

SandRidge Energy

**North Park Basin
T8N-R81W-S7
Hebron 0781 4-12H**

Wellbore #1

Plan: Design #1

Standard Survey Report

29 September, 2016

SandRidge Energy

Survey Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Hebron 0781 4-12H
Project:	North Park Basin	TVD Reference:	KB @ 8146.0usft
Site:	T8N-R81W-S7	MD Reference:	KB @ 8146.0usft
Well:	Hebron 0781 4-12H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDMProd

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

Site	T8N-R81W-S7				
Site Position:		Northing:	1,462,087.17 usft	Latitude:	40° 35' 53.334 N
From:	Map	Easting:	2,743,086.13 usft	Longitude:	106° 25' 30.641 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.60 °

Well	Hebron 0781 4-12H					
Well Position	+N/-S	0.0 usft	Northing:	1,461,937.46 usft	Latitude:	40° 35' 51.851 N
	+E/-W	0.0 usft	Easting:	2,743,054.63 usft	Longitude:	106° 25' 31.029 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,130.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.90	66.98	53,194

Design	Design #1				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	180.00	

Survey Tool Program	Date	9/29/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,763.5	Design #1 (Wellbore #1)	Sperry MWD	Fixed:v2:standard declination	

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)	
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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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	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
Start Build 2.00									
3,300.0	2.00	290.56	3,300.0	0.6	-1.6	-0.6	2.00	2.00	0.00
3,400.0	4.00	290.56	3,399.8	2.5	-6.5	-2.5	2.00	2.00	0.00
3,500.0	6.00	290.56	3,499.5	5.5	-14.7	-5.5	2.00	2.00	0.00
3,600.0	8.00	290.56	3,598.7	9.8	-26.1	-9.8	2.00	2.00	0.00
3,700.0	10.00	290.56	3,697.5	15.3	-40.8	-15.3	2.00	2.00	0.00
3,800.0	12.00	290.56	3,795.6	22.0	-58.6	-22.0	2.00	2.00	0.00
3,900.0	14.00	290.56	3,893.1	29.9	-79.7	-29.9	2.00	2.00	0.00
4,000.0	16.00	290.56	3,989.6	39.0	-103.9	-39.0	2.00	2.00	0.00
4,100.0	18.00	290.56	4,085.3	49.2	-131.3	-49.2	2.00	2.00	0.00
4,170.2	19.40	290.56	4,151.8	57.1	-152.4	-57.1	2.00	2.00	0.00
Start 2081.9 hold at 4170.2 MD									
4,200.0	19.40	290.56	4,179.9	60.6	-161.6	-60.6	0.00	0.00	0.00
4,300.0	19.40	290.56	4,274.2	72.3	-192.7	-72.3	0.00	0.00	0.00
4,400.0	19.40	290.56	4,368.5	83.9	-223.8	-83.9	0.00	0.00	0.00
4,500.0	19.40	290.56	4,462.8	95.6	-255.0	-95.6	0.00	0.00	0.00
4,600.0	19.40	290.56	4,557.1	107.3	-286.1	-107.3	0.00	0.00	0.00
4,700.0	19.40	290.56	4,651.5	118.9	-317.2	-118.9	0.00	0.00	0.00
4,800.0	19.40	290.56	4,745.8	130.6	-348.3	-130.6	0.00	0.00	0.00
4,900.0	19.40	290.56	4,840.1	142.3	-379.4	-142.3	0.00	0.00	0.00
5,000.0	19.40	290.56	4,934.4	153.9	-410.5	-153.9	0.00	0.00	0.00

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Design:	Design #1	Database:	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	19.40	290.56	5,028.7	165.6	-441.6	-165.6	0.00	0.00	0.00
5,200.0	19.40	290.56	5,123.1	177.3	-472.7	-177.3	0.00	0.00	0.00
5,300.0	19.40	290.56	5,217.4	188.9	-503.8	-188.9	0.00	0.00	0.00
5,400.0	19.40	290.56	5,311.7	200.6	-534.9	-200.6	0.00	0.00	0.00
5,500.0	19.40	290.56	5,406.0	212.3	-566.0	-212.3	0.00	0.00	0.00
5,600.0	19.40	290.56	5,500.3	223.9	-597.1	-223.9	0.00	0.00	0.00
5,700.0	19.40	290.56	5,594.7	235.6	-628.3	-235.6	0.00	0.00	0.00
5,800.0	19.40	290.56	5,689.0	247.3	-659.4	-247.3	0.00	0.00	0.00
5,900.0	19.40	290.56	5,783.3	258.9	-690.5	-258.9	0.00	0.00	0.00
6,000.0	19.40	290.56	5,877.6	270.6	-721.6	-270.6	0.00	0.00	0.00
6,100.0	19.40	290.56	5,971.9	282.3	-752.7	-282.3	0.00	0.00	0.00
6,200.0	19.40	290.56	6,066.3	293.9	-783.8	-293.9	0.00	0.00	0.00
6,252.1	19.40	290.56	6,115.4	300.0	-800.0	-300.0	0.00	0.00	0.00
Start DLS 8.00 TFO -42.93									
6,300.0	22.36	283.68	6,160.2	305.0	-816.3	-305.0	8.00	6.16	-14.35
6,350.0	25.68	278.19	6,205.8	308.7	-836.3	-308.7	8.00	6.64	-10.99
6,400.0	29.16	273.90	6,250.2	311.1	-859.2	-311.1	8.00	6.96	-8.58
6,450.0	32.75	270.47	6,293.1	312.1	-884.8	-312.1	8.00	7.18	-6.87
6,500.0	36.42	267.65	6,334.2	311.6	-913.2	-311.6	8.00	7.33	-5.63
6,550.0	40.14	265.28	6,373.5	309.6	-944.1	-309.6	8.00	7.45	-4.73
6,558.6	40.78	264.92	6,380.0	309.1	-949.6	-309.1	8.00	7.50	-4.30
Niobrara									
6,600.0	43.90	263.26	6,410.6	306.3	-977.4	-306.3	8.00	7.53	-4.00
6,650.0	47.70	261.50	6,445.5	301.5	-1,012.9	-301.5	8.00	7.59	-3.53
6,700.0	51.52	259.93	6,477.9	295.3	-1,050.5	-295.3	8.00	7.64	-3.12
6,750.0	55.36	258.53	6,507.7	287.8	-1,089.9	-287.8	8.00	7.68	-2.81
6,800.0	59.21	257.25	6,534.7	279.0	-1,131.1	-279.0	8.00	7.70	-2.56
6,810.3	60.00	257.00	6,539.9	277.0	-1,139.7	-277.0	8.00	7.72	-2.43
Start 150.0 hold at 6810.3 MD									
6,900.0	60.00	257.00	6,584.7	259.5	-1,215.4	-259.5	0.00	0.00	0.00
6,960.3	60.00	257.00	6,614.9	247.8	-1,266.3	-247.8	0.00	0.00	0.00
Start DLS 10.00 TFO -83.41									
7,000.0	60.53	252.47	6,634.6	238.7	-1,299.5	-238.7	10.00	1.34	-11.41
7,050.0	61.42	246.84	6,658.9	223.5	-1,340.5	-223.5	10.00	1.77	-11.26
7,100.0	62.53	241.31	6,682.4	204.2	-1,380.2	-204.2	10.00	2.23	-11.04
7,150.0	63.86	235.91	6,704.9	181.0	-1,418.2	-181.0	10.00	2.66	-10.80
7,200.0	65.39	230.64	6,726.4	154.0	-1,454.4	-154.0	10.00	3.05	-10.54
7,250.0	67.09	225.51	6,746.5	123.4	-1,488.4	-123.4	10.00	3.41	-10.27
7,300.0	68.95	220.50	6,765.2	89.5	-1,520.0	-89.5	10.00	3.73	-10.01
7,350.0	70.96	215.63	6,782.4	52.5	-1,549.0	-52.5	10.00	4.01	-9.75
7,400.0	73.09	210.87	6,797.8	12.7	-1,575.0	-12.7	10.00	4.26	-9.51
7,450.0	75.33	206.22	6,811.4	-29.5	-1,598.0	29.5	10.00	4.48	-9.29
7,500.0	77.66	201.67	6,823.1	-73.9	-1,617.7	73.9	10.00	4.66	-9.10
7,550.0	80.06	197.20	6,832.8	-120.2	-1,634.0	120.2	10.00	4.81	-8.94

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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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)
7,600.0	82.52	192.80	6,840.4	-167.9	-1,646.8	167.9	10.00	4.92	-8.81
7,650.0	85.03	188.45	6,845.8	-216.7	-1,656.0	216.7	10.00	5.01	-8.71
7,700.0	87.56	184.13	6,849.0	-266.3	-1,661.4	266.3	10.00	5.07	-8.64
7,747.9	90.00	180.00	6,850.0	-314.2	-1,663.2	314.2	10.00	5.09	-8.61
Start 4016.0 hold at 7747.9 MD									
7,800.0	90.00	180.00	6,850.0	-366.3	-1,663.2	366.3	0.00	0.00	0.00
7,900.0	90.00	180.00	6,850.0	-466.3	-1,663.2	466.3	0.00	0.00	0.00
8,000.0	90.00	180.00	6,850.0	-566.3	-1,663.2	566.3	0.00	0.00	0.00
8,100.0	90.00	180.00	6,850.0	-666.3	-1,663.2	666.3	0.00	0.00	0.00
8,200.0	90.00	180.00	6,850.0	-766.3	-1,663.2	766.3	0.00	0.00	0.00
8,300.0	90.00	180.00	6,850.0	-866.3	-1,663.2	866.3	0.00	0.00	0.00
8,400.0	90.00	180.00	6,850.0	-966.3	-1,663.2	966.3	0.00	0.00	0.00
8,500.0	90.00	180.00	6,850.0	-1,066.3	-1,663.2	1,066.3	0.00	0.00	0.00
8,600.0	90.00	180.00	6,850.0	-1,166.3	-1,663.2	1,166.3	0.00	0.00	0.00
8,700.0	90.00	180.00	6,850.0	-1,266.3	-1,663.2	1,266.3	0.00	0.00	0.00
8,800.0	90.00	180.00	6,850.0	-1,366.3	-1,663.2	1,366.3	0.00	0.00	0.00
8,900.0	90.00	180.00	6,850.0	-1,466.3	-1,663.2	1,466.3	0.00	0.00	0.00
9,000.0	90.00	180.00	6,850.0	-1,566.3	-1,663.3	1,566.3	0.00	0.00	0.00
9,100.0	90.00	180.00	6,850.0	-1,666.3	-1,663.3	1,666.3	0.00	0.00	0.00
9,200.0	90.00	180.00	6,850.0	-1,766.3	-1,663.3	1,766.3	0.00	0.00	0.00
9,300.0	90.00	180.00	6,850.0	-1,866.3	-1,663.3	1,866.3	0.00	0.00	0.00
9,400.0	90.00	180.00	6,850.0	-1,966.3	-1,663.3	1,966.3	0.00	0.00	0.00
9,500.0	90.00	180.00	6,850.0	-2,066.3	-1,663.3	2,066.3	0.00	0.00	0.00
9,600.0	90.00	180.00	6,850.0	-2,166.3	-1,663.3	2,166.3	0.00	0.00	0.00
9,700.0	90.00	180.00	6,850.0	-2,266.3	-1,663.3	2,266.3	0.00	0.00	0.00
9,800.0	90.00	180.00	6,850.0	-2,366.3	-1,663.3	2,366.3	0.00	0.00	0.00
9,900.0	90.00	180.00	6,850.0	-2,466.3	-1,663.3	2,466.3	0.00	0.00	0.00
10,000.0	90.00	180.00	6,850.0	-2,566.3	-1,663.3	2,566.3	0.00	0.00	0.00
10,100.0	90.00	180.00	6,850.0	-2,666.3	-1,663.3	2,666.3	0.00	0.00	0.00
10,200.0	90.00	180.00	6,850.0	-2,766.3	-1,663.3	2,766.3	0.00	0.00	0.00
10,300.0	90.00	180.00	6,850.0	-2,866.3	-1,663.3	2,866.3	0.00	0.00	0.00
10,400.0	90.00	180.00	6,850.0	-2,966.3	-1,663.3	2,966.3	0.00	0.00	0.00
10,500.0	90.00	180.00	6,850.0	-3,066.3	-1,663.4	3,066.3	0.00	0.00	0.00
10,600.0	90.00	180.00	6,850.0	-3,166.3	-1,663.4	3,166.3	0.00	0.00	0.00
10,700.0	90.00	180.00	6,850.0	-3,266.3	-1,663.4	3,266.3	0.00	0.00	0.00
10,800.0	90.00	180.00	6,850.0	-3,366.3	-1,663.4	3,366.3	0.00	0.00	0.00
10,900.0	90.00	180.00	6,850.0	-3,466.3	-1,663.4	3,466.3	0.00	0.00	0.00
11,000.0	90.00	180.00	6,850.0	-3,566.3	-1,663.4	3,566.3	0.00	0.00	0.00
11,100.0	90.00	180.00	6,850.0	-3,666.3	-1,663.4	3,666.3	0.00	0.00	0.00
11,200.0	90.00	180.00	6,850.0	-3,766.3	-1,663.4	3,766.3	0.00	0.00	0.00
11,300.0	90.00	180.00	6,850.0	-3,866.3	-1,663.4	3,866.3	0.00	0.00	0.00
11,400.0	90.00	180.00	6,850.0	-3,966.3	-1,663.4	3,966.3	0.00	0.00	0.00
11,500.0	90.00	180.00	6,850.0	-4,066.3	-1,663.4	4,066.3	0.00	0.00	0.00
11,600.0	90.00	180.00	6,850.0	-4,166.3	-1,663.4	4,166.3	0.00	0.00	0.00

SandRidge Energy

Survey Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Hebron 0781 4-12H
Project:	North Park Basin	TVD Reference:	KB @ 8146.0usft
Site:	T8N-R81W-S7	MD Reference:	KB @ 8146.0usft
Well:	Hebron 0781 4-12H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	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)
11,700.0	90.00	180.00	6,850.0	-4,266.3	-1,663.4	4,266.3	0.00	0.00	0.00
11,763.9	90.00	180.00	6,850.0	-4,330.2	-1,663.4	4,330.2	0.00	0.00	0.00
TD at 11763.9									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Hebron 4-12 - plan hits target center - Point	0.00	360.00	6,850.0	-4,330.2	-1,663.4	1,457,607.26	2,741,391.19	40° 35' 8.892 N	106° 25' 52.003 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,558.6	6,380.0	Niobrara		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3200	3200	0	0	Start Build 2.00
4170	4152	57	-152	Start 2081.9 hold at 4170.2 MD
6252	6115	300	-800	Start DLS 8.00 TFO -42.93
6810	6540	277	-1140	Start 150.0 hold at 6810.3 MD
6960	6615	248	-1266	Start DLS 10.00 TFO -83.41
7748	6850	-314	-1663	Start 4016.0 hold at 7747.9 MD
11,764	6850	-4330	-1663	TD at 11763.9

Checked By: _____ Approved By: _____ Date: _____