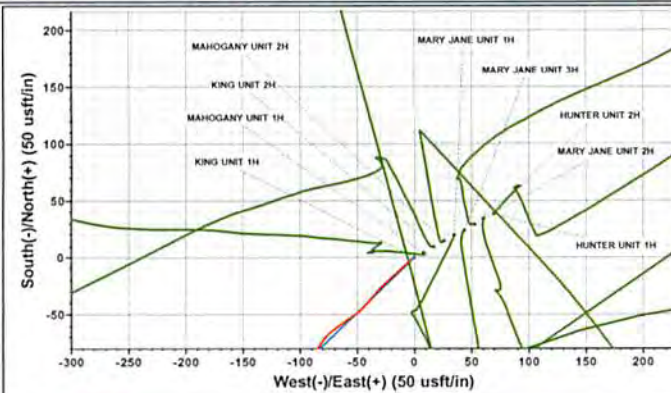
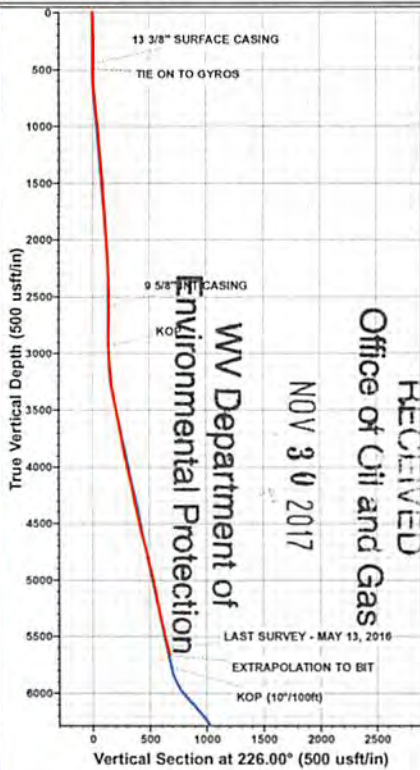
Project: DODDRIDGE COUNTY, WV (NAD 27 - GRID)  
 Site: JAMES WEBB PAD  
 Well: KING UNIT 1H  
 Wellbore: MWD - JOB #101530  
 Design: FINAL MWD

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation
497.0	497.0	0.59	229.92	-3.3	-4.3	-1.1	0.0	TIE ON TO GYROS
2585.6	2591.0	0.77	134.43	-97.6	-102.7	-44.3	138.6	9 5/8" INT CASING
2932.6	2938.0	0.13	290.63	-99.0	-100.2	-46.5	141.6	KOP
5591.4	5651.0	14.61	222.29	-460.6	-469.1	-215.5	660.9	LAST SURVEY - MAY 13, 2016
5668.8	5731.0	14.61	222.29	-475.5	-482.7	-223.2	681.0	EXTRAPOLATION TO BIT

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
POE - KING UNIT 1H (P2)	6469.0	-385.6	-1161.9	39° 14' 14.848 N	80° 52' 39.351 W
BHL - KING UNIT 1H	6490.0	-9571.6	-5900.0	39° 15' 53.322 N	80° 53' 39.420 W
HZ LANDING PNT - KING UNIT 1H	6490.0	-230.0	-1258.8	39° 14' 16.388 N	80° 52' 40.550 W



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Survey Report



<b>Company:</b>	ANTERO RESOURCES	<b>Local Co-ordinate Reference:</b>	Well KING UNIT 1H
<b>Project:</b>	DODDRIDGE COUNTY, WV (NAD 27	<b>TVD Reference:</b>	HALL 4: 991' GL + 13' KB @ 1004.0usft (Original Well
<b>Site:</b>	JAMES WEBB PAD	<b>MD Reference:</b>	HALL 4: 991' GL + 13' KB @ 1004.0usft (Original Well
<b>Well:</b>	KING UNIT 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	MWD - JOB #101530	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL MWD	<b>Database:</b>	EDM 5000.1 Single User

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<b>Project</b>	DODDRIDGE COUNTY, WV (NAD 27 - GRID)		
<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)		NOV 30 2017
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		Using geodetic scale factor

WV Department of  
Environmental Protection

<b>Site</b>	JAMES WEBB PAD				
<b>Site Position:</b>	<b>Northing:</b>	14,248,842.41 usft	<b>Latitude:</b>	39° 14' 19.020 N	
<b>From:</b> Map	<b>Easting:</b>	1,676,305.50 usft	<b>Longitude:</b>	80° 52' 23.695 W	
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.08 °

<b>Well</b>	KING UNIT 1H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,248,804.26 usft	<b>Latitude:</b>	39° 14' 18.644 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,676,236.15 usft	<b>Longitude:</b>	80° 52' 24.578 W
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	991.0 usft	

<b>Wellbore</b>	MWD - JOB #101530		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/05/2016	-8.42	66.64	52,042

<b>Design</b>	FINAL MWD		
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<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	497.0
<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	334.66	

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	13/05/2016	100.0	497.0	GYROS (GYROS - JOB #101530)	GYD_CT	Gyrodata continuous
		617.0	5,731.0	FINAL MWD SURVEYS (MWD - JOB #101530)	MWD	MWD - Standard

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>TIE ON TO GYROS</b>										
497.0	0.59	229.92	497.0	507.0	-3.3	-4.3	-1.1	0.00	0.00	0.00
617.0	2.00	226.62	616.9	387.1	-5.1	-6.3	-1.9	1.18	1.17	-2.75
677.0	3.09	230.55	676.9	327.1	-6.9	-8.3	-2.6	1.84	1.82	6.55
736.0	4.21	226.48	735.8	268.2	-9.4	-11.1	-3.7	1.95	1.90	-6.90
796.0	5.16	227.73	795.6	208.4	-12.7	-14.7	-5.2	1.59	1.58	2.08
860.0	5.67	227.76	859.3	144.7	-16.8	-19.2	-6.9	0.80	0.80	0.05
923.0	6.13	227.08	921.9	82.1	-21.1	-24.0	-8.9	0.74	0.73	-1.08
985.0	6.21	225.53	983.6	20.4	-25.8	-28.8	-11.0	0.30	0.13	-2.50
1,048.0	5.23	221.30	1,046.3	-42.3	-30.3	-33.1	-13.2	1.69	-1.56	-6.71
1,111.0	4.68	220.32	1,109.0	-105.0	-34.4	-36.7	-15.4	0.88	-0.87	-1.56



NOV 30 2017

Survey Report

WV Department of

Environmental Protection

directional



Company:	ANTERO RESOURCES	Local Co-ordinate Reference:	Well KING UNIT 1H
Project:	DODDRIDGE COUNTY, WV (NAD 27)	TVD Reference:	HALL 4: 991' GL + 13' KB @ 1004.0usft (Original Well I
Site:	JAMES WEBB PAD	MD Reference:	HALL 4: 991' GL + 13' KB @ 1004.0usft (Original Well I
Well:	KING UNIT 1H	North Reference:	Grid
Wellbore:	MWD - JOB #101530	Survey Calculation Method:	Minimum Curvature
Design:	FINAL MWD	Database:	EDM 5000.1 Single User Db

## Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,175.0	4.83	221.58	1,172.8	-168.8	-38.4	-40.1	-17.5	0.29	0.23	1.97
1,237.0	4.91	221.21	1,234.6	-230.6	-42.4	-43.6	-19.6	0.14	0.13	-0.60
1,301.0	4.55	226.50	1,298.4	-294.4	-46.2	-47.3	-21.5	0.88	-0.56	8.27
1,363.0	4.19	232.51	1,360.2	-356.2	-49.2	-50.9	-22.7	0.94	-0.58	9.69
1,427.0	4.41	236.19	1,424.0	-420.0	-52.0	-54.8	-23.6	0.55	0.34	5.75
1,489.0	4.70	237.03	1,485.8	-481.8	-54.7	-58.9	-24.3	0.48	0.47	1.35
1,552.0	4.94	235.17	1,548.6	-544.6	-57.7	-63.3	-25.1	0.45	0.38	-2.95
1,615.0	4.97	233.57	1,611.3	-607.3	-60.9	-67.7	-26.0	0.22	0.05	-2.54
1,678.0	5.29	232.10	1,674.1	-670.1	-64.3	-72.2	-27.2	0.55	0.51	-2.33
1,741.0	4.72	225.04	1,736.9	-732.9	-67.9	-76.3	-28.7	1.33	-0.90	-11.21
1,805.0	4.16	215.38	1,800.7	-796.7	-71.6	-79.5	-30.7	1.46	-0.87	-15.09
1,868.0	4.29	212.84	1,863.5	-859.5	-75.5	-82.1	-33.1	0.36	0.21	-4.03
1,931.0	3.80	214.58	1,926.3	-922.3	-79.2	-84.6	-35.4	0.80	-0.78	2.76
1,994.0	3.76	220.56	1,989.2	-985.2	-82.5	-87.1	-37.3	0.63	-0.06	9.49
2,057.0	3.83	229.97	2,052.1	-1,048.1	-85.4	-90.0	-38.6	0.99	0.11	14.94
2,120.0	3.47	235.32	2,114.9	-1,110.9	-87.8	-93.2	-39.5	0.79	-0.57	8.49
2,183.0	2.90	239.37	2,177.8	-1,173.8	-89.7	-96.2	-39.9	0.97	-0.90	6.43
2,247.0	2.75	237.44	2,241.8	-1,237.8	-91.4	-98.8	-40.3	0.28	-0.23	-3.02
2,309.0	2.35	230.36	2,303.7	-1,299.7	-93.0	-101.1	-40.8	0.82	-0.65	-11.42
2,372.0	1.46	216.99	2,366.7	-1,362.7	-94.5	-102.6	-41.5	1.57	-1.41	-21.22
2,435.0	1.05	190.39	2,429.6	-1,425.6	-95.7	-103.1	-42.3	1.11	-0.65	-42.22
2,518.0	0.66	166.17	2,512.6	-1,508.6	-96.9	-103.2	-43.4	0.63	-0.47	-29.18
<b>9 5/8" INT CASING</b>										
2,591.0	0.77	134.43	2,585.6	-1,581.6	-97.6	-102.7	-44.3	0.56	0.16	-43.48
2,623.0	0.88	124.47	2,617.6	-1,613.6	-97.9	-102.4	-44.7	0.56	0.33	-31.12
2,686.0	0.88	107.45	2,680.6	-1,676.6	-98.3	-101.5	-45.4	0.41	0.00	-27.02
2,749.0	0.71	117.74	2,743.6	-1,739.6	-98.7	-100.7	-46.1	0.35	-0.27	16.33
2,812.0	0.21	116.01	2,806.6	-1,802.6	-98.9	-100.2	-46.5	0.79	-0.79	-2.75
2,875.0	0.03	194.32	2,869.6	-1,865.6	-99.0	-100.1	-46.6	0.33	-0.29	124.30
<b>KOP</b>										
2,938.0	0.13	290.63	2,932.6	-1,928.6	-99.0	-100.2	-46.5	0.22	0.16	152.87
3,002.0	1.65	238.63	2,996.6	-1,992.6	-99.4	-101.1	-46.6	2.46	2.37	-81.25
3,065.0	3.02	233.87	3,059.5	-2,055.5	-100.9	-103.2	-47.0	2.19	2.17	-7.56
3,128.0	4.63	238.21	3,122.4	-2,118.4	-103.2	-106.7	-47.6	2.59	2.56	6.89
3,191.0	5.88	235.85	3,185.1	-2,181.1	-106.3	-111.5	-48.4	2.01	1.98	-3.75
3,254.0	7.71	232.48	3,247.7	-2,243.7	-110.7	-117.5	-49.8	2.97	2.90	-5.35
3,317.0	9.12	226.35	3,310.0	-2,306.0	-116.7	-124.5	-52.2	2.65	2.24	-9.73
3,380.0	11.13	224.92	3,372.0	-2,368.0	-124.5	-132.4	-55.8	3.22	3.19	-2.27
3,443.0	11.99	226.54	3,433.8	-2,429.8	-133.3	-141.5	-59.9	1.46	1.37	2.57
3,506.0	11.58	223.76	3,495.4	-2,491.4	-142.4	-150.6	-64.2	1.11	-0.65	-4.41
3,569.0	10.82	220.84	3,557.2	-2,553.2	-151.4	-158.8	-68.9	1.50	-1.21	-4.63
3,632.0	10.23	218.58	3,619.2	-2,615.2	-160.3	-166.2	-73.7	1.14	-0.94	-3.59
3,695.0	9.81	221.37	3,681.2	-2,677.2	-168.7	-173.2	-78.3	1.02	-0.67	4.43
3,758.0	10.51	222.30	3,743.2	-2,739.2	-176.9	-180.6	-82.6	1.14	1.11	1.48
3,821.0	10.60	220.74	3,805.2	-2,801.2	-185.6	-188.3	-87.1	0.48	0.14	-2.48
3,884.0	11.21	225.88	3,867.0	-2,863.0	-194.2	-196.5	-91.5	1.82	0.97	8.16
3,947.0	12.30	225.08	3,928.7	-2,924.7	-203.2	-205.6	-95.7	1.75	1.73	-1.27
4,010.0	11.99	226.90	3,990.3	-2,986.3	-212.4	-215.1	-99.9	0.78	-0.49	2.89
4,073.0	12.53	226.20	4,051.8	-3,047.8	-221.6	-224.8	-104.1	0.89	0.86	-1.11
4,136.0	12.62	223.40	4,113.3	-3,109.3	-231.4	-234.5	-108.7	0.98	0.14	-4.44
4,199.0	11.76	217.34	4,174.9	-3,170.9	-241.5	-243.1	-114.2	2.45	-1.37	-9.62
4,262.0	11.35	212.72	4,236.6	-3,232.6	-251.8	-250.4	-120.4	1.61	-0.65	-7.33
4,325.0	11.13	219.66	4,298.4	-3,294.4	-261.7	-257.6	-126.3	2.17	-0.35	11.02

Survey Report



<b>Company:</b>	ANTERO RESOURCES	<b>Local Co-ordinate Reference:</b>	Well KING UNIT 1H
<b>Project:</b>	DODDRIDGE COUNTY, WV (NAD 27)	<b>TVD Reference:</b>	HALL 4: 991' GL + 13' KB @ 1004.0usft (Original Well
<b>Site:</b>	JAMES WEBB PAD	<b>MD Reference:</b>	HALL 4: 991' GL + 13' KB @ 1004.0usft (Original Well
<b>Well:</b>	KING UNIT 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	MWD - JOB #101530	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL MWD	<b>Database:</b>	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,388.0	10.41	226.28	4,360.3	-3,356.3	-270.3	-265.6	-130.6	2.27	-1.14	10.51
4,451.0	10.92	230.95	4,422.2	-3,418.2	-278.0	-274.3	-133.8	1.59	0.81	7.41
4,515.0	12.21	233.28	4,484.9	-3,480.9	-285.9	-284.5	-136.6	2.14	2.02	3.64
4,578.0	14.37	232.14	4,546.2	-3,542.2	-294.7	-296.0	-139.6	3.45	3.43	-1.81
4,641.0	16.47	230.88	4,607.0	-3,603.0	-305.1	-309.1	-143.4	3.38	3.33	-2.00
4,704.0	15.65	226.06	4,667.5	-3,663.5	-316.6	-322.1	-148.3	2.48	-1.30	-7.65
4,767.0	13.58	222.34	4,728.5	-3,724.5	-328.0	-333.2	-153.8	3.61	-3.29	-5.90
4,830.0	12.33	219.60	4,789.9	-3,785.9	-338.6	-342.5	-159.5	2.21	-1.98	-4.35
4,894.0	13.23	214.66	4,852.3	-3,848.3	-349.9	-351.0	-166.0	2.21	1.41	-7.72
4,957.0	13.95	223.32	4,913.5	-3,909.5	-361.4	-360.3	-172.4	3.42	1.14	13.75
5,020.0	14.15	219.37	4,974.7	-3,970.7	-372.9	-370.4	-178.4	1.55	0.32	-6.27
5,083.0	12.09	225.94	5,036.0	-4,032.0	-383.4	-380.1	-183.8	4.03	-3.27	10.43
5,147.0	10.46	228.99	5,098.8	-4,094.8	-391.9	-389.3	-187.6	2.71	-2.55	4.77
5,210.0	10.15	226.58	5,160.8	-4,156.8	-399.4	-397.6	-190.8	0.84	-0.49	-3.83
5,273.0	10.21	236.54	5,222.8	-4,218.8	-406.3	-406.3	-193.3	2.79	0.10	15.81
5,336.0	11.82	236.99	5,284.6	-4,280.6	-412.9	-416.4	-195.0	2.56	2.56	0.71
5,399.0	13.18	234.91	5,346.1	-4,342.1	-420.6	-427.7	-197.1	2.27	2.16	-3.30
5,462.0	12.83	229.17	5,407.5	-4,403.5	-429.3	-438.8	-200.2	2.12	-0.56	-9.11
5,525.0	12.55	223.41	5,469.0	-4,465.0	-438.8	-448.8	-204.5	2.06	-0.44	-9.14
5,588.0	13.74	223.02	5,530.3	-4,526.3	-449.3	-458.6	-209.7	1.89	1.89	-0.62
<b>LAST SURVEY - MAY 13, 2016</b>										
5,651.0	14.61	222.29	5,591.4	-4,587.4	-460.6	-469.1	-215.5	1.41	1.38	-1.16
<b>EXTRAPOLATION TO BIT</b>										
5,731.0	14.61	222.29	5,668.8	-4,664.8	-475.5	-482.7	-223.2	0.00	0.00	0.00

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