

# Sandridge Energy

Garlow 3406 2-16H (Final)

Garlow 3406 2-16H SL 225 FNL, 660 FWL

Harper County, Kansas (Sandridge Energy) NAD27 / Grid

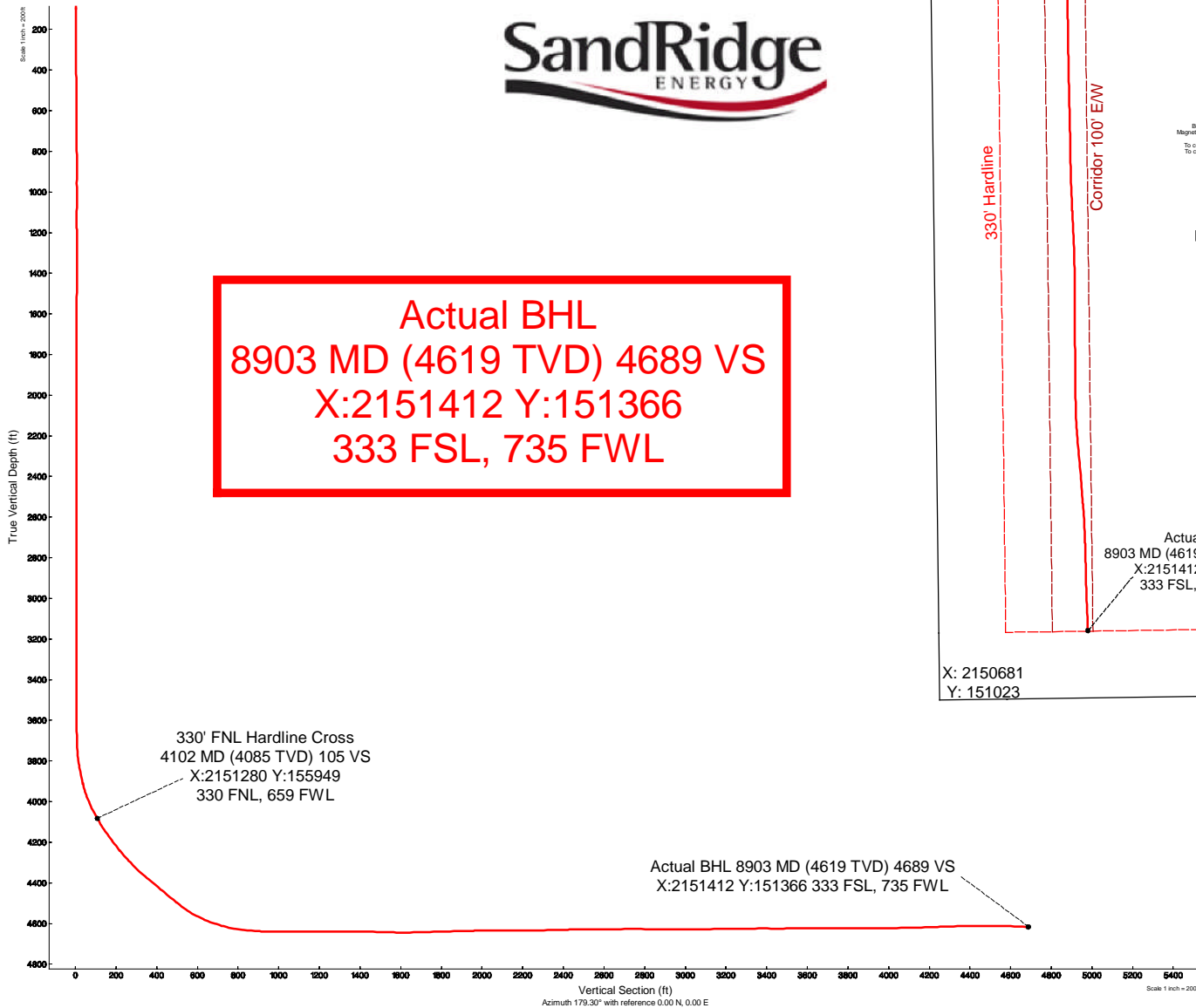
Plot reference wellpath is Plan 1	
True vertical depths are referenced to Unit 310 (KB)	Grid System: NAD27 / Lambert Kansas SP, Southern Zone (1502), US feet
Measured depths are referenced to Unit 310 (KB)	North Reference: Grid north
Unit 310 (KB) to Mean Sea Level: 1318 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Garlow 3406 2-16H SL 225 FNL, 660 FWL): -1303 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: broomari on 2/15/2013

### Location Information

Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Garlow 3406 2-16H Sec. 16-34S-6W		2151280.000	156054.000	37°05'38.723"N	97°58'52.916"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Garlow 3406 2-16H SL 225 FNL, 660 FWL	0.00	0.00	2151280.000	156054.000	37°05'38.723"N	97°58'52.916"W
Unit 310 (KB) to Mud line (At Slot: Garlow 3406 2-16H SL 225 FNL, 660 FWL)					15ft	
Mean Sea Level to Mud line (At Slot: Garlow 3406 2-16H SL 225 FNL, 660 FWL)					-1303ft	
Unit 310 (KB) to Mean Sea Level					1318ft	

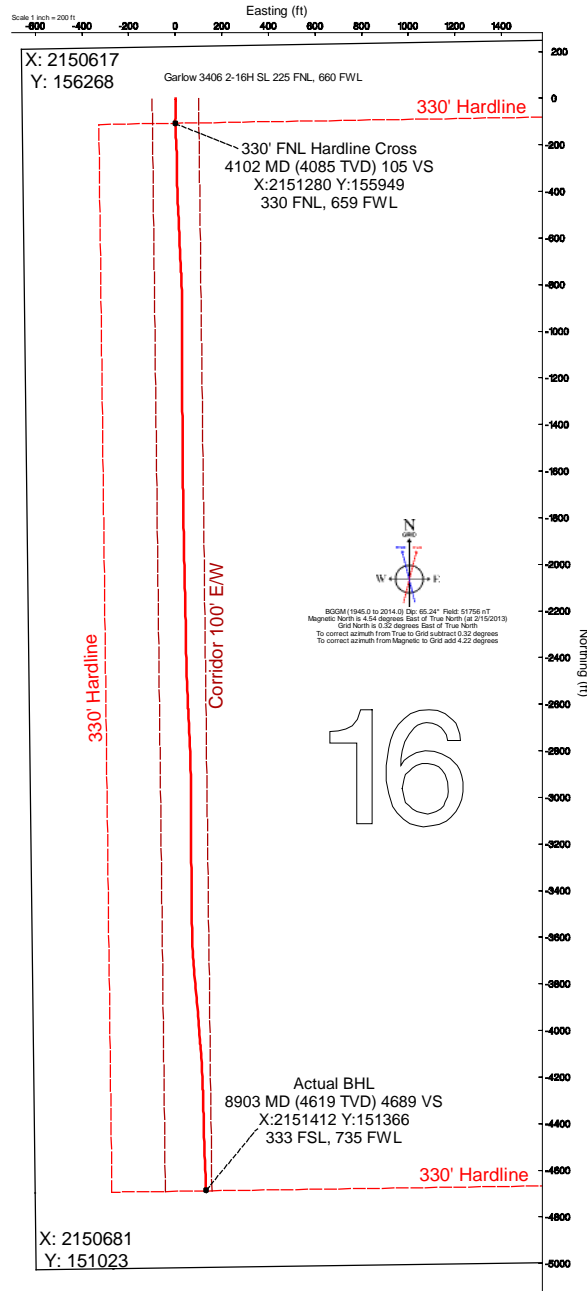


**Actual BHL**  
**8903 MD (4619 TVD) 4689 VS**  
**X:2151412 Y:151366**  
**333 FSL, 735 FWL**



330' FNL Hardline Cross  
 4102 MD (4085 TVD) 105 VS  
 X:2151280 Y:155949  
 330 FNL, 659 FWL

Actual BHL 8903 MD (4619 TVD) 4689 VS  
 X:2151412 Y:151366 333 FSL, 735 FWL





# Actual Wellpath Report

Sandridge Garlow 3406 2-16H\_Final Surveys.

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Sandridge Energy	Slot	Garlow 3406 2-16H SL 225 FNL, 660 FWL
Area	Kansas	Well	Subject
Field	Harper County, Kansas (Sandridge Energy) NAD27 / Grid	Wellbore	Garlow 3406 2-16H Actual
Facility	Garlow 3406 2-16H Sec. 16-34S-6W		

REPORT SETUP INFORMATION			
Projection System	NAD27 / Lambert Kansas SP, Southern Zone (1502), US feet		
North Reference	Grid	Software System	WellArchitect 3.0.0
Convergence at slot	0.32° East	User	Burnranj
Scale	1.00004	Report Generated	3/7/2013 at 2:20:49 PM
Wellbore last revised	02-15-2013	Database/Source file	Oklahoma City

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	2151280.00	156054.00	37°05'38.723"N	97°58'52.916"W
Facility Reference Pt			2151280.00	156054.00	37°05'38.723"N	97°58'52.916"W
Field Reference Pt			2132248.82	161602.28	37°06'34.560"N	98°02'47.460"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Unit 310 (KB) to Facility Vertical Datum	15.00ft
Horizontal Reference Pt	Slot	Unit 310 (KB) to Mean Sea Level	1318.00ft
Vertical Reference Pt	Unit 310 (KB)	Unit 310 (KB) to Mud Line at Slot (Garlow 3406 2-16H SL 225 FNL, 660 FWL)	15.00ft
MD Reference Pt	Unit 310 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.30°



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Field	Harper County, Kansas (Sandridge Energy) NAD27 / Grid	Wellbore	Garlow 3406 2-16H Actual
Facility	Garlow 3406 2-16H Sec. 16-34S-6W		

**WELLPATH DATA (119 stations) = interpolated/extrapolated station**

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	DLS [°/100ft]	Comments
0.00	0.000	172.780	0.00	0.00	0.00	0.00	2151280.00	156054.00	0.00	
15.00	0.000	172.780	15.00	0.00	0.00	0.00	2151280.00	156054.00	0.00	
250.00	0.250	172.780	250.00	0.51	-0.51	0.06	2151280.06	156053.49	0.11	
500.00	0.250	172.780	500.00	1.59	-1.59	0.20	2151280.20	156052.41	0.00	
687.00	1.000	172.780	686.98	3.62	-3.61	0.46	2151280.46	156050.39	0.40	
725.00	0.070	172.780	724.98	3.97	-3.97	0.50	2151280.50	156050.03	2.45	
817.00	0.110	241.110	816.98	4.07	-4.06	0.43	2151280.43	156049.94	0.12	
908.00	0.060	326.330	907.98	4.07	-4.07	0.33	2151280.33	156049.93	0.13	
1000.00	0.100	240.900	999.98	4.07	-4.07	0.23	2151280.23	156049.93	0.12	
1092.00	0.100	332.280	1091.98	4.04	-4.03	0.12	2151280.12	156049.97	0.16	
1184.00	0.140	212.900	1183.98	4.06	-4.06	0.03	2151280.03	156049.94	0.23	
1275.00	0.110	132.480	1274.98	4.21	-4.21	0.03	2151280.03	156049.79	0.18	
1367.00	0.090	284.390	1366.98	4.25	-4.25	0.03	2151280.03	156049.75	0.21	
1458.00	0.110	348.450	1457.98	4.15	-4.15	-0.06	2151279.94	156049.85	0.12	
1553.00	0.090	355.260	1552.98	3.98	-3.98	-0.09	2151279.91	156050.02	0.02	
1644.00	0.070	316.390	1643.98	3.87	-3.87	-0.13	2151279.87	156050.13	0.06	
1736.00	0.070	166.930	1735.98	3.89	-3.89	-0.16	2151279.84	156050.11	0.15	
1829.00	0.070	112.690	1828.98	3.96	-3.96	-0.09	2151279.91	156050.04	0.07	
1924.00	0.130	344.070	1923.98	3.88	-3.88	-0.07	2151279.93	156050.12	0.19	
2019.00	0.090	309.770	2018.98	3.73	-3.73	-0.15	2151279.85	156050.27	0.08	
2114.00	0.090	321.330	2113.98	3.62	-3.63	-0.26	2151279.74	156050.37	0.02	
2208.00	0.170	139.590	2207.98	3.67	-3.67	-0.21	2151279.79	156050.33	0.28	
2304.00	0.160	98.200	2303.98	3.80	-3.80	0.01	2151280.01	156050.20	0.12	
2399.00	0.170	305.280	2398.98	3.74	-3.74	0.03	2151280.03	156050.26	0.34	
2493.00	0.040	239.150	2492.98	3.67	-3.68	-0.11	2151279.89	156050.32	0.17	
2588.00	0.180	74.820	2587.98	3.65	-3.65	0.00	2151280.00	156050.35	0.23	
2683.00	0.180	355.220	2682.98	3.47	-3.47	0.13	2151280.13	156050.53	0.24	
2778.00	0.250	350.920	2777.98	3.11	-3.11	0.09	2151280.09	156050.89	0.08	
2873.00	0.110	52.540	2872.98	2.85	-2.85	0.13	2151280.13	156051.15	0.23	
2968.00	0.200	90.540	2967.98	2.80	-2.80	0.37	2151280.37	156051.20	0.14	
3063.00	0.290	209.390	3062.98	3.01	-3.01	0.41	2151280.41	156050.99	0.45	
3156.00	0.120	156.400	3155.98	3.31	-3.30	0.34	2151280.34	156050.70	0.26	
3253.00	0.120	241.260	3252.98	3.45	-3.45	0.29	2151280.29	156050.55	0.17	
3348.00	0.130	90.580	3347.98	3.50	-3.49	0.31	2151280.31	156050.51	0.25	
3443.00	0.310	95.680	3442.98	3.53	-3.52	0.67	2151280.67	156050.48	0.19	
3538.00	0.280	259.930	3537.98	3.60	-3.59	0.70	2151280.70	156050.41	0.62	
3633.00	0.340	236.880	3632.97	3.78	-3.78	0.24	2151280.24	156050.22	0.14	
3727.00	2.430	177.130	3726.94	5.93	-5.92	0.10	2151280.10	156048.08	2.42	
3759.00	4.860	178.280	3758.88	7.96	-7.96	0.18	2151280.18	156046.04	7.60	
3791.00	6.960	176.020	3790.70	11.25	-11.25	0.35	2151280.35	156042.75	6.60	
3823.00	8.710	178.030	3822.40	15.61	-15.60	0.57	2151280.57	156038.40	5.53	
3854.00	10.760	177.610	3852.96	20.85	-20.84	0.77	2151280.77	156033.16	6.62	
3886.00	12.370	179.900	3884.31	27.26	-27.25	0.90	2151280.90	156026.75	5.23	
3917.00	13.970	180.430	3914.49	34.32	-34.32	0.88	2151280.88	156019.68	5.18	
3949.00	17.240	181.170	3945.31	42.93	-42.92	0.75	2151280.75	156011.08	10.24	



# Actual Wellpath Report

Sandridge Garlow 3406 2-16H\_Final Surveys.

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REFERENCE WELLPATH IDENTIFICATION				
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Area	Kansas		Well	Subject
Field	Harper County, Kansas (Sandridge Energy) NAD27 / Grid		Wellbore	Garlow 3406 2-16H Actual
Facility	Garlow 3406 2-16H Sec. 16-34S-6W			

**WELLPATH DATA (119 stations) = interpolated/extrapolated station**

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	DLS [°/100ft]	Comments
3981.00	20.390	181.380	3975.59	53.24	-53.24	0.52	2151280.52	156000.76	9.85	
4012.00	23.250	181.940	4004.37	64.75	-64.75	0.18	2151280.18	155989.24	9.25	
4044.00	26.000	180.290	4033.46	78.08	-78.08	-0.06	2151279.94	155975.91	8.86	
4076.00	28.380	180.860	4061.92	92.69	-92.70	-0.21	2151279.79	155961.29	7.48	
4102.00	29.435	179.121	4084.68	105.26	-105.27	-0.21	2151279.79	155948.73	5.19	330' FNL Hardline Cross 4102 MD (4085 TVD) 105 VS X:2151280 Y:155949 330 FNL
4107.00	29.640	178.800	4089.03	107.72	-107.73	-0.16	2151279.84	155946.26	5.19	
4139.00	31.760	177.630	4116.54	124.06	-124.06	0.35	2151280.35	155929.93	6.88	
4170.00	34.360	177.840	4142.52	140.96	-140.96	1.02	2151281.02	155913.04	8.40	
4202.00	35.860	177.230	4168.70	159.36	-159.35	1.81	2151281.81	155894.65	4.81	
4233.00	36.550	176.580	4193.71	177.65	-177.63	2.80	2151282.80	155876.36	2.55	
4265.00	37.580	176.700	4219.25	196.92	-196.88	3.93	2151283.93	155857.11	3.23	
4296.00	39.350	177.420	4243.52	216.18	-216.14	4.92	2151284.92	155837.85	5.89	
4328.00	41.410	178.780	4267.89	236.91	-236.86	5.60	2151285.60	155817.13	7.00	
4360.00	43.250	179.660	4291.55	258.46	-258.40	5.89	2151285.89	155795.59	6.04	
4391.00	44.720	180.040	4313.85	279.98	-279.93	5.94	2151285.94	155774.06	4.82	
4423.00	46.910	179.830	4336.16	302.93	-302.88	5.97	2151285.97	155751.11	6.86	
4455.00	49.400	178.650	4357.50	326.76	-326.71	6.29	2151286.29	155727.28	8.25	
4486.00	49.560	178.290	4377.64	350.33	-350.27	6.92	2151286.92	155703.72	1.02	
4581.00	50.400	177.570	4438.73	423.06	-422.97	9.55	2151289.55	155631.01	1.06	
4644.00	50.530	177.280	4478.84	471.62	-471.51	11.74	2151291.74	155582.47	0.41	
4676.00	50.720	176.950	4499.14	496.34	-496.22	12.98	2151292.98	155557.77	0.99	
4707.00	53.260	177.250	4518.23	520.74	-520.61	14.21	2151294.22	155533.37	8.23	
4739.00	55.960	177.070	4536.76	546.81	-546.66	15.51	2151295.51	155507.32	8.45	
4770.00	59.390	177.860	4553.33	572.99	-572.83	16.66	2151296.66	155481.15	11.27	
4802.00	62.820	177.940	4568.79	600.99	-600.82	17.69	2151297.69	155453.16	10.72	
4833.00	66.210	178.080	4582.13	628.96	-628.78	18.66	2151298.66	155425.20	10.94	
4865.00	69.360	177.200	4594.22	658.57	-658.38	19.88	2151299.88	155395.60	10.17	
4897.00	72.010	177.180	4604.81	688.75	-688.54	21.36	2151301.36	155365.44	8.28	
4928.00	74.350	176.830	4613.78	718.39	-718.17	22.91	2151302.91	155335.81	7.63	
4960.00	77.120	176.590	4621.66	749.37	-749.13	24.69	2151304.69	155304.85	8.69	
4992.00	80.320	177.530	4627.92	780.73	-780.46	26.30	2151306.30	155273.51	10.41	
5034.00	83.800	178.370	4633.72	822.30	-822.03	27.79	2151307.79	155231.94	8.52	
5125.00	87.290	179.930	4640.79	913.01	-912.73	29.13	2151309.13	155141.24	4.20	
5220.00	89.880	180.450	4643.14	1007.96	-1007.69	28.82	2151308.82	155046.28	2.78	
5315.00	90.090	179.930	4643.16	1102.95	-1102.69	28.50	2151308.50	154951.27	0.59	
5409.00	89.820	179.920	4643.23	1196.95	-1196.69	28.62	2151308.62	154857.27	0.29	
5505.00	90.550	179.310	4642.92	1292.94	-1292.68	29.27	2151309.27	154761.27	0.99	
5599.00	90.340	178.990	4642.19	1386.94	-1386.67	30.66	2151310.66	154667.28	0.41	
5694.00	87.630	179.780	4643.88	1481.92	-1481.64	31.68	2151311.68	154572.31	2.97	
5789.00	89.480	179.840	4646.27	1576.88	-1576.60	32.00	2151312.00	154477.34	1.95	
5884.00	91.290	179.250	4645.63	1671.87	-1671.60	32.75	2151312.75	154382.34	2.00	
5979.00	92.010	179.140	4642.90	1766.83	-1766.55	34.09	2151314.09	154287.39	0.77	
6073.00	90.960	178.880	4640.46	1860.80	-1860.50	35.71	2151315.71	154193.43	1.15	
6168.00	91.880	178.880	4638.11	1955.76	-1955.45	37.57	2151317.57	154098.48	0.97	
6263.00	89.320	178.600	4637.11	2050.74	-2050.41	39.66	2151319.66	154003.51	2.71	



# Actual Wellpath Report

Sandridge Garlow 3406 2-16H\_Final Surveys.

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REFERENCE WELLPATH IDENTIFICATION			
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Area	Kansas	Well	Subject
Field	Harper County, Kansas (Sandridge Energy) NAD27 / Grid	Wellbore	Garlow 3406 2-16H Actual
Facility	Garlow 3406 2-16H Sec. 16-34S-6W		

## WELLPATH DATA (119 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	DLS [°/100ft]	Comments
6358.00	91.320	178.500	4636.58	2145.73	-2145.38	42.06	2151322.06	153908.54	2.11	
6453.00	89.750	178.960	4635.70	2240.72	-2240.35	44.16	2151324.17	153813.57	1.72	
6548.00	91.450	179.250	4634.70	2335.71	-2335.33	45.65	2151325.65	153718.59	1.82	
6643.00	91.490	178.380	4632.26	2430.67	-2430.27	47.61	2151327.61	153623.64	0.92	
6737.00	90.150	177.760	4630.92	2524.64	-2524.21	50.78	2151330.78	153529.70	1.57	
6832.00	90.490	177.340	4630.39	2619.59	-2619.12	54.84	2151334.84	153434.78	0.57	
6927.00	90.560	177.040	4629.52	2714.52	-2714.00	59.50	2151339.50	153339.90	0.32	
7015.00	89.110	178.210	4629.77	2802.48	-2801.92	63.14	2151343.14	153251.98	2.12	
7047.00	88.860	178.070	4630.34	2834.47	-2833.90	64.18	2151344.18	153220.00	0.90	
7142.00	90.370	179.290	4630.98	2929.46	-2928.87	66.37	2151346.37	153125.03	2.04	
7237.00	90.490	179.110	4630.26	3024.45	-3023.86	67.70	2151347.70	153030.03	0.23	
7331.00	90.180	180.090	4629.71	3118.45	-3117.85	68.35	2151348.35	152936.04	1.09	
7426.00	90.650	179.940	4629.03	3213.44	-3212.85	68.33	2151348.33	152841.04	0.52	
7521.00	91.170	179.490	4627.52	3308.43	-3307.83	68.80	2151348.80	152746.05	0.72	
7616.00	89.600	179.640	4626.88	3403.42	-3402.83	69.52	2151349.52	152651.05	1.66	
7711.00	90.490	179.300	4626.80	3498.42	-3497.82	70.40	2151350.40	152556.05	1.00	
7806.00	90.710	178.370	4625.81	3593.41	-3592.80	72.33	2151352.33	152461.07	1.01	
7900.00	90.650	176.900	4624.69	3687.36	-3686.71	76.21	2151356.21	152367.16	1.57	
7996.00	88.740	174.410	4625.20	3783.15	-3782.42	83.48	2151363.48	152271.45	3.27	
8090.00	89.630	174.440	4626.54	3876.80	-3875.96	92.61	2151372.61	152177.90	0.95	
8185.00	91.390	176.340	4625.70	3971.57	-3970.64	100.25	2151380.25	152083.21	2.73	
8280.00	90.860	175.010	4623.83	4066.36	-4065.35	107.41	2151387.41	151988.50	1.51	
8374.00	91.450	176.910	4621.94	4160.17	-4159.09	114.03	2151394.03	151894.75	2.12	
8469.00	92.530	178.110	4618.64	4255.07	-4253.94	118.16	2151398.16	151799.90	1.70	
8564.00	91.910	178.720	4614.96	4349.98	-4348.84	120.78	2151400.79	151705.01	0.92	
8659.00	90.120	178.590	4613.27	4444.96	-4443.79	123.01	2151403.01	151610.05	1.89	
8754.00	88.740	177.580	4614.22	4539.93	-4538.73	126.18	2151406.19	151515.11	1.80	
8849.00	87.870	177.810	4617.03	4634.85	-4633.61	130.00	2151410.01	151420.22	0.95	
8903.00	87.870	177.810	4619.04	4688.79	-4687.53	132.07	2151412.07	151366.30	0.00	Actual BHL 8903 MD (4619 TVD) 4689 VS X:2151412 Y:151366 333 FSL, 735 FWL



# Actual Wellpath Report

Sandridge Garlow 3406 2-16H\_Final Surveys.

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Sandridge Energy	Slot	Garlow 3406 2-16H SL 225 FNL, 660 FWL
Area	Kansas	Well	Subject
Field	Harper County, Kansas (Sandridge Energy) NAD27 / Grid	Wellbore	Garlow 3406 2-16H Actual
Facility	Garlow 3406 2-16H Sec. 16-34S-6W		

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
BHL 330' FSL, 660' FWL		4620.43	-4691.83	57.00	2151337.00	151362.00	37°04'52.331"N	97°58'52.535"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Garlow 3406 2-16H Actual Ref Wellpath: AWP - Final

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
15.00	687.00	Unknown Tool (Standard)	Unknown Surveys (Inc Only)	Garlow 3406 2-16H Actual
687.00	8849.00	NaviTrak (Standard)	INTEQ - MWD	Garlow 3406 2-16H Actual
8849.00	8903.00	Blind Drilling (std)	Projection to bit	Garlow 3406 2-16H Actual