

Archer

Sandridge Energy, INC.(mid-con.)

Harper Co. (KS27S)

Sec 10-T35S-R08W

Bryant 3508 2-10H/ Job #04269-431-22/ Horizon 15

Wellbore #1

Design: Wellbore #1

Standard Survey Report

19 June, 2013



Company:	Sandridge Energy, INC.(mid-con.)	Local Co-ordinate Reference:	Well Bryant 3508 2-10H/ Job #04269-431-22/ Horizon 15
Project:	Harper Co. (KS27S)	TVD Reference:	WELL @ 1307.0usft (Original Well Elev)
Site:	Sec 10-T35S-R08W	MD Reference:	WELL @ 1307.0usft (Original Well Elev)
Well:	Bryant 3508 2-10H/ Job #04269-431-22/ Horizon 15	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDMDB

Project	Harper Co. (KS27S)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Kansas South 1502		

Site	Sec 10-T35S-R08W				
Site Position:		Northing:	124,086.00 usft	Latitude:	37° 0' 25.250 N
From:	Map	Easting:	2,092,783.00 usft	Longitude:	98° 10' 56.218 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well	Bryant 3508 2-10H/ Job #04269-431-22/ Horizon 15					
Well Position	+N/-S	0.0 usft	Northing:	129,208.00 usft	Latitude:	37° 1' 15.732 N
	+E/-W	0.0 usft	Easting:	2,097,397.00 usft	Longitude:	98° 9' 59.113 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,289.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2013/05/17	4.56	65.13	51,696

Design	Wellbore #1				
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	179.66	

Survey Program	Date	2013/06/18			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
250.0	750.0	Single Shot Surveys (Wellbore #1)	MWD	MWD - Standard	
953.0	9,178.0	Archer MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
250.0	0.20	97.10	250.0	-0.1	0.4	0.1	0.08	0.08	0.00	
First Single Shot MWD Survey										
500.0	0.10	97.10	500.0	-0.1	1.1	0.1	0.04	-0.04	0.00	
750.0	0.60	97.10	750.0	-0.3	2.6	0.3	0.20	0.20	0.00	
Last Single Shot MWD Survey										
953.0	0.70	97.10	953.0	-0.6	4.9	0.6	0.05	0.05	0.00	
First Archer MWD Survey										

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Site:	Sec 10-T35S-R08W	MD Reference:	WELL @ 1307.0usft (Original Well Elev)
Well:	Bryant 3508 2-10H/ Job #04269-431-22/ Horizon 15	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDMDB

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)
1,411.0	0.70	312.00	1,411.0	0.9	5.6	-0.9	0.29	0.00	-31.68
1,883.0	0.30	26.40	1,883.0	4.0	4.0	-3.9	0.14	-0.08	15.76
2,356.0	0.60	350.20	2,355.9	7.5	4.1	-7.5	0.08	0.06	-7.65
2,831.0	0.50	36.80	2,830.9	11.6	4.9	-11.6	0.09	-0.02	9.81
3,304.0	0.10	85.30	3,303.9	13.3	6.6	-13.3	0.09	-0.08	10.25
3,779.0	0.60	247.00	3,778.9	12.4	4.7	-12.3	0.15	0.11	34.04
4,001.0	0.30	282.00	4,000.9	12.0	3.1	-12.0	0.18	-0.14	15.77
4,032.0	0.20	250.40	4,031.9	12.0	2.9	-12.0	0.54	-0.32	-101.94
4,064.0	1.10	176.60	4,063.9	11.7	2.9	-11.7	3.32	2.81	-230.63
4,095.0	3.10	171.70	4,094.9	10.6	3.0	-10.6	6.47	6.45	-15.81
4,127.0	5.50	168.50	4,126.8	8.2	3.5	-8.2	7.53	7.50	-10.00
4,158.0	7.60	166.90	4,157.6	4.8	4.2	-4.7	6.80	6.77	-5.16
4,190.0	9.30	165.90	4,189.2	0.2	5.3	-0.2	5.33	5.31	-3.13
4,222.0	10.90	166.30	4,220.7	-5.3	6.7	5.3	5.00	5.00	1.25
4,254.0	12.70	165.40	4,252.1	-11.6	8.3	11.6	5.65	5.63	-2.81
4,285.0	15.30	165.80	4,282.1	-18.9	10.2	18.9	8.39	8.39	1.29
4,317.0	17.80	165.90	4,312.8	-27.7	12.4	27.8	7.81	7.81	0.31
4,348.0	19.90	166.40	4,342.1	-37.4	14.8	37.5	6.79	6.77	1.61
4,380.0	22.20	167.00	4,372.0	-48.6	17.4	48.7	7.22	7.19	1.88
4,411.0	24.50	167.40	4,400.5	-60.6	20.1	60.7	7.44	7.42	1.29
4,443.0	25.50	165.50	4,429.5	-73.7	23.3	73.9	4.01	3.13	-5.94
4,475.0	25.10	168.60	4,458.4	-87.1	26.4	87.2	4.32	-1.25	9.69
4,506.0	25.00	172.10	4,486.5	-100.0	28.6	100.2	4.79	-0.32	11.29
4,538.0	25.10	172.30	4,515.5	-113.4	30.4	113.6	0.41	0.31	0.63
4,569.0	27.10	172.50	4,543.3	-126.9	32.2	127.1	6.46	6.45	0.65
4,601.0	30.60	174.30	4,571.3	-142.3	34.0	142.5	11.27	10.94	5.63
4,632.0	34.10	175.50	4,597.5	-158.8	35.4	159.0	11.48	11.29	3.87
4,664.0	37.90	176.50	4,623.4	-177.5	36.7	177.8	12.02	11.88	3.13
4,696.0	41.20	178.00	4,648.1	-197.9	37.7	198.1	10.74	10.31	4.69
4,727.0	42.90	177.90	4,671.1	-218.6	38.5	218.9	5.49	5.48	-0.32
4,759.0	45.40	178.60	4,694.0	-240.9	39.1	241.1	7.96	7.81	2.19
4,790.0	48.00	178.60	4,715.3	-263.5	39.7	263.7	8.39	8.39	0.00
4,822.0	50.50	177.40	4,736.2	-287.7	40.5	287.9	8.31	7.81	-3.75
4,853.0	54.20	176.20	4,755.1	-312.2	41.9	312.4	12.32	11.94	-3.87
4,885.0	57.80	175.20	4,773.0	-338.6	43.9	338.9	11.54	11.25	-3.13
4,916.0	61.20	174.30	4,788.7	-365.2	46.4	365.5	11.25	10.97	-2.90
4,947.0	65.70	174.00	4,802.6	-392.8	49.2	393.1	14.54	14.52	-0.97
4,979.0	69.60	174.30	4,814.8	-422.3	52.2	422.6	12.22	12.19	0.94
5,011.0	72.40	175.10	4,825.2	-452.4	55.0	452.7	9.06	8.75	2.50
5,043.0	76.20	176.40	4,833.8	-483.1	57.3	483.4	12.50	11.88	4.06
5,074.0	78.70	177.20	4,840.6	-513.3	59.0	513.6	8.45	8.06	2.58
5,105.0	81.80	177.50	4,845.8	-543.8	60.4	544.2	10.05	10.00	0.97
5,137.0	85.10	178.70	4,849.5	-575.6	61.4	575.9	10.96	10.31	3.75

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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)
5,168.0	87.40	179.30	4,851.5	-606.5	62.0	606.9	7.67	7.42	1.94
5,200.0	88.00	179.40	4,852.8	-638.5	62.3	638.8	1.90	1.88	0.31
5,231.0	88.40	179.70	4,853.8	-669.5	62.6	669.8	1.61	1.29	0.97
5,263.0	88.50	179.80	4,854.6	-701.5	62.7	701.8	0.44	0.31	0.31
5,294.0	88.70	179.40	4,855.4	-732.5	62.9	732.8	1.44	0.65	-1.29
5,327.0	88.60	179.50	4,856.2	-765.4	63.2	765.8	0.43	-0.30	0.30
5,359.0	89.00	180.00	4,856.8	-797.4	63.4	797.8	2.00	1.25	1.56
5,390.0	90.40	180.20	4,857.0	-828.4	63.3	828.8	4.56	4.52	0.65
5,422.0	91.30	180.60	4,856.5	-860.4	63.1	860.8	3.08	2.81	1.25
5,448.0	91.70	180.60	4,855.8	-886.4	62.8	886.8	1.54	1.54	0.00
5,518.0	90.20	180.80	4,854.7	-956.4	62.0	956.8	2.16	-2.14	0.29
5,549.0	90.10	180.70	4,854.6	-987.4	61.6	987.7	0.46	-0.32	-0.32
5,580.0	90.30	181.30	4,854.5	-1,018.4	61.0	1,018.7	2.04	0.65	1.94
5,675.0	91.50	181.40	4,853.0	-1,113.4	58.8	1,113.7	1.27	1.26	0.11
5,769.0	90.20	182.10	4,851.6	-1,207.3	55.9	1,207.6	1.57	-1.38	0.74
5,864.0	91.20	182.10	4,850.4	-1,302.2	52.4	1,302.5	1.05	1.05	0.00
5,957.0	87.40	182.80	4,851.6	-1,395.1	48.5	1,395.4	4.15	-4.09	0.75
6,051.0	88.30	182.80	4,855.1	-1,488.9	43.9	1,489.2	0.96	0.96	0.00
6,146.0	89.90	183.80	4,856.6	-1,583.8	38.4	1,584.0	1.99	1.68	1.05
6,240.0	91.20	184.40	4,855.7	-1,677.5	31.7	1,677.7	1.52	1.38	0.64
6,335.0	89.60	183.70	4,855.0	-1,772.3	25.0	1,772.4	1.84	-1.68	-0.74
6,430.0	89.60	183.00	4,855.7	-1,867.1	19.4	1,867.2	0.74	0.00	-0.74
6,525.0	89.90	182.90	4,856.1	-1,962.0	14.5	1,962.0	0.33	0.32	-0.11
6,619.0	90.40	182.50	4,855.9	-2,055.9	10.1	2,055.9	0.68	0.53	-0.43
6,714.0	90.90	182.90	4,854.8	-2,150.8	5.6	2,150.8	0.67	0.53	0.42
6,809.0	91.50	183.00	4,852.8	-2,245.6	0.8	2,245.6	0.64	0.63	0.11
6,904.0	91.10	182.20	4,850.6	-2,340.5	-3.6	2,340.4	0.94	-0.42	-0.84
6,999.0	91.20	182.20	4,848.7	-2,435.4	-7.2	2,435.3	0.11	0.11	0.00
7,094.0	91.20	180.50	4,846.7	-2,530.4	-9.4	2,530.3	1.79	0.00	-1.79
7,189.0	90.60	181.00	4,845.3	-2,625.3	-10.7	2,625.2	0.82	-0.63	0.53
7,283.0	92.40	181.20	4,842.8	-2,719.3	-12.5	2,719.2	1.93	1.91	0.21
7,378.0	89.00	180.40	4,841.6	-2,814.2	-13.8	2,814.1	3.68	-3.58	-0.84
7,472.0	89.40	180.20	4,842.9	-2,908.2	-14.3	2,908.1	0.48	0.43	-0.21
7,567.0	89.10	181.40	4,844.2	-3,003.2	-15.6	3,003.1	1.30	-0.32	1.26
7,663.0	89.40	179.00	4,845.4	-3,099.2	-16.0	3,099.1	2.52	0.31	-2.50
7,757.0	88.40	178.80	4,847.2	-3,193.2	-14.2	3,193.0	1.08	-1.06	-0.21
7,852.0	90.90	179.30	4,847.8	-3,288.1	-12.6	3,288.0	2.68	2.63	0.53
7,947.0	90.60	179.00	4,846.6	-3,383.1	-11.2	3,383.0	0.45	-0.32	-0.32
8,042.0	88.50	177.70	4,847.3	-3,478.1	-8.4	3,478.0	2.60	-2.21	-1.37
8,163.0	93.40	176.40	4,845.3	-3,598.9	-2.2	3,598.8	4.19	4.05	-1.07
8,258.0	95.50	175.40	4,838.0	-3,693.3	4.5	3,693.3	2.45	2.21	-1.05
8,353.0	93.20	176.10	4,830.8	-3,787.8	11.6	3,787.8	2.53	-2.42	0.74

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Site:	Sec 10-T35S-R08W	MD Reference:	WELL @ 1307.0usft (Original Well Elev)
Well:	Bryant 3508 2-10H/ Job #04269-431-22/ Horizon 15	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDMDB

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)
8,447.0	90.50	177.30	4,827.7	-3,881.6	17.0	3,881.6	3.14	-2.87	1.28
8,541.0	91.00	176.00	4,826.5	-3,975.4	22.5	3,975.5	1.48	0.53	-1.38
8,636.0	90.40	175.10	4,825.3	-4,070.1	29.8	4,070.2	1.14	-0.63	-0.95
8,730.0	89.40	174.60	4,825.5	-4,163.7	38.3	4,163.9	1.19	-1.06	-0.53
8,825.0	89.80	176.10	4,826.2	-4,258.4	46.0	4,258.6	1.63	0.42	1.58
8,920.0	90.10	176.50	4,826.2	-4,353.2	52.1	4,353.4	0.53	0.32	0.42
9,014.0	89.60	176.00	4,826.5	-4,447.0	58.3	4,447.3	0.75	-0.53	-0.53
9,108.0	90.90	175.90	4,826.1	-4,540.8	64.9	4,541.1	1.39	1.38	-0.11
Last Archer MWD Survey									
9,178.0	90.90	175.90	4,825.0	-4,610.6	69.9	4,610.9	0.00	0.00	0.00
Projection to TD - PBHL Bryant 2-10H									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.0	250.0	-0.1	0.4	First Single Shot MWD Survey
750.0	750.0	-0.3	2.6	Last Single Shot MWD Survey
953.0	953.0	-0.6	4.9	First Archer MWD Survey
9,108.0	4,826.1	-4,540.8	64.9	Last Archer MWD Survey
9,178.0	4,825.0	-4,610.6	69.9	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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