

SandRidge Energy

**North Park Basin
T8N-R81W-S7
Hebron 0781 2-12H**

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 2-12H
Project: North Park Basin	TVD Reference: KB @ 8146.0usft
Site: T8N-R81W-S7	MD Reference: KB @ 8146.0usft
Well: Hebron 0781 2-12H	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 2-12H			
Well Position	+N/-S 0.0 usft	Northing: 1,461,937.34 usft	Latitude: 40° 35' 51.852 N
	+E/-W 0.0 usft	Easting: 2,743,069.62 usft	Longitude: 106° 25' 30.835 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	11,414.2	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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Well:	Hebron 0781 2-12H	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)
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
3,350.0	0.00	0.00	3,350.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 2.00									
3,400.0	1.00	302.01	3,400.0	0.2	-0.4	-0.2	2.00	2.00	0.00
3,500.0	3.00	302.01	3,499.9	2.1	-3.3	-2.1	2.00	2.00	0.00
3,600.0	5.00	302.01	3,599.7	5.8	-9.2	-5.8	2.00	2.00	0.00
3,700.0	7.00	302.01	3,699.1	11.3	-18.1	-11.3	2.00	2.00	0.00
3,800.0	9.00	302.01	3,798.2	18.7	-29.9	-18.7	2.00	2.00	0.00
3,900.0	11.00	302.01	3,896.6	27.9	-44.6	-27.9	2.00	2.00	0.00
4,000.0	13.00	302.01	3,994.4	38.9	-62.3	-38.9	2.00	2.00	0.00
4,100.0	15.00	302.01	4,091.5	51.7	-82.8	-51.7	2.00	2.00	0.00
4,200.0	17.00	302.01	4,187.6	66.3	-106.2	-66.3	2.00	2.00	0.00
4,225.8	17.52	302.01	4,212.2	70.4	-112.6	-70.4	2.00	2.00	0.00
Start 1909.5 hold at 4225.8 MD									
4,300.0	17.52	302.01	4,283.0	82.2	-131.6	-82.2	0.00	0.00	0.00
4,400.0	17.52	302.01	4,378.3	98.2	-157.1	-98.2	0.00	0.00	0.00
4,500.0	17.52	302.01	4,473.7	114.1	-182.6	-114.1	0.00	0.00	0.00
4,600.0	17.52	302.01	4,569.1	130.1	-208.1	-130.1	0.00	0.00	0.00
4,700.0	17.52	302.01	4,664.4	146.0	-233.7	-146.0	0.00	0.00	0.00
4,800.0	17.52	302.01	4,759.8	162.0	-259.2	-162.0	0.00	0.00	0.00
4,900.0	17.52	302.01	4,855.2	177.9	-284.7	-177.9	0.00	0.00	0.00

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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)
5,000.0	17.52	302.01	4,950.5	193.9	-310.2	-193.9	0.00	0.00	0.00
5,100.0	17.52	302.01	5,045.9	209.8	-335.8	-209.8	0.00	0.00	0.00
5,200.0	17.52	302.01	5,141.2	225.8	-361.3	-225.8	0.00	0.00	0.00
5,300.0	17.52	302.01	5,236.6	241.8	-386.8	-241.8	0.00	0.00	0.00
5,400.0	17.52	302.01	5,332.0	257.7	-412.3	-257.7	0.00	0.00	0.00
5,500.0	17.52	302.01	5,427.3	273.7	-437.9	-273.7	0.00	0.00	0.00
5,600.0	17.52	302.01	5,522.7	289.6	-463.4	-289.6	0.00	0.00	0.00
5,700.0	17.52	302.01	5,618.1	305.6	-488.9	-305.6	0.00	0.00	0.00
5,800.0	17.52	302.01	5,713.4	321.5	-514.4	-321.5	0.00	0.00	0.00
5,900.0	17.52	302.01	5,808.8	337.5	-539.9	-337.5	0.00	0.00	0.00
6,000.0	17.52	302.01	5,904.2	353.4	-565.5	-353.4	0.00	0.00	0.00
6,100.0	17.52	302.01	5,999.5	369.4	-591.0	-369.4	0.00	0.00	0.00
6,135.3	17.52	302.01	6,033.2	375.0	-600.0	-375.0	0.00	0.00	0.00
Start DLS 8.00 TFO -104.97									
6,150.0	17.25	298.18	6,047.2	377.2	-603.8	-377.2	8.00	-1.82	-26.08
6,200.0	16.91	284.58	6,095.0	382.5	-617.4	-382.5	8.00	-0.68	-27.20
6,250.0	17.48	271.15	6,142.8	384.5	-631.9	-384.5	8.00	1.14	-26.85
6,300.0	18.87	259.10	6,190.3	383.1	-647.4	-383.1	8.00	2.78	-24.10
6,350.0	20.92	248.99	6,237.4	378.4	-663.7	-378.4	8.00	4.10	-20.23
6,400.0	23.46	240.79	6,283.7	370.3	-680.7	-370.3	8.00	5.08	-16.40
6,450.0	26.35	234.20	6,329.0	359.0	-698.4	-359.0	8.00	5.77	-13.18
6,500.0	29.48	228.87	6,373.2	344.4	-716.7	-344.4	8.00	6.26	-10.66
6,507.8	29.99	228.13	6,380.0	341.8	-719.6	-341.8	8.00	6.48	-9.46
Niobrara									
6,550.0	32.78	224.50	6,416.0	326.6	-735.4	-326.6	8.00	6.63	-8.60
6,600.0	36.21	220.87	6,457.2	305.8	-754.6	-305.8	8.00	6.86	-7.27
6,650.0	39.74	217.79	6,496.6	282.0	-774.0	-282.0	8.00	7.05	-6.16
6,700.0	43.33	215.14	6,534.0	255.3	-793.7	-255.3	8.00	7.19	-5.30
6,750.0	46.98	212.82	6,569.3	225.9	-813.5	-225.9	8.00	7.30	-4.63
6,800.0	50.67	210.76	6,602.2	193.9	-833.3	-193.9	8.00	7.38	-4.11
6,850.0	54.39	208.92	6,632.6	159.5	-853.0	-159.5	8.00	7.44	-3.70
6,900.0	58.14	207.23	6,660.4	122.8	-872.6	-122.8	8.00	7.49	-3.37
6,924.8	60.00	206.45	6,673.1	103.9	-882.2	-103.9	8.00	7.53	-3.16
Start 150.0 hold at 6924.8 MD									
7,000.0	60.00	206.45	6,710.7	45.5	-911.2	-45.5	0.00	0.00	0.00
7,074.8	60.00	206.45	6,748.1	-12.4	-940.0	12.4	0.00	0.00	0.00
Start DLS 10.00 TFO -44.86									
7,100.0	61.81	204.43	6,760.4	-32.3	-949.5	32.3	10.00	7.15	-8.00
7,150.0	65.46	200.62	6,782.6	-73.7	-966.6	73.7	10.00	7.31	-7.61
7,200.0	69.21	197.03	6,801.9	-117.4	-981.5	117.4	10.00	7.49	-7.18
7,250.0	73.03	193.62	6,818.1	-163.0	-994.0	163.0	10.00	7.64	-6.83
7,300.0	76.90	190.34	6,831.0	-210.2	-1,004.0	210.2	10.00	7.74	-6.55
7,350.0	80.81	187.17	6,840.7	-258.7	-1,011.4	258.7	10.00	7.82	-6.35
7,400.0	84.75	184.06	6,847.0	-308.0	-1,016.3	308.0	10.00	7.88	-6.21

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Well:	Hebron 0781 2-12H	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)
7,450.0	88.70	181.00	6,849.8	-357.9	-1,018.5	357.9	10.00	7.91	-6.13
7,466.4	90.00	180.00	6,850.0	-374.2	-1,018.6	374.2	10.00	7.92	-6.11
Start 3948.4 hold at 7466.4 MD									
7,500.0	90.00	180.00	6,850.0	-407.9	-1,018.6	407.9	0.00	0.00	0.00
7,600.0	90.00	180.00	6,850.0	-507.9	-1,018.6	507.9	0.00	0.00	0.00
7,700.0	90.00	180.00	6,850.0	-607.9	-1,018.6	607.9	0.00	0.00	0.00
7,800.0	90.00	180.00	6,850.0	-707.9	-1,018.6	707.9	0.00	0.00	0.00
7,900.0	90.00	180.00	6,850.0	-807.9	-1,018.6	807.9	0.00	0.00	0.00
8,000.0	90.00	180.00	6,850.0	-907.9	-1,018.6	907.9	0.00	0.00	0.00
8,100.0	90.00	180.00	6,850.0	-1,007.9	-1,018.6	1,007.9	0.00	0.00	0.00
8,200.0	90.00	180.00	6,850.0	-1,107.9	-1,018.6	1,107.9	0.00	0.00	0.00
8,300.0	90.00	180.00	6,850.0	-1,207.9	-1,018.6	1,207.9	0.00	0.00	0.00
8,400.0	90.00	180.00	6,850.0	-1,307.9	-1,018.6	1,307.9	0.00	0.00	0.00
8,500.0	90.00	180.00	6,850.0	-1,407.9	-1,018.6	1,407.9	0.00	0.00	0.00
8,600.0	90.00	180.00	6,850.0	-1,507.9	-1,018.6	1,507.9	0.00	0.00	0.00
8,700.0	90.00	180.00	6,850.0	-1,607.9	-1,018.6	1,607.9	0.00	0.00	0.00
8,800.0	90.00	180.00	6,850.0	-1,707.9	-1,018.6	1,707.9	0.00	0.00	0.00
8,900.0	90.00	180.00	6,850.0	-1,807.9	-1,018.6	1,807.9	0.00	0.00	0.00
9,000.0	90.00	180.00	6,850.0	-1,907.9	-1,018.6	1,907.9	0.00	0.00	0.00
9,100.0	90.00	180.00	6,850.0	-2,007.9	-1,018.6	2,007.9	0.00	0.00	0.00
9,200.0	90.00	180.00	6,850.0	-2,107.9	-1,018.6	2,107.9	0.00	0.00	0.00
9,300.0	90.00	180.00	6,850.0	-2,207.9	-1,018.6	2,207.9	0.00	0.00	0.00
9,400.0	90.00	180.00	6,850.0	-2,307.9	-1,018.6	2,307.9	0.00	0.00	0.00
9,500.0	90.00	180.00	6,850.0	-2,407.9	-1,018.6	2,407.9	0.00	0.00	0.00
9,600.0	90.00	180.00	6,850.0	-2,507.9	-1,018.6	2,507.9	0.00	0.00	0.00
9,700.0	90.00	180.00	6,850.0	-2,607.9	-1,018.6	2,607.9	0.00	0.00	0.00
9,800.0	90.00	180.00	6,850.0	-2,707.9	-1,018.6	2,707.9	0.00	0.00	0.00
9,900.0	90.00	180.00	6,850.0	-2,807.9	-1,018.6	2,807.9	0.00	0.00	0.00
10,000.0	90.00	180.00	6,850.0	-2,907.9	-1,018.6	2,907.9	0.00	0.00	0.00
10,100.0	90.00	180.00	6,850.0	-3,007.9	-1,018.6	3,007.9	0.00	0.00	0.00
10,200.0	90.00	180.00	6,850.0	-3,107.9	-1,018.6	3,107.9	0.00	0.00	0.00
10,300.0	90.00	180.00	6,850.0	-3,207.9	-1,018.6	3,207.9	0.00	0.00	0.00
10,400.0	90.00	180.00	6,850.0	-3,307.9	-1,018.6	3,307.9	0.00	0.00	0.00
10,500.0	90.00	180.00	6,850.0	-3,407.9	-1,018.6	3,407.9	0.00	0.00	0.00
10,600.0	90.00	180.00	6,850.0	-3,507.9	-1,018.6	3,507.9	0.00	0.00	0.00
10,700.0	90.00	180.00	6,850.0	-3,607.9	-1,018.6	3,607.9	0.00	0.00	0.00
10,800.0	90.00	180.00	6,850.0	-3,707.9	-1,018.6	3,707.9	0.00	0.00	0.00
10,900.0	90.00	180.00	6,850.0	-3,807.9	-1,018.6	3,807.9	0.00	0.00	0.00
11,000.0	90.00	180.00	6,850.0	-3,907.9	-1,018.6	3,907.9	0.00	0.00	0.00
11,100.0	90.00	180.00	6,850.0	-4,007.9	-1,018.6	4,007.9	0.00	0.00	0.00
11,200.0	90.00	180.00	6,850.0	-4,107.9	-1,018.6	4,107.9	0.00	0.00	0.00
11,300.0	90.00	180.00	6,850.0	-4,207.9	-1,018.6	4,207.9	0.00	0.00	0.00
11,400.0	90.00	180.00	6,850.0	-4,307.9	-1,018.6	4,307.9	0.00	0.00	0.00
11,414.8	90.00	180.00	6,850.0	-4,322.6	-1,018.6	4,322.6	0.00	0.00	0.00

SandRidge Energy

Survey Report

Company: SandRidge Energy	Local Co-ordinate Reference: Well Hebron 0781 2-12H
Project: North Park Basin	TVD Reference: KB @ 8146.0usft
Site: T8N-R81W-S7	MD Reference: KB @ 8146.0usft
Well: Hebron 0781 2-12H	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)
TD at 11414.8									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Hebron 2-12 - hit/miss target - Shape - plan hits target center - Point	0.00	360.00	6,850.0	-4,322.6	-1,018.6	1,457,614.69	2,742,051.01	40° 35' 9.034 N	106° 25' 43.452 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,507.8	6,380.0	Niobrara		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
3350	3350	0	0	Start Build 2.00	
4226	4212	70	-113	Start 1909.5 hold at 4225.8 MD	
6135	6033	375	-600	Start DLS 8.00 TFO -104.97	
6925	6673	104	-882	Start 150.0 hold at 6924.8 MD	
7075	6748	-12	-940	Start DLS 10.00 TFO -44.86	
7466	6850	-374	-1019	Start 3948.4 hold at 7466.4 MD	
11,415	6850	-4323	-1019	TD at 11414.8	

Checked By: _____ Approved By: _____ Date: _____