



## **Sandridge Energy, INC.(mid-con.)**

**Comanche County (KS27S)**

**Sec. 26-T33S-R17W**

**Warren 3317 1-26H**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**29 August, 2012**

# **Archer**



**Archer Directional Drilling Services**  
Survey Report



<b>Company:</b>	Sandridge Energy, INC.(mid-con.)	<b>Local Co-ordinate Reference:</b>	Well Warren 3317 1-26H
<b>Project:</b>	Comanche County (KS27S)	<b>TVD Reference:</b>	WELL @ 1817.0usft (Original Well Elev)
<b>Site:</b>	Sec. 26-T33S-R17W	<b>MD Reference:</b>	WELL @ 1817.0usft (Original Well Elev)
<b>Well:</b>	Warren 3317 1-26H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Comanche County (KS27S), KS South		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Kansas South 1502		

<b>Site</b>	Sec. 26-T33S-R17W				
<b>Site Position:</b>		<b>Northing:</b>	171,717.00 usft	<b>Latitude:</b>	37° 8' 11.621 N
<b>From:</b>	Map	<b>Easting:</b>	1,816,494.00 usft	<b>Longitude:</b>	99° 7' 46.109 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.39 °

<b>Well</b>	Warren 3317 1-26H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	171,717.00 usft	<b>Latitude:</b>	37° 8' 11.621 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,816,494.00 usft	<b>Longitude:</b>	99° 7' 46.109 W
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,797.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	08/05/12	5.27	65.15	51,781

<b>Design</b>	Wellbore #1				
<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	359.43	

<b>Survey Program</b>	<b>Date</b>	08/29/12			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
224.0	750.0	Gyro (Wellbore #1)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
937.0	9,786.0	Archer MWD (Wellbore #1)	MWD	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
224.0	0.80	0.14	224.0	1.6	0.0	1.6	0.36	0.36	0.00
474.0	0.40	0.14	474.0	4.2	0.0	4.2	0.16	-0.16	0.00
750.0	0.50	0.14	750.0	6.3	0.0	6.3	0.04	0.04	0.00
937.0	0.50	258.40	937.0	7.0	-0.8	7.0	0.41	0.00	-54.41
1,393.0	0.10	270.10	1,393.0	6.6	-3.1	6.6	0.09	-0.09	2.57
1,867.0	0.40	97.80	1,867.0	6.4	-1.9	6.4	0.11	0.06	-36.35
2,343.0	0.30	78.90	2,342.9	6.4	1.0	6.4	0.03	-0.02	-3.97
2,820.0	0.60	68.00	2,819.9	7.6	4.5	7.5	0.07	0.06	-2.29
3,297.0	0.40	96.60	3,296.9	8.3	8.5	8.2	0.07	-0.04	6.00



# Archer Directional Drilling Services

## Survey Report



**Company:** Sandridge Energy, INC.(mid-con.)  
**Project:** Comanche County (KS27S)  
**Site:** Sec. 26-T33S-R17W  
**Well:** Warren 3317 1-26H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Warren 3317 1-26H  
**TVD Reference:** WELL @ 1817.0usft (Original Well Elev)  
**MD Reference:** WELL @ 1817.0usft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,773.0	0.50	72.80	3,772.9	8.7	12.1	8.6	0.04	0.02	-5.00
3,869.0	0.60	21.30	3,868.9	9.3	12.7	9.2	0.51	0.10	-53.65
3,964.0	0.50	34.50	3,963.9	10.1	13.1	10.0	0.17	-0.11	13.89
4,059.0	0.60	48.10	4,058.9	10.8	13.7	10.7	0.17	0.11	14.32
4,091.0	0.60	54.60	4,090.9	11.0	14.0	10.9	0.21	0.00	20.31
4,122.0	0.70	32.70	4,121.9	11.3	14.2	11.1	0.86	0.32	-70.65
4,154.0	0.70	27.20	4,153.9	11.6	14.4	11.5	0.21	0.00	-17.19
4,186.0	1.90	358.30	4,185.9	12.3	14.5	12.2	4.16	3.75	-90.31
4,218.0	4.00	355.70	4,217.8	14.0	14.4	13.8	6.57	6.56	-8.13
4,249.0	6.30	352.20	4,248.7	16.7	14.1	16.6	7.48	7.42	-11.29
4,281.0	8.70	354.30	4,280.4	20.9	13.6	20.7	7.55	7.50	6.56
4,313.0	10.20	355.70	4,312.0	26.1	13.1	26.0	4.74	4.69	4.38
4,345.0	11.30	353.20	4,343.4	32.0	12.6	31.9	3.73	3.44	-7.81
4,377.0	13.50	354.80	4,374.7	38.9	11.8	38.8	6.96	6.88	5.00
4,408.0	16.10	358.70	4,404.6	46.8	11.4	46.7	8.98	8.39	12.58
4,440.0	18.20	1.30	4,435.2	56.2	11.4	56.1	6.98	6.56	8.13
4,472.0	20.20	359.90	4,465.4	66.7	11.5	66.6	6.41	6.25	-4.38
4,504.0	22.40	358.50	4,495.3	78.4	11.4	78.2	7.06	6.88	-4.38
4,536.0	24.20	357.10	4,524.6	91.0	10.9	90.9	5.88	5.63	-4.38
4,567.0	25.30	355.90	4,552.8	104.0	10.1	103.8	3.90	3.55	-3.87
4,599.0	27.20	355.40	4,581.5	118.1	9.0	118.0	5.98	5.94	-1.56
4,631.0	29.80	356.70	4,609.6	133.3	8.0	133.2	8.35	8.13	4.06
4,663.0	31.50	357.50	4,637.1	149.6	7.1	149.5	5.46	5.31	2.50
4,694.0	33.40	358.20	4,663.3	166.2	6.5	166.1	6.25	6.13	2.26
4,726.0	35.90	357.70	4,689.6	184.4	5.9	184.3	7.86	7.81	-1.56
4,758.0	38.30	357.60	4,715.1	203.7	5.1	203.6	7.50	7.50	-0.31
4,790.0	40.40	357.30	4,739.9	223.9	4.2	223.9	6.59	6.56	-0.94
4,821.0	42.60	357.70	4,763.1	244.5	3.3	244.4	7.15	7.10	1.29
4,853.0	45.10	358.60	4,786.2	266.6	2.6	266.6	8.05	7.81	2.81
4,885.0	47.10	359.20	4,808.4	289.7	2.1	289.6	6.39	6.25	1.88
4,916.0	47.70	358.80	4,829.4	312.5	1.7	312.5	2.16	1.94	-1.29
4,948.0	47.30	359.00	4,851.0	336.1	1.3	336.0	1.33	-1.25	0.63
4,979.0	47.30	358.50	4,872.0	358.8	0.8	358.8	1.19	0.00	-1.61
5,011.0	48.60	358.80	4,893.4	382.6	0.2	382.6	4.12	4.06	0.94
5,043.0	49.10	358.60	4,914.5	406.7	-0.3	406.7	1.63	1.56	-0.63
5,075.0	49.00	359.00	4,935.5	430.9	-0.8	430.8	0.99	-0.31	1.25
5,107.0	50.00	359.90	4,956.2	455.2	-1.1	455.2	3.79	3.13	2.81
5,138.0	50.60	359.20	4,976.0	479.0	-1.3	479.0	2.60	1.94	-2.26
5,170.0	52.50	358.10	4,995.9	504.1	-1.9	504.1	6.52	5.94	-3.44
5,202.0	55.30	357.20	5,014.8	529.9	-2.9	529.9	9.04	8.75	-2.81
5,234.0	57.60	357.10	5,032.5	556.6	-4.2	556.6	7.19	7.19	-0.31
5,266.0	60.80	357.00	5,048.9	584.0	-5.7	584.0	10.00	10.00	-0.31
5,297.0	64.20	357.10	5,063.2	611.5	-7.1	611.5	10.97	10.97	0.32



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Survey Report



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**Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,329.0	68.40	357.40	5,076.0	640.7	-8.5	640.8	13.15	13.13	0.94
5,361.0	71.60	357.50	5,087.0	670.8	-9.8	670.8	10.00	10.00	0.31
5,393.0	72.50	358.30	5,096.8	701.2	-10.9	701.3	3.68	2.81	2.50
5,424.0	74.50	359.40	5,105.6	730.9	-11.5	731.0	7.29	6.45	3.55
5,456.0	78.00	0.70	5,113.2	762.0	-11.5	762.0	11.63	10.94	4.06
5,487.0	80.30	2.20	5,119.1	792.4	-10.7	792.5	8.81	7.42	4.84
5,519.0	83.20	2.40	5,123.7	824.0	-9.5	824.1	9.08	9.06	0.63
5,551.0	87.00	3.50	5,126.4	855.9	-7.8	855.9	12.36	11.88	3.44
5,583.0	90.70	3.70	5,127.0	887.8	-5.8	887.8	11.58	11.56	0.63
5,600.0	92.70	4.50	5,126.5	904.8	-4.6	904.8	12.67	11.76	4.71
5,626.0	93.10	4.80	5,125.2	930.6	-2.5	930.6	1.92	1.54	1.15
5,656.0	93.80	4.60	5,123.4	960.5	0.0	960.4	2.43	2.33	-0.67
5,687.0	93.50	4.00	5,121.4	991.3	2.3	991.3	2.16	-0.97	-1.94
5,718.0	91.40	1.40	5,120.1	1,022.3	3.7	1,022.2	10.77	-6.77	-8.39
5,749.0	89.70	358.90	5,119.8	1,053.3	3.8	1,053.2	9.75	-5.48	-8.06
5,780.0	89.90	0.30	5,119.9	1,084.3	3.6	1,084.2	4.56	0.65	4.52
5,810.0	90.90	0.40	5,119.7	1,114.3	3.8	1,114.2	3.35	3.33	0.33
5,841.0	91.30	0.90	5,119.1	1,145.2	4.1	1,145.1	2.07	1.29	1.61
5,872.0	91.60	1.30	5,118.3	1,176.2	4.7	1,176.1	1.61	0.97	1.29
5,903.0	91.70	1.30	5,117.5	1,207.2	5.4	1,207.1	0.32	0.32	0.00
5,933.0	92.20	0.60	5,116.4	1,237.2	5.9	1,237.1	2.87	1.67	-2.33
5,964.0	92.80	1.20	5,115.1	1,268.2	6.4	1,268.0	2.74	1.94	1.94
5,995.0	91.20	358.70	5,114.0	1,299.1	6.4	1,299.0	9.57	-5.16	-8.06
6,026.0	88.00	355.70	5,114.2	1,330.1	4.9	1,330.0	14.15	-10.32	-9.68
6,057.0	88.40	355.90	5,115.2	1,361.0	2.6	1,360.9	1.44	1.29	0.65
6,087.0	88.30	355.60	5,116.1	1,390.9	0.4	1,390.8	1.05	-0.33	-1.00
6,118.0	90.20	355.40	5,116.5	1,421.8	-2.0	1,421.7	6.16	6.13	-0.65
6,149.0	92.80	355.30	5,115.6	1,452.7	-4.5	1,452.6	8.39	8.39	-0.32
6,180.0	94.40	355.20	5,113.7	1,483.5	-7.1	1,483.5	5.17	5.16	-0.32
6,210.0	94.80	355.10	5,111.3	1,513.3	-9.6	1,513.3	1.37	1.33	-0.33
6,241.0	95.30	355.80	5,108.6	1,544.1	-12.1	1,544.1	2.77	1.61	2.26
6,272.0	94.50	357.20	5,105.9	1,574.9	-14.0	1,575.0	5.19	-2.58	4.52
6,303.0	93.30	358.00	5,103.8	1,605.8	-15.3	1,605.9	4.65	-3.87	2.58
6,334.0	93.30	357.80	5,102.0	1,636.7	-16.4	1,636.8	0.64	0.00	-0.65
6,364.0	93.50	357.90	5,100.2	1,666.7	-17.5	1,666.8	0.75	0.67	0.33
6,395.0	93.80	358.20	5,098.3	1,697.6	-18.6	1,697.7	1.37	0.97	0.97
6,426.0	92.80	358.30	5,096.5	1,728.5	-19.5	1,728.6	3.24	-3.23	0.32
6,457.0	92.60	358.00	5,095.0	1,759.5	-20.5	1,759.6	1.16	-0.65	-0.97
6,488.0	90.00	358.00	5,094.3	1,790.4	-21.6	1,790.6	8.39	-8.39	0.00
6,518.0	90.60	358.30	5,094.2	1,820.4	-22.6	1,820.6	2.24	2.00	1.00
6,580.0	93.40	0.20	5,092.0	1,882.4	-23.4	1,882.5	5.46	4.52	3.06
6,611.0	93.40	359.90	5,090.2	1,913.3	-23.4	1,913.5	0.97	0.00	-0.97
6,641.0	92.80	359.20	5,088.5	1,943.3	-23.6	1,943.4	3.07	-2.00	-2.33



Archer Directional Drilling Services

Survey Report



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,672.0	92.70	358.80	5,087.1	1,974.2	-24.1	1,974.4	1.33	-0.32	-1.29	
6,768.0	93.30	358.60	5,082.0	2,070.1	-26.3	2,070.2	0.66	0.63	-0.21	
6,832.0	92.00	358.40	5,079.1	2,134.0	-28.0	2,134.2	2.06	-2.03	-0.31	
6,895.0	90.80	358.30	5,077.5	2,196.9	-29.8	2,197.1	1.91	-1.90	-0.16	
6,959.0	90.80	358.00	5,076.6	2,260.9	-31.9	2,261.1	0.47	0.00	-0.47	
7,023.0	89.10	357.90	5,076.7	2,324.9	-34.2	2,325.1	2.66	-2.66	-0.16	
7,055.0	88.90	357.90	5,077.3	2,356.8	-35.3	2,357.1	0.63	-0.63	0.00	
7,087.0	89.50	357.70	5,077.7	2,388.8	-36.6	2,389.0	1.98	1.88	-0.63	
7,150.0	89.30	357.50	5,078.4	2,451.7	-39.2	2,452.0	0.45	-0.32	-0.32	
7,214.0	89.50	357.90	5,079.0	2,515.7	-41.8	2,516.0	0.70	0.31	0.63	
7,246.0	89.80	357.80	5,079.2	2,547.7	-43.0	2,548.0	0.99	0.94	-0.31	
7,278.0	90.00	358.50	5,079.3	2,579.6	-44.0	2,580.0	2.28	0.63	2.19	
7,342.0	89.40	359.70	5,079.6	2,643.6	-45.0	2,644.0	2.10	-0.94	1.88	
7,437.0	90.10	359.70	5,080.0	2,738.6	-45.5	2,739.0	0.74	0.74	0.00	
7,533.0	90.40	359.30	5,079.6	2,834.6	-46.3	2,835.0	0.52	0.31	-0.42	
7,628.0	91.10	359.80	5,078.4	2,929.6	-47.1	2,929.9	0.91	0.74	0.53	
7,724.0	91.30	359.90	5,076.4	3,025.6	-47.3	3,025.9	0.23	0.21	0.10	
7,820.0	91.50	359.90	5,074.0	3,121.6	-47.5	3,121.9	0.21	0.21	0.00	
7,915.0	91.20	359.20	5,071.8	3,216.5	-48.2	3,216.9	0.80	-0.32	-0.74	
8,011.0	91.30	359.20	5,069.7	3,312.5	-49.6	3,312.8	0.10	0.10	0.00	
8,107.0	90.70	0.80	5,068.0	3,408.5	-49.6	3,408.8	1.78	-0.63	1.67	
8,202.0	91.80	1.80	5,065.9	3,503.4	-47.4	3,503.7	1.56	1.16	1.05	
8,298.0	90.30	358.80	5,064.2	3,599.4	-46.9	3,599.7	3.49	-1.56	-3.13	
8,394.0	91.10	358.40	5,063.0	3,695.4	-49.3	3,695.7	0.93	0.83	-0.42	
8,489.0	89.80	357.70	5,062.3	3,790.3	-52.5	3,790.6	1.55	-1.37	-0.74	
8,553.0	90.40	358.50	5,062.1	3,854.3	-54.6	3,854.6	1.56	0.94	1.25	
8,585.0	90.10	358.50	5,062.0	3,886.3	-55.5	3,886.6	0.94	-0.94	0.00	
8,681.0	91.90	359.40	5,060.3	3,982.2	-57.2	3,982.6	2.10	1.88	0.94	
8,776.0	88.70	357.70	5,059.8	4,077.2	-59.6	4,077.6	3.81	-3.37	-1.79	
8,872.0	87.10	355.80	5,063.3	4,173.0	-65.1	4,173.4	2.59	-1.67	-1.98	
8,968.0	89.00	358.00	5,066.6	4,268.7	-70.3	4,269.2	3.03	1.98	2.29	
9,064.0	91.10	355.10	5,066.5	4,364.6	-76.0	4,365.1	3.73	2.19	-3.02	
9,159.0	91.10	354.70	5,064.7	4,459.2	-84.5	4,459.8	0.42	0.00	-0.42	
9,255.0	91.40	354.30	5,062.6	4,554.7	-93.7	4,555.4	0.52	0.31	-0.42	
9,351.0	91.60	354.00	5,060.1	4,650.2	-103.5	4,651.0	0.38	0.21	-0.31	
9,446.0	91.10	353.90	5,057.9	4,744.6	-113.5	4,745.5	0.54	-0.53	-0.11	
9,542.0	91.50	353.40	5,055.7	4,840.0	-124.1	4,841.0	0.67	0.42	-0.52	
9,638.0	92.20	353.40	5,052.6	4,935.3	-135.1	4,936.4	0.73	0.73	0.00	
9,733.0	92.70	353.20	5,048.5	5,029.6	-146.2	5,030.8	0.57	0.53	-0.21	
<b>Last Survey</b>										
9,775.8	92.70	353.20	5,046.5	5,072.0	-151.2	5,073.2	0.00	0.00	0.00	
<b>Warren 3317 1-26H PBHL</b>										
9,786.0	92.70	353.20	5,046.0	5,082.1	-152.4	5,083.4	0.00	0.00	0.00	
<b>Projection to TD</b>										



Archer Directional Drilling Services

Survey Report



<b>Company:</b>	Sandridge Energy, INC.(mid-con.)	<b>Local Co-ordinate Reference:</b>	Well Warren 3317 1-26H
<b>Project:</b>	Comanche County (KS27S)	<b>TVD Reference:</b>	WELL @ 1817.0usft (Original Well Elev)
<b>Site:</b>	Sec. 26-T33S-R17W	<b>MD Reference:</b>	WELL @ 1817.0usft (Original Well Elev)
<b>Well:</b>	Warren 3317 1-26H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
750.0	750.0	6.3	0.0	
9,733.0	5,048.5	5,029.6	-146.2	Last Survey
9,786.0	5,046.0	5,082.1	-152.4	Projection to TD

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