

# **SandRidge Energy**

**North Park Basin**

**T7N-R80W-S9**

**Castle 0780 8-17H20**

**Wellbore #1**

**Plan: Design #1**

## **Standard Survey Report**

**13 September, 2017**

# SandRidge Energy

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 8-17H20
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	WELL @ 8134.0usft
<b>Site:</b>	T7N-R80W-S9	<b>MD Reference:</b>	WELL @ 8134.0usft
<b>Well:</b>	Castle 0780 8-17H20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDMProd

<b>Project</b>	North Park Basin		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	T7N-R80W-S9		
<b>Site Position:</b>		<b>Northing:</b>	1,457,270.18 usft
<b>From:</b>	Map	<b>Easting:</b>	2,753,429.57 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	40° 35' 6.782 N
		<b>Longitude:</b>	106° 23' 15.932 W
		<b>Grid Convergence:</b>	-0.57 °

<b>Well</b>	Castle 0780 8-17H20		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft
		<b>Latitude:</b>	40° 35' 8.179 N
		<b>Longitude:</b>	106° 23' 14.745 W
		<b>Ground Level:</b>	8,118.0 usft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>
			(°)
	IGRF200510	12/31/2009	9.88
			<b>Dip Angle</b>
			(°)
			66.98
			<b>Field Strength</b>
			(nT)
			53,192

<b>Design</b>	Design #1		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>
			0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			<b>Direction</b>
			(°)
			183.57

<b>Survey Tool Program</b>	<b>Date</b>	9/13/2017		
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
(usft)	(usft)			
0.0	18,294.6	Design #1 (Wellbore #1)	Sperry MWD	Fixed:v2:standard declination

<b>Planned Survey</b>									
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Vertical</b>	<b>Dogleg</b>	<b>Build</b>	<b>Turn</b>
<b>Depth</b>	<b>(°)</b>	<b>(°)</b>	<b>Depth</b>	<b>(usft)</b>	<b>(usft)</b>	<b>Section</b>	<b>Rate</b>	<b>Rate</b>	<b>Rate</b>
<b>(usft)</b>			<b>(usft)</b>			<b>(usft)</b>	<b>(°/100usft)</b>	<b>(°/100usft)</b>	<b>(°/100usft)</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00

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## Survey Report

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<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	WELL @ 8134.0usft
<b>Site:</b>	T7N-R80W-S9	<b>MD Reference:</b>	WELL @ 8134.0usft
<b>Well:</b>	Castle 0780 8-17H20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDMProd

### Planned 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)
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Start Build 2.00</b>									
3,600.0	2.00	293.39	3,600.0	0.7	-1.6	-0.6	2.00	2.00	0.00
3,700.0	4.00	293.39	3,699.8	2.8	-6.4	-2.4	2.00	2.00	0.00
3,800.0	6.00	293.39	3,799.5	6.2	-14.4	-5.3	2.00	2.00	0.00
3,900.0	8.00	293.39	3,898.7	11.1	-25.6	-9.5	2.00	2.00	0.00
4,000.0	10.00	293.39	3,997.5	17.3	-39.9	-14.8	2.00	2.00	0.00
4,100.0	12.00	293.39	4,095.6	24.9	-57.5	-21.2	2.00	2.00	0.00
4,112.4	12.25	293.39	4,107.7	25.9	-59.8	-22.1	2.00	2.00	0.00
<b>Start 2661.4 hold at 4112.4 MD</b>									
4,200.0	12.25	293.39	4,193.4	33.3	-76.9	-28.4	0.00	0.00	0.00
4,300.0	12.25	293.39	4,291.1	41.7	-96.4	-35.6	0.00	0.00	0.00
4,400.0	12.25	293.39	4,388.8	50.1	-115.8	-42.8	0.00	0.00	0.00
4,500.0	12.25	293.39	4,486.5	58.5	-135.3	-50.0	0.00	0.00	0.00
4,600.0	12.25	293.39	4,584.2	66.9	-154.8	-57.2	0.00	0.00	0.00
4,700.0	12.25	293.39	4,682.0	75.4	-174.3	-64.4	0.00	0.00	0.00
4,800.0	12.25	293.39	4,779.7	83.8	-193.7	-71.6	0.00	0.00	0.00
4,900.0	12.25	293.39	4,877.4	92.2	-213.2	-78.8	0.00	0.00	0.00
5,000.0	12.25	293.39	4,975.1	100.6	-232.7	-86.0	0.00	0.00	0.00

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<b>Well:</b>	Castle 0780 8-17H20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDMPProd

### Planned 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)
5,100.0	12.25	293.39	5,072.9	109.1	-252.1	-93.1	0.00	0.00	0.00
5,200.0	12.25	293.39	5,170.6	117.5	-271.6	-100.3	0.00	0.00	0.00
5,300.0	12.25	293.39	5,268.3	125.9	-291.1	-107.5	0.00	0.00	0.00
5,400.0	12.25	293.39	5,366.0	134.3	-310.5	-114.7	0.00	0.00	0.00
5,500.0	12.25	293.39	5,463.8	142.7	-330.0	-121.9	0.00	0.00	0.00
5,600.0	12.25	293.39	5,561.5	151.2	-349.5	-129.1	0.00	0.00	0.00
5,700.0	12.25	293.39	5,659.2	159.6	-368.9	-136.3	0.00	0.00	0.00
5,800.0	12.25	293.39	5,756.9	168.0	-388.4	-143.5	0.00	0.00	0.00
5,900.0	12.25	293.39	5,854.7	176.4	-407.9	-150.7	0.00	0.00	0.00
6,000.0	12.25	293.39	5,952.4	184.8	-427.4	-157.9	0.00	0.00	0.00
6,100.0	12.25	293.39	6,050.1	193.3	-446.8	-165.1	0.00	0.00	0.00
6,200.0	12.25	293.39	6,147.8	201.7	-466.3	-172.3	0.00	0.00	0.00
6,300.0	12.25	293.39	6,245.6	210.1	-485.8	-179.5	0.00	0.00	0.00
6,400.0	12.25	293.39	6,343.3	218.5	-505.2	-186.6	0.00	0.00	0.00
6,500.0	12.25	293.39	6,441.0	226.9	-524.7	-193.8	0.00	0.00	0.00
6,600.0	12.25	293.39	6,538.7	235.4	-544.2	-201.0	0.00	0.00	0.00
6,700.0	12.25	293.39	6,636.5	243.8	-563.6	-208.2	0.00	0.00	0.00
6,773.7	12.25	293.39	6,708.5	250.0	-578.0	-213.5	0.00	0.00	0.00
<b>Start DLS 8.00 TFO -119.08</b>									
6,800.0	11.37	284.03	6,734.2	251.7	-583.1	-214.9	8.00	-3.33	-35.61
6,900.0	11.43	242.71	6,832.4	249.6	-601.5	-211.6	8.00	0.06	-41.32
7,000.0	16.08	214.67	6,929.6	233.6	-618.2	-194.7	8.00	4.65	-28.04
7,100.0	22.65	200.66	7,024.0	204.2	-632.9	-164.4	8.00	6.57	-14.00
7,200.0	29.89	192.93	7,113.6	161.8	-645.3	-121.3	8.00	7.25	-7.73
7,272.9	35.37	189.19	7,175.0	123.2	-652.7	-82.3	8.00	7.51	-5.14
<b>Niobrara</b>									
7,300.0	37.43	188.05	7,196.8	107.3	-655.1	-66.3	8.00	7.60	-4.22
7,400.0	45.10	184.61	7,271.9	41.8	-662.2	-0.5	8.00	7.67	-3.44
7,500.0	52.85	181.99	7,337.5	-33.4	-666.5	74.8	8.00	7.75	-2.62
7,591.6	60.00	180.03	7,388.1	-109.7	-667.7	151.1	8.00	7.80	-2.14
7,591.7	60.00	180.03	7,388.2	-109.7	-667.7	151.1	0.00	0.00	0.00
<b>Start 150.0 hold at 7591.7 MD</b>									
7,600.0	60.00	180.03	7,392.3	-116.9	-667.8	158.3	0.00	0.00	0.00
7,700.0	60.00	180.03	7,442.3	-203.5	-667.8	244.7	0.00	0.00	0.00
7,741.6	60.00	180.03	7,463.1	-239.6	-667.8	280.7	0.00	0.00	0.00
7,741.7	60.00	180.03	7,463.2	-239.7	-667.8	280.8	0.00	0.00	0.00
<b>Start Build 10.00</b>									
7,800.0	65.84	180.03	7,489.7	-291.5	-667.8	332.6	10.01	10.01	0.00
7,900.0	75.84	180.03	7,522.5	-385.9	-667.9	426.7	10.00	10.00	0.00
8,000.0	85.84	180.03	7,538.4	-484.5	-667.9	525.1	10.00	10.00	0.00
8,041.6	90.00	180.03	7,539.9	-526.1	-667.9	566.6	10.00	10.00	0.00
8,041.7	90.00	180.03	7,539.9	-526.1	-667.9	566.7	0.00	0.00	0.00
<b>Start 10022.8 hold at 8041.7 MD</b>									
8,100.0	90.00	180.03	7,539.9	-584.5	-668.0	624.9	0.00	0.00	0.00

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## Survey Report

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<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	WELL @ 8134.0usft
<b>Site:</b>	T7N-R80W-S9	<b>MD Reference:</b>	WELL @ 8134.0usft
<b>Well:</b>	Castle 0780 8-17H20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDMProd

### Planned 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)
8,200.0	90.00	180.03	7,539.9	-684.5	-668.0	724.7	0.00	0.00	0.00
8,300.0	90.00	180.03	7,539.9	-784.5	-668.0	824.5	0.00	0.00	0.00
8,400.0	90.00	180.03	7,539.9	-884.5	-668.1	924.3	0.00	0.00	0.00
8,500.0	90.00	180.03	7,539.9	-984.5	-668.1	1,024.1	0.00	0.00	0.00
8,600.0	90.00	180.03	7,539.9	-1,084.5	-668.2	1,123.9	0.00	0.00	0.00
8,700.0	90.00	180.03	7,539.9	-1,184.5	-668.2	1,223.8	0.00	0.00	0.00
8,800.0	90.00	180.03	7,539.9	-1,284.5	-668.3	1,323.6	0.00	0.00	0.00
8,900.0	90.00	180.03	7,539.9	-1,384.5	-668.3	1,423.4	0.00	0.00	0.00
9,000.0	90.00	180.03	7,539.9	-1,484.5	-668.4	1,523.2	0.00	0.00	0.00
9,100.0	90.00	180.03	7,539.9	-1,584.5	-668.4	1,623.0	0.00	0.00	0.00
9,200.0	90.00	180.03	7,539.9	-1,684.5	-668.4	1,722.8	0.00	0.00	0.00
9,300.0	90.00	180.03	7,539.9	-1,784.5	-668.5	1,822.6	0.00	0.00	0.00
9,400.0	90.00	180.03	7,539.9	-1,884.5	-668.5	1,922.4	0.00	0.00	0.00
9,500.0	90.00	180.03	7,539.9	-1,984.5	-668.6	2,022.2	0.00	0.00	0.00
9,600.0	90.00	180.03	7,539.9	-2,084.5	-668.6	2,122.0	0.00	0.00	0.00
9,700.0	90.00	180.03	7,539.9	-2,184.5	-668.7	2,221.8	0.00	0.00	0.00
9,800.0	90.00	180.03	7,539.9	-2,284.5	-668.7	2,321.7	0.00	0.00	0.00
9,900.0	90.00	180.03	7,539.9	-2,384.5	-668.7	2,421.5	0.00	0.00	0.00
10,000.0	90.00	180.03	7,539.9	-2,484.5	-668.8	2,521.3	0.00	0.00	0.00
10,100.0	90.00	180.03	7,539.9	-2,584.5	-668.8	2,621.1	0.00	0.00	0.00
10,200.0	90.00	180.03	7,539.9	-2,684.5	-668.9	2,720.9	0.00	0.00	0.00
10,300.0	90.00	180.03	7,539.9	-2,784.5	-668.9	2,820.7	0.00	0.00	0.00
10,400.0	90.00	180.03	7,539.9	-2,884.5	-669.0	2,920.5	0.00	0.00	0.00
10,500.0	90.00	180.03	7,539.9	-2,984.5	-669.0	3,020.3	0.00	0.00	0.00
10,600.0	90.00	180.03	7,539.9	-3,084.5	-669.0	3,120.1	0.00	0.00	0.00
10,700.0	90.00	180.03	7,539.9	-3,184.5	-669.1	3,219.9	0.00	0.00	0.00
10,800.0	90.00	180.03	7,539.9	-3,284.5	-669.1	3,319.7	0.00	0.00	0.00
10,900.0	90.00	180.03	7,539.9	-3,384.5	-669.2	3,419.5	0.00	0.00	0.00
11,000.0	90.00	180.03	7,539.9	-3,484.5	-669.2	3,519.4	0.00	0.00	0.00
11,100.0	90.00	180.03	7,539.9	-3,584.5	-669.3	3,619.2	0.00	0.00	0.00
11,200.0	90.00	180.03	7,539.9	-3,684.5	-669.3	3,719.0	0.00	0.00	0.00
11,300.0	90.00	180.03	7,539.9	-3,784.5	-669.4	3,818.8	0.00	0.00	0.00
11,400.0	90.00	180.03	7,539.9	-3,884.5	-669.4	3,918.6	0.00	0.00	0.00
11,500.0	90.00	180.03	7,539.9	-3,984.5	-669.4	4,018.4	0.00	0.00	0.00
11,600.0	90.00	180.03	7,539.9	-4,084.5	-669.5	4,118.2	0.00	0.00	0.00
11,700.0	90.00	180.03	7,539.9	-4,184.5	-669.5	4,218.0	0.00	0.00	0.00
11,800.0	90.00	180.03	7,539.9	-4,284.5	-669.6	4,317.8	0.00	0.00	0.00
11,900.0	90.00	180.03	7,539.9	-4,384.5	-669.6	4,417.6	0.00	0.00	0.00
12,000.0	90.00	180.03	7,539.9	-4,484.5	-669.7	4,517.4	0.00	0.00	0.00
12,100.0	90.00	180.03	7,539.9	-4,584.5	-669.7	4,617.3	0.00	0.00	0.00
12,200.0	90.00	180.03	7,539.9	-4,684.5	-669.7	4,717.1	0.00	0.00	0.00
12,300.0	90.00	180.03	7,539.9	-4,784.5	-669.8	4,816.9	0.00	0.00	0.00
12,400.0	90.00	180.03	7,539.9	-4,884.5	-669.8	4,916.7	0.00	0.00	0.00
12,500.0	90.00	180.03	7,539.9	-4,984.5	-669.9	5,016.5	0.00	0.00	0.00

# SandRidge Energy

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 8-17H20
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	WELL @ 8134.0usft
<b>Site:</b>	T7N-R80W-S9	<b>MD Reference:</b>	WELL @ 8134.0usft
<b>Well:</b>	Castle 0780 8-17H20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDMPProd

### Planned 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)
12,600.0	90.00	180.03	7,539.9	-5,084.5	-669.9	5,116.3	0.00	0.00	0.00
12,700.0	90.00	180.03	7,539.9	-5,184.5	-670.0	5,216.1	0.00	0.00	0.00
12,800.0	90.00	180.03	7,539.9	-5,284.5	-670.0	5,315.9	0.00	0.00	0.00
12,900.0	90.00	180.03	7,539.9	-5,384.5	-670.1	5,415.7	0.00	0.00	0.00
13,000.0	90.00	180.03	7,539.9	-5,484.5	-670.1	5,515.5	0.00	0.00	0.00
13,100.0	90.00	180.03	7,539.9	-5,584.5	-670.1	5,615.3	0.00	0.00	0.00
13,200.0	90.00	180.03	7,539.9	-5,684.5	-670.2	5,715.1	0.00	0.00	0.00
13,300.0	90.00	180.03	7,539.9	-5,784.5	-670.2	5,815.0	0.00	0.00	0.00
13,400.0	90.00	180.03	7,539.9	-5,884.5	-670.3	5,914.8	0.00	0.00	0.00
13,500.0	90.00	180.03	7,539.9	-5,984.5	-670.3	6,014.6	0.00	0.00	0.00
13,600.0	90.00	180.03	7,539.9	-6,084.5	-670.4	6,114.4	0.00	0.00	0.00
13,700.0	90.00	180.03	7,539.9	-6,184.5	-670.4	6,214.2	0.00	0.00	0.00
13,800.0	90.00	180.03	7,539.9	-6,284.5	-670.4	6,314.0	0.00	0.00	0.00
13,900.0	90.00	180.03	7,539.9	-6,384.5	-670.5	6,413.8	0.00	0.00	0.00
14,000.0	90.00	180.03	7,539.9	-6,484.5	-670.5	6,513.6	0.00	0.00	0.00
14,100.0	90.00	180.03	7,539.9	-6,584.5	-670.6	6,613.4	0.00	0.00	0.00
14,200.0	90.00	180.03	7,539.9	-6,684.5	-670.6	6,713.2	0.00	0.00	0.00
14,300.0	90.00	180.03	7,539.9	-6,784.5	-670.7	6,813.0	0.00	0.00	0.00
14,400.0	90.00	180.03	7,539.9	-6,884.5	-670.7	6,912.9	0.00	0.00	0.00
14,500.0	90.00	180.03	7,539.9	-6,984.5	-670.8	7,012.7	0.00	0.00	0.00
14,600.0	90.00	180.03	7,539.9	-7,084.5	-670.8	7,112.5	0.00	0.00	0.00
14,700.0	90.00	180.03	7,539.9	-7,184.5	-670.8	7,212.3	0.00	0.00	0.00
14,800.0	90.00	180.03	7,539.9	-7,284.5	-670.9	7,312.1	0.00	0.00	0.00
14,900.0	90.00	180.03	7,539.9	-7,384.5	-670.9	7,411.9	0.00	0.00	0.00
15,000.0	90.00	180.03	7,539.9	-7,484.5	-671.0	7,511.7	0.00	0.00	0.00
15,100.0	90.00	180.03	7,539.9	-7,584.5	-671.0	7,611.5	0.00	0.00	0.00
15,200.0	90.00	180.03	7,539.9	-7,684.5	-671.1	7,711.3	0.00	0.00	0.00
15,300.0	90.00	180.03	7,539.9	-7,784.5	-671.1	7,811.1	0.00	0.00	0.00
15,400.0	90.00	180.03	7,539.9	-7,884.4	-671.1	7,910.9	0.00	0.00	0.00
15,500.0	90.00	180.03	7,539.9	-7,984.4	-671.2	8,010.7	0.00	0.00	0.00
15,600.0	90.00	180.03	7,539.9	-8,084.4	-671.2	8,110.6	0.00	0.00	0.00
15,700.0	90.00	180.03	7,539.9	-8,184.4	-671.3	8,210.4	0.00	0.00	0.00
15,800.0	90.00	180.03	7,539.9	-8,284.4	-671.3	8,310.2	0.00	0.00	0.00
15,900.0	90.00	180.03	7,539.9	-8,384.4	-671.4	8,410.0	0.00	0.00	0.00
16,000.0	90.00	180.03	7,539.9	-8,484.4	-671.4	8,509.8	0.00	0.00	0.00
16,100.0	90.00	180.03	7,539.9	-8,584.4	-671.5	8,609.6	0.00	0.00	0.00
16,200.0	90.00	180.03	7,539.9	-8,684.4	-671.5	8,709.4	0.00	0.00	0.00
16,300.0	90.00	180.03	7,539.9	-8,784.4	-671.5	8,809.2	0.00	0.00	0.00
16,400.0	90.00	180.03	7,539.9	-8,884.4	-671.6	8,909.0	0.00	0.00	0.00
16,500.0	90.00	180.03	7,539.9	-8,984.4	-671.6	9,008.8	0.00	0.00	0.00
16,600.0	90.00	180.03	7,539.9	-9,084.4	-671.7	9,108.6	0.00	0.00	0.00
16,700.0	90.00	180.03	7,539.9	-9,184.4	-671.7	9,208.5	0.00	0.00	0.00
16,800.0	90.00	180.03	7,539.9	-9,284.4	-671.8	9,308.3	0.00	0.00	0.00

# SandRidge Energy

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 8-17H20
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	WELL @ 8134.0usft
<b>Site:</b>	T7N-R80W-S9	<b>MD Reference:</b>	WELL @ 8134.0usft
<b>Well:</b>	Castle 0780 8-17H20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDMProd

### Planned 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)
16,900.0	90.00	180.03	7,539.9	-9,384.4	-671.8	9,408.1	0.00	0.00	0.00
17,000.0	90.00	180.03	7,539.9	-9,484.4	-671.8	9,507.9	0.00	0.00	0.00
17,100.0	90.00	180.03	7,539.9	-9,584.4	-671.9	9,607.7	0.00	0.00	0.00
17,200.0	90.00	180.03	7,539.9	-9,684.4	-671.9	9,707.5	0.00	0.00	0.00
17,300.0	90.00	180.03	7,539.9	-9,784.4	-672.0	9,807.3	0.00	0.00	0.00
17,400.0	90.00	180.03	7,539.9	-9,884.4	-672.0	9,907.1	0.00	0.00	0.00
17,500.0	90.00	180.03	7,539.9	-9,984.4	-672.1	10,006.9	0.00	0.00	0.00
17,600.0	90.00	180.03	7,539.9	-10,084.4	-672.1	10,106.7	0.00	0.00	0.00
17,700.0	90.00	180.03	7,539.9	-10,184.4	-672.2	10,206.5	0.00	0.00	0.00
17,800.0	90.00	180.03	7,539.9	-10,284.4	-672.2	10,306.3	0.00	0.00	0.00
17,900.0	90.00	180.03	7,539.9	-10,384.4	-672.2	10,406.2	0.00	0.00	0.00
18,000.0	90.00	180.03	7,539.9	-10,484.4	-672.3	10,506.0	0.00	0.00	0.00
18,064.5	90.00	180.03	7,539.9	-10,549.0	-672.3	10,570.4	0.00	0.00	0.00
<b>TD at 18064.5</b>									
18,100.0	90.00	180.03	7,539.9	-10,584.4	-672.3	10,605.8	0.00	0.00	0.00
18,200.0	90.00	180.03	7,539.9	-10,684.4	-672.4	10,705.6	0.00	0.00	0.00
18,294.6	90.00	180.03	7,539.9	-10,779.1	-672.4	10,800.0	0.00	0.00	0.00

### Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Castle 8	0.00	360.00	7,540.0	-10,779.1	-672.4	1,446,631.59	2,752,850.16	40° 33' 21.603 N	106° 23' 22.059 W
- hit/miss target									
- Shape									
- plan misses target center by 0.1usft at 18294.6usft MD (7539.9 TVD, -10779.1 N, -672.4 E)									
- Point									

### Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,272.9	7,175.0	Niobrara		0.00	

### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
3500	3500	0	0	Start Build 2.00
4112	4108	26	-60	Start 2661.4 hold at 4112.4 MD
6774	6708	250	-578	Start DLS 8.00 TFO -119.08
7592	7388	-110	-668	Start 150.0 hold at 7591.7 MD
7742	7463	-240	-668	Start Build 10.00
8042	7540	-526	-668	Start 10022.8 hold at 8041.7 MD
18,065	7540	-10,549	-667	TD at 18064.5

## SandRidge Energy

### Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 8-17H20
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	WELL @ 8134.0usft
<b>Site:</b>	T7N-R80W-S9	<b>MD Reference:</b>	WELL @ 8134.0usft
<b>Well:</b>	Castle 0780 8-17H20	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDMProd

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