

PROJECT DETAILS: North Park Basin

Geodetic System: US State Plane 1983

Datum: North American Datum 1983

Ellipsoid: GRS 1980


Zone: Colorado Northern Zone

System Datum: Mean Sea Level

G

T

M



Azimuths to Grid North

True North: 0.62°

Magnetic North: 10.52°

Magnetic Field

Strength: 53125.3snT

Dip Angle: 66.88°

Date: 12/31/2009

Model: IGRF200510

FORMATION TOP DETAILS

TVDPath

MDPath

Formation

DipAngle

DipDir

5240.0

5320.7

Niobrara

0.00

CASING DETAILS

TVD

MD

Name

Size

2400.0

2400.0

9 5/8" Surface Casing

2 1/2"

5585.0

16521.0

5 1/2" Production Casing

5 1/2"

DESIGN DETAILS: Design #1

0' Vertical Section coordinates

Type

Target

Azimuth

Origin

Type

N/S

E/W

From

TVD

User

180.00

Slot

0.0

0.0

0.0

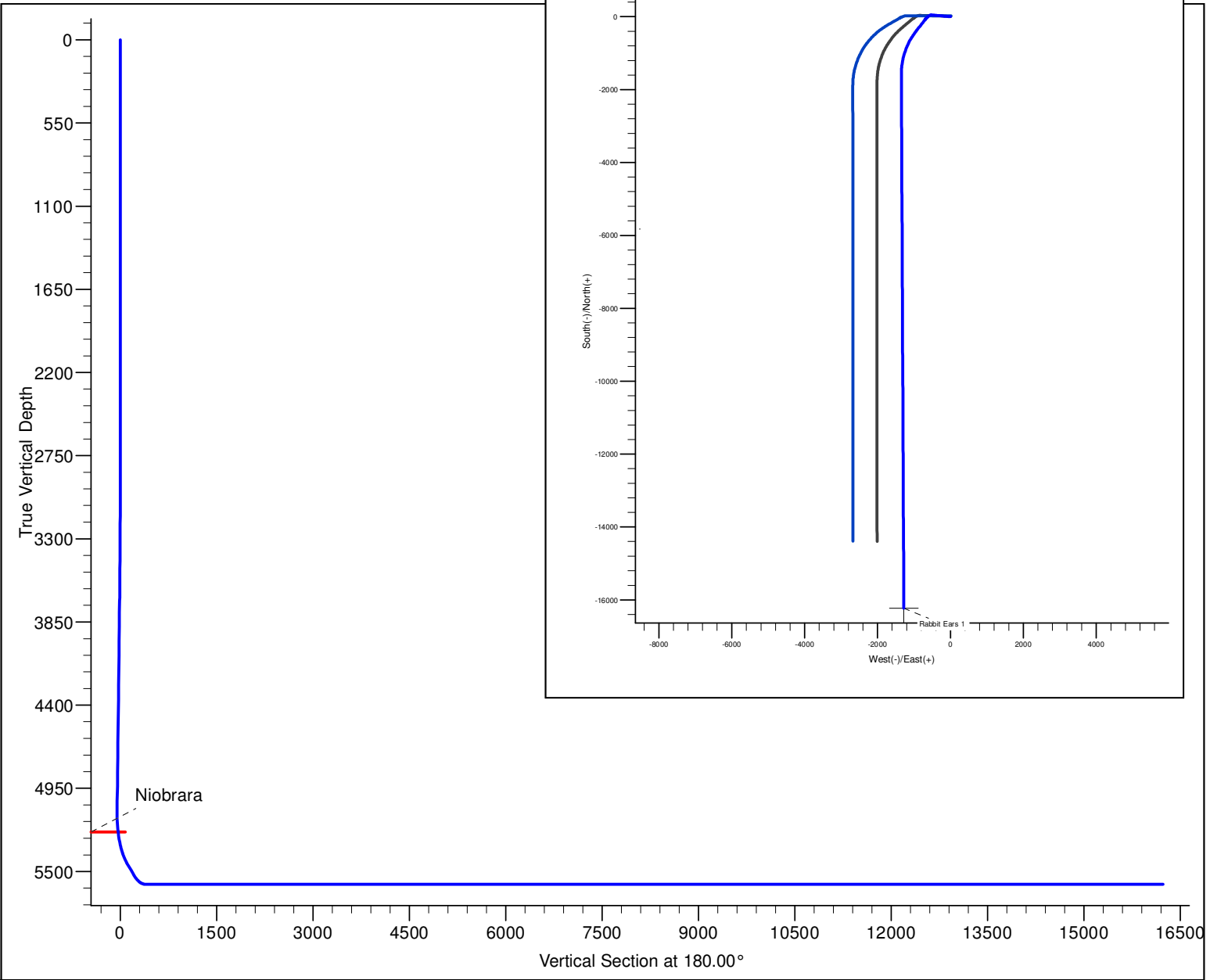
Project: North Park Basin

Site: T6N-R81W-S23

Well: REU 0681 1-23H35

Wellbore: Wellbore #1

Design: Design #1



SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	2900.0	0.00	0.00	2900.0	0.0	0.0	0.00	0.00	0.0		
3	3718.7	16.37	275.45	3707.6	11.0	-115.7	2.00	275.45	-11.0		
4	5173.8	16.37	275.45	5103.7	50.0	-524.0	0.00	0.00	-50.0		
5	5609.9	60.00	218.00	5446.1	-103.8	-714.9	12.00	-67.25	103.8		
6	5759.9	60.00	218.00	5521.1	-206.2	-794.9	0.00	0.00	206.2		
7	6009.9	90.00	218.00	5585.0	-394.3	-941.9	12.00	0.00	394.3		
8	7285.4	90.00	179.74	5585.0	-1578.9	-1346.7	3.00	-90.00	1578.9	Rabbit Ears 1	
9	21937.0	90.00	179.74	5585.0	-16230.4	-1279.2	0.00	0.00	16230.4	Rabbit Ears 1	

# **SandRidge Energy**

**North Park Basin  
T6N-R81W-S23  
REU 0681 1-23H35**

**Wellbore #1**

**Plan: Design #1**

## **Standard Survey Report**

**17 May, 2017**

# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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		

Site		T6N-R81W-S23			
Site Position:		Northing:	1,418,032.39 usft	Latitude:	40° 28' 37.133 N
From:	Map	Easting:	2,734,606.19 usft	Longitude:	106° 27' 14.423 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.62 °

Well	REU 0681 1-23H35					
Well Position	+N/-S	0.0 usft	Northing:	1,418,071.12 usft	Latitude:	40° 28' 37.506 N
	+E/-W	0.0 usft	Easting:	2,734,512.78 usft	Longitude:	106° 27' 15.637 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level:	8,308.0 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>
	IGRF200510	12/31/2009	9.91	66.88	53,125

<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) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	180.00	

<b>Survey Tool Program</b>	<b>Date</b>	5/17/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	21,937.0	Design #1 (Wellbore #1)	Sperry MWD	Fixed:v2:standard declination	

<b>Planned Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/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	

# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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
<b>Start Build 2.00</b>									
3,000.0	2.00	275.45	3,000.0	0.2	-1.7	-0.2	2.00	2.00	0.00
3,100.0	4.00	275.45	3,099.8	0.7	-6.9	-0.7	2.00	2.00	0.00
3,200.0	6.00	275.45	3,199.5	1.5	-15.6	-1.5	2.00	2.00	0.00
3,300.0	8.00	275.45	3,298.7	2.6	-27.8	-2.6	2.00	2.00	0.00
3,400.0	10.00	275.45	3,397.5	4.1	-43.3	-4.1	2.00	2.00	0.00
3,500.0	12.00	275.45	3,495.6	5.9	-62.3	-5.9	2.00	2.00	0.00
3,600.0	14.00	275.45	3,593.1	8.1	-84.7	-8.1	2.00	2.00	0.00
3,700.0	16.00	275.45	3,689.6	10.5	-110.5	-10.5	2.00	2.00	0.00
3,718.7	16.37	275.45	3,707.6	11.0	-115.7	-11.0	2.00	2.00	0.00
<b>Start 1455.1 hold at 3718.7 MD</b>									
3,800.0	16.37	275.45	3,785.6	13.2	-138.5	-13.2	0.00	0.00	0.00
3,900.0	16.37	275.45	3,881.5	15.9	-166.5	-15.9	0.00	0.00	0.00
4,000.0	16.37	275.45	3,977.5	18.6	-194.6	-18.6	0.00	0.00	0.00
4,100.0	16.37	275.45	4,073.4	21.2	-222.7	-21.2	0.00	0.00	0.00
4,200.0	16.37	275.45	4,169.4	23.9	-250.7	-23.9	0.00	0.00	0.00
4,300.0	16.37	275.45	4,265.3	26.6	-278.8	-26.6	0.00	0.00	0.00
4,400.0	16.37	275.45	4,361.3	29.3	-306.9	-29.3	0.00	0.00	0.00
4,500.0	16.37	275.45	4,457.2	32.0	-334.9	-32.0	0.00	0.00	0.00
4,600.0	16.37	275.45	4,553.2	34.6	-363.0	-34.6	0.00	0.00	0.00
4,700.0	16.37	275.45	4,649.1	37.3	-391.0	-37.3	0.00	0.00	0.00
4,800.0	16.37	275.45	4,745.0	40.0	-419.1	-40.0	0.00	0.00	0.00
4,900.0	16.37	275.45	4,841.0	42.7	-447.2	-42.7	0.00	0.00	0.00
5,000.0	16.37	275.45	4,936.9	45.3	-475.2	-45.3	0.00	0.00	0.00

# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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)
5,100.0	16.37	275.45	5,032.9	48.0	-503.3	-48.0	0.00	0.00	0.00
5,173.8	16.37	275.45	5,103.7	50.0	-524.0	-50.0	0.00	0.00	0.00
<b>Start DLS 12.00 TFO -67.25</b>									
5,175.0	16.43	274.99	5,104.8	50.0	-524.3	-50.0	12.00	4.68	-39.13
5,200.0	17.82	265.94	5,128.7	50.1	-531.7	-50.1	12.00	5.56	-36.18
5,225.0	19.56	258.31	5,152.4	48.9	-539.6	-48.9	12.00	6.98	-30.52
5,250.0	21.58	251.97	5,175.8	46.7	-548.1	-46.7	12.00	8.05	-25.38
5,275.0	23.79	246.70	5,198.9	43.3	-557.1	-43.3	12.00	8.85	-21.05
5,300.0	26.15	242.31	5,221.6	38.7	-566.6	-38.7	12.00	9.44	-17.56
5,320.7	28.19	239.21	5,240.0	34.1	-574.8	-34.1	12.00	9.86	-14.99
<b>Niobrara</b>									
5,325.0	28.62	238.62	5,243.8	33.0	-576.6	-33.0	12.00	10.05	-13.78
5,350.0	31.18	235.47	5,265.4	26.2	-587.0	-26.2	12.00	10.23	-12.58
5,375.0	33.80	232.77	5,286.5	18.4	-597.9	-18.4	12.00	10.50	-10.83
5,400.0	36.48	230.41	5,307.0	9.4	-609.2	-9.4	12.00	10.70	-9.43
5,425.0	39.20	228.33	5,326.7	-0.6	-620.8	0.6	12.00	10.87	-8.30
5,450.0	41.95	226.49	5,345.7	-11.6	-632.7	11.6	12.00	11.00	-7.38
5,475.0	44.72	224.83	5,363.9	-23.6	-645.0	23.6	12.00	11.10	-6.63
5,500.0	47.52	223.33	5,381.2	-36.5	-657.5	36.5	12.00	11.19	-6.01
5,525.0	50.34	221.96	5,397.6	-50.4	-670.3	50.4	12.00	11.26	-5.49
5,550.0	53.17	220.69	5,413.1	-65.1	-683.3	65.1	12.00	11.32	-5.06
5,575.0	56.01	219.52	5,427.6	-80.7	-696.4	80.7	12.00	11.37	-4.70
5,600.0	58.87	218.42	5,441.0	-97.1	-709.6	97.1	12.00	11.41	-4.39
5,609.9	60.00	218.00	5,446.1	-103.8	-714.9	103.8	12.00	11.44	-4.21
<b>Start 150.0 hold at 5609.9 MD</b>									
5,700.0	60.00	218.00	5,491.1	-165.3	-762.9	165.3	0.00	0.00	0.00
5,759.9	60.00	218.00	5,521.1	-206.2	-794.9	206.2	0.00	0.00	0.00
<b>Start DLS 12.00 TFO 0.00</b>									
5,775.0	61.81	218.00	5,528.4	-216.6	-803.0	216.6	12.00	12.00	0.00
5,800.0	64.81	218.00	5,539.6	-234.2	-816.8	234.2	12.00	12.00	0.00
5,825.0	67.81	218.00	5,549.7	-252.2	-830.8	252.2	12.00	12.00	0.00
5,850.0	70.81	218.00	5,558.5	-270.6	-845.2	270.6	12.00	12.00	0.00
5,875.0	73.81	218.00	5,566.1	-289.4	-859.9	289.4	12.00	12.00	0.00
5,900.0	76.81	218.00	5,572.5	-308.4	-874.8	308.4	12.00	12.00	0.00
5,925.0	79.81	218.00	5,577.5	-327.7	-889.9	327.7	12.00	12.00	0.00
5,950.0	82.81	218.00	5,581.3	-347.2	-905.1	347.2	12.00	12.00	0.00
5,975.0	85.81	218.00	5,583.8	-366.8	-920.4	366.8	12.00	12.00	0.00
6,000.0	88.81	218.00	5,584.9	-386.5	-935.8	386.5	12.00	12.00	0.00
6,009.9	90.00	218.00	5,585.0	-394.3	-941.9	394.3	12.00	12.00	0.00
<b>Start DLS 3.00 TFO -90.00</b>									
6,100.0	90.00	215.30	5,585.0	-466.6	-995.6	466.6	3.00	0.00	-3.00
6,200.0	90.00	212.30	5,585.0	-549.7	-1,051.3	549.7	3.00	0.00	-3.00
6,300.0	90.00	209.30	5,585.0	-635.5	-1,102.4	635.5	3.00	0.00	-3.00
6,400.0	90.00	206.30	5,585.0	-724.0	-1,149.1	724.0	3.00	0.00	-3.00

# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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)
6,500.0	90.00	203.30	5,585.0	-814.8	-1,191.0	814.8	3.00	0.00	-3.00
6,600.0	90.00	200.30	5,585.0	-907.6	-1,228.1	907.6	3.00	0.00	-3.00
6,700.0	90.00	197.30	5,585.0	-1,002.3	-1,260.4	1,002.3	3.00	0.00	-3.00
6,800.0	90.00	194.30	5,585.0	-1,098.5	-1,287.6	1,098.5	3.00	0.00	-3.00
6,900.0	90.00	191.30	5,585.0	-1,196.0	-1,309.7	1,196.0	3.00	0.00	-3.00
7,000.0	90.00	188.30	5,585.0	-1,294.5	-1,326.7	1,294.5	3.00	0.00	-3.00
7,100.0	90.00	185.30	5,585.0	-1,393.8	-1,338.6	1,393.8	3.00	0.00	-3.00
7,200.0	90.00	182.30	5,585.0	-1,493.6	-1,345.2	1,493.6	3.00	0.00	-3.00
7,285.4	90.00	179.74	5,585.0	-1,578.9	-1,346.7	1,578.9	3.00	0.00	-3.00
Start 14651.6 hold at 7285.4 MD									
7,300.0	90.00	179.74	5,585.0	-1,593.5	-1,346.7	1,593.5	0.00	0.00	0.00
7,400.0	90.00	179.74	5,585.0	-1,693.5	-1,346.2	1,693.5	0.00	0.00	0.00
7,500.0	90.00	179.74	5,585.0	-1,793.5	-1,345.7	1,793.5	0.00	0.00	0.00
7,600.0	90.00	179.74	5,585.0	-1,893.5	-1,345.3	1,893.5	0.00	0.00	0.00
7,700.0	90.00	179.74	5,585.0	-1,993.5	-1,344.8	1,993.5	0.00	0.00	0.00
7,800.0	90.00	179.74	5,585.0	-2,093.5	-1,344.3	2,093.5	0.00	0.00	0.00
7,900.0	90.00	179.74	5,585.0	-2,193.5	-1,343.9	2,193.5	0.00	0.00	0.00
8,000.0	90.00	179.74	5,585.0	-2,293.5	-1,343.4	2,293.5	0.00	0.00	0.00
8,100.0	90.00	179.74	5,585.0	-2,393.5	-1,343.0	2,393.5	0.00	0.00	0.00
8,200.0	90.00	179.74	5,585.0	-2,493.5	-1,342.5	2,493.5	0.00	0.00	0.00
8,300.0	90.00	179.74	5,585.0	-2,593.5	-1,342.0	2,593.5	0.00	0.00	0.00
8,400.0	90.00	179.74	5,585.0	-2,693.5	-1,341.6	2,693.5	0.00	0.00	0.00
8,500.0	90.00	179.74	5,585.0	-2,793.5	-1,341.1	2,793.5	0.00	0.00	0.00
8,600.0	90.00	179.74	5,585.0	-2,893.5	-1,340.7	2,893.5	0.00	0.00	0.00
8,700.0	90.00	179.74	5,585.0	-2,993.5	-1,340.2	2,993.5	0.00	0.00	0.00
8,800.0	90.00	179.74	5,585.0	-3,093.5	-1,339.7	3,093.5	0.00	0.00	0.00
8,900.0	90.00	179.74	5,585.0	-3,193.5	-1,339.3	3,193.5	0.00	0.00	0.00
9,000.0	90.00	179.74	5,585.0	-3,293.5	-1,338.8	3,293.5	0.00	0.00	0.00
9,100.0	90.00	179.74	5,585.0	-3,393.5	-1,338.4	3,393.5	0.00	0.00	0.00
9,200.0	90.00	179.74	5,585.0	-3,493.5	-1,337.9	3,493.5	0.00	0.00	0.00
9,300.0	90.00	179.74	5,585.0	-3,593.5	-1,337.4	3,593.5	0.00	0.00	0.00
9,400.0	90.00	179.74	5,585.0	-3,693.5	-1,337.0	3,693.5	0.00	0.00	0.00
9,500.0	90.00	179.74	5,585.0	-3,793.5	-1,336.5	3,793.5	0.00	0.00	0.00
9,600.0	90.00	179.74	5,585.0	-3,893.5	-1,336.0	3,893.5	0.00	0.00	0.00
9,700.0	90.00	179.74	5,585.0	-3,993.5	-1,335.6	3,993.5	0.00	0.00	0.00
9,800.0	90.00	179.74	5,585.0	-4,093.5	-1,335.1	4,093.5	0.00	0.00	0.00
9,900.0	90.00	179.74	5,585.0	-4,193.5	-1,334.7	4,193.5	0.00	0.00	0.00
10,000.0	90.00	179.74	5,585.0	-4,293.5	-1,334.2	4,293.5	0.00	0.00	0.00
10,100.0	90.00	179.74	5,585.0	-4,393.5	-1,333.7	4,393.5	0.00	0.00	0.00
10,200.0	90.00	179.74	5,585.0	-4,493.5	-1,333.3	4,493.5	0.00	0.00	0.00
10,300.0	90.00	179.74	5,585.0	-4,593.5	-1,332.8	4,593.5	0.00	0.00	0.00
10,400.0	90.00	179.74	5,585.0	-4,693.5	-1,332.4	4,693.5	0.00	0.00	0.00
10,500.0	90.00	179.74	5,585.0	-4,793.5	-1,331.9	4,793.5	0.00	0.00	0.00
10,600.0	90.00	179.74	5,585.0	-4,893.5	-1,331.4	4,893.5	0.00	0.00	0.00

# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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)
10,700.0	90.00	179.74	5,585.0	-4,993.5	-1,331.0	4,993.5	0.00	0.00	0.00
10,800.0	90.00	179.74	5,585.0	-5,093.5	-1,330.5	5,093.5	0.00	0.00	0.00
10,900.0	90.00	179.74	5,585.0	-5,193.5	-1,330.1	5,193.5	0.00	0.00	0.00
11,000.0	90.00	179.74	5,585.0	-5,293.5	-1,329.6	5,293.5	0.00	0.00	0.00
11,100.0	90.00	179.74	5,585.0	-5,393.5	-1,329.1	5,393.5	0.00	0.00	0.00
11,200.0	90.00	179.74	5,585.0	-5,493.5	-1,328.7	5,493.5	0.00	0.00	0.00
11,300.0	90.00	179.74	5,585.0	-5,593.5	-1,328.2	5,593.5	0.00	0.00	0.00
11,400.0	90.00	179.74	5,585.0	-5,693.5	-1,327.7	5,693.5	0.00	0.00	0.00
11,500.0	90.00	179.74	5,585.0	-5,793.5	-1,327.3	5,793.5	0.00	0.00	0.00
11,600.0	90.00	179.74	5,585.0	-5,893.5	-1,326.8	5,893.5	0.00	0.00	0.00
11,700.0	90.00	179.74	5,585.0	-5,993.5	-1,326.4	5,993.5	0.00	0.00	0.00
11,800.0	90.00	179.74	5,585.0	-6,093.5	-1,325.9	6,093.5	0.00	0.00	0.00
11,900.0	90.00	179.74	5,585.0	-6,193.5	-1,325.4	6,193.5	0.00	0.00	0.00
12,000.0	90.00	179.74	5,585.0	-6,293.5	-1,325.0	6,293.5	0.00	0.00	0.00
12,100.0	90.00	179.74	5,585.0	-6,393.5	-1,324.5	6,393.5	0.00	0.00	0.00
12,200.0	90.00	179.74	5,585.0	-6,493.5	-1,324.1	6,493.5	0.00	0.00	0.00
12,300.0	90.00	179.74	5,585.0	-6,593.5	-1,323.6	6,593.5	0.00	0.00	0.00
12,400.0	90.00	179.74	5,585.0	-6,693.5	-1,323.1	6,693.5	0.00	0.00	0.00
12,500.0	90.00	179.74	5,585.0	-6,793.5	-1,322.7	6,793.5	0.00	0.00	0.00
12,600.0	90.00	179.74	5,585.0	-6,893.5	-1,322.2	6,893.5	0.00	0.00	0.00
12,700.0	90.00	179.74	5,585.0	-6,993.5	-1,321.8	6,993.5	0.00	0.00	0.00
12,800.0	90.00	179.74	5,585.0	-7,093.5	-1,321.3	7,093.5	0.00	0.00	0.00
12,900.0	90.00	179.74	5,585.0	-7,193.5	-1,320.8	7,193.5	0.00	0.00	0.00
13,000.0	90.00	179.74	5,585.0	-7,293.5	-1,320.4	7,293.5	0.00	0.00	0.00
13,100.0	90.00	179.74	5,585.0	-7,393.5	-1,319.9	7,393.5	0.00	0.00	0.00
13,200.0	90.00	179.74	5,585.0	-7,493.5	-1,319.4	7,493.5	0.00	0.00	0.00
13,300.0	90.00	179.74	5,585.0	-7,593.5	-1,319.0	7,593.5	0.00	0.00	0.00
13,400.0	90.00	179.74	5,585.0	-7,693.5	-1,318.5	7,693.5	0.00	0.00	0.00
13,500.0	90.00	179.74	5,585.0	-7,793.5	-1,318.1	7,793.5	0.00	0.00	0.00
13,600.0	90.00	179.74	5,585.0	-7,893.5	-1,317.6	7,893.5	0.00	0.00	0.00
13,700.0	90.00	179.74	5,585.0	-7,993.5	-1,317.1	7,993.5	0.00	0.00	0.00
13,800.0	90.00	179.74	5,585.0	-8,093.5	-1,316.7	8,093.5	0.00	0.00	0.00
13,900.0	90.00	179.74	5,585.0	-8,193.5	-1,316.2	8,193.5	0.00	0.00	0.00
14,000.0	90.00	179.74	5,585.0	-8,293.5	-1,315.8	8,293.5	0.00	0.00	0.00
14,100.0	90.00	179.74	5,585.0	-8,393.5	-1,315.3	8,393.5	0.00	0.00	0.00
14,200.0	90.00	179.74	5,585.0	-8,493.5	-1,314.8	8,493.5	0.00	0.00	0.00
14,300.0	90.00	179.74	5,585.0	-8,593.5	-1,314.4	8,593.5	0.00	0.00	0.00
14,400.0	90.00	179.74	5,585.0	-8,693.5	-1,313.9	8,693.5	0.00	0.00	0.00
14,500.0	90.00	179.74	5,585.0	-8,793.5	-1,313.5	8,793.5	0.00	0.00	0.00
14,600.0	90.00	179.74	5,585.0	-8,893.5	-1,313.0	8,893.5	0.00	0.00	0.00
14,700.0	90.00	179.74	5,585.0	-8,993.5	-1,312.5	8,993.5	0.00	0.00	0.00
14,800.0	90.00	179.74	5,585.0	-9,093.5	-1,312.1	9,093.5	0.00	0.00	0.00
14,900.0	90.00	179.74	5,585.0	-9,193.5	-1,311.6	9,193.5	0.00	0.00	0.00

# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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)
15,000.0	90.00	179.74	5,585.0	-9,293.5	-1,311.1	9,293.5	0.00	0.00	0.00
15,100.0	90.00	179.74	5,585.0	-9,393.5	-1,310.7	9,393.5	0.00	0.00	0.00
15,200.0	90.00	179.74	5,585.0	-9,493.5	-1,310.2	9,493.5	0.00	0.00	0.00
15,300.0	90.00	179.74	5,585.0	-9,593.5	-1,309.8	9,593.5	0.00	0.00	0.00
15,400.0	90.00	179.74	5,585.0	-9,693.5	-1,309.3	9,693.5	0.00	0.00	0.00
15,500.0	90.00	179.74	5,585.0	-9,793.5	-1,308.8	9,793.5	0.00	0.00	0.00
15,600.0	90.00	179.74	5,585.0	-9,893.5	-1,308.4	9,893.5	0.00	0.00	0.00
15,700.0	90.00	179.74	5,585.0	-9,993.5	-1,307.9	9,993.5	0.00	0.00	0.00
15,800.0	90.00	179.74	5,585.0	-10,093.5	-1,307.5	10,093.5	0.00	0.00	0.00
15,900.0	90.00	179.74	5,585.0	-10,193.5	-1,307.0	10,193.5	0.00	0.00	0.00
16,000.0	90.00	179.74	5,585.0	-10,293.5	-1,306.5	10,293.5	0.00	0.00	0.00
16,100.0	90.00	179.74	5,585.0	-10,393.5	-1,306.1	10,393.5	0.00	0.00	0.00
16,200.0	90.00	179.74	5,585.0	-10,493.5	-1,305.6	10,493.5	0.00	0.00	0.00
16,300.0	90.00	179.74	5,585.0	-10,593.4	-1,305.2	10,593.4	0.00	0.00	0.00
16,400.0	90.00	179.74	5,585.0	-10,693.4	-1,304.7	10,693.4	0.00	0.00	0.00
16,500.0	90.00	179.74	5,585.0	-10,793.4	-1,304.2	10,793.4	0.00	0.00	0.00
16,600.0	90.00	179.74	5,585.0	-10,893.4	-1,303.8	10,893.4	0.00	0.00	0.00
16,700.0	90.00	179.74	5,585.0	-10,993.4	-1,303.3	10,993.4	0.00	0.00	0.00
16,800.0	90.00	179.74	5,585.0	-11,093.4	-1,302.8	11,093.4	0.00	0.00	0.00
16,900.0	90.00	179.74	5,585.0	-11,193.4	-1,302.4	11,193.4	0.00	0.00	0.00
17,000.0	90.00	179.74	5,585.0	-11,293.4	-1,301.9	11,293.4	0.00	0.00	0.00
17,100.0	90.00	179.74	5,585.0	-11,393.4	-1,301.5	11,393.4	0.00	0.00	0.00
17,200.0	90.00	179.74	5,585.0	-11,493.4	-1,301.0	11,493.4	0.00	0.00	0.00
17,300.0	90.00	179.74	5,585.0	-11,593.4	-1,300.5	11,593.4	0.00	0.00	0.00
17,400.0	90.00	179.74	5,585.0	-11,693.4	-1,300.1	11,693.4	0.00	0.00	0.00
17,500.0	90.00	179.74	5,585.0	-11,793.4	-1,299.6	11,793.4	0.00	0.00	0.00
17,600.0	90.00	179.74	5,585.0	-11,893.4	-1,299.2	11,893.4	0.00	0.00	0.00
17,700.0	90.00	179.74	5,585.0	-11,993.4	-1,298.7	11,993.4	0.00	0.00	0.00
17,800.0	90.00	179.74	5,585.0	-12,093.4	-1,298.2	12,093.4	0.00	0.00	0.00
17,900.0	90.00	179.74	5,585.0	-12,193.4	-1,297.8	12,193.4	0.00	0.00	0.00
18,000.0	90.00	179.74	5,585.0	-12,293.4	-1,297.3	12,293.4	0.00	0.00	0.00
18,100.0	90.00	179.74	5,585.0	-12,393.4	-1,296.9	12,393.4	0.00	0.00	0.00
18,200.0	90.00	179.74	5,585.0	-12,493.4	-1,296.4	12,493.4	0.00	0.00	0.00
18,300.0	90.00	179.74	5,585.0	-12,593.4	-1,295.9	12,593.4	0.00	0.00	0.00
18,400.0	90.00	179.74	5,585.0	-12,693.4	-1,295.5	12,693.4	0.00	0.00	0.00
18,500.0	90.00	179.74	5,585.0	-12,793.4	-1,295.0	12,793.4	0.00	0.00	0.00
18,600.0	90.00	179.74	5,585.0	-12,893.4	-1,294.5	12,893.4	0.00	0.00	0.00
18,700.0	90.00	179.74	5,585.0	-12,993.4	-1,294.1	12,993.4	0.00	0.00	0.00
18,800.0	90.00	179.74	5,585.0	-13,093.4	-1,293.6	13,093.4	0.00	0.00	0.00
18,900.0	90.00	179.74	5,585.0	-13,193.4	-1,293.2	13,193.4	0.00	0.00	0.00
19,000.0	90.00	179.74	5,585.0	-13,293.4	-1,292.7	13,293.4	0.00	0.00	0.00
19,100.0	90.00	179.74	5,585.0	-13,393.4	-1,292.2	13,393.4	0.00	0.00	0.00
19,200.0	90.00	179.74	5,585.0	-13,493.4	-1,291.8	13,493.4	0.00	0.00	0.00



# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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)
19,300.0	90.00	179.74	5,585.0	-13,593.4	-1,291.3	13,593.4	0.00	0.00	0.00
19,400.0	90.00	179.74	5,585.0	-13,693.4	-1,290.9	13,693.4	0.00	0.00	0.00
19,500.0	90.00	179.74	5,585.0	-13,793.4	-1,290.4	13,793.4	0.00	0.00	0.00
19,600.0	90.00	179.74	5,585.0	-13,893.4	-1,289.9	13,893.4	0.00	0.00	0.00
19,700.0	90.00	179.74	5,585.0	-13,993.4	-1,289.5	13,993.4	0.00	0.00	0.00
19,800.0	90.00	179.74	5,585.0	-14,093.4	-1,289.0	14,093.4	0.00	0.00	0.00
19,900.0	90.00	179.74	5,585.0	-14,193.4	-1,288.6	14,193.4	0.00	0.00	0.00
20,000.0	90.00	179.74	5,585.0	-14,293.4	-1,288.1	14,293.4	0.00	0.00	0.00
20,100.0	90.00	179.74	5,585.0	-14,393.4	-1,287.6	14,393.4	0.00	0.00	0.00
20,200.0	90.00	179.74	5,585.0	-14,493.4	-1,287.2	14,493.4	0.00	0.00	0.00
20,300.0	90.00	179.74	5,585.0	-14,593.4	-1,286.7	14,593.4	0.00	0.00	0.00
20,400.0	90.00	179.74	5,585.0	-14,693.4	-1,286.2	14,693.4	0.00	0.00	0.00
20,500.0	90.00	179.74	5,585.0	-14,793.4	-1,285.8	14,793.4	0.00	0.00	0.00
20,600.0	90.00	179.74	5,585.0	-14,893.4	-1,285.3	14,893.4	0.00	0.00	0.00
20,700.0	90.00	179.74	5,585.0	-14,993.4	-1,284.9	14,993.4	0.00	0.00	0.00
20,800.0	90.00	179.74	5,585.0	-15,093.4	-1,284.4	15,093.4	0.00	0.00	0.00
20,900.0	90.00	179.74	5,585.0	-15,193.4	-1,283.9	15,193.4	0.00	0.00	0.00
21,000.0	90.00	179.74	5,585.0	-15,293.4	-1,283.5	15,293.4	0.00	0.00	0.00
21,100.0	90.00	179.74	5,585.0	-15,393.4	-1,283.0	15,393.4	0.00	0.00	0.00
21,200.0	90.00	179.74	5,585.0	-15,493.4	-1,282.6	15,493.4	0.00	0.00	0.00
21,300.0	90.00	179.74	5,585.0	-15,593.4	-1,282.1	15,593.4	0.00	0.00	0.00
21,400.0	90.00	179.74	5,585.0	-15,693.4	-1,281.6	15,693.4	0.00	0.00	0.00
21,500.0	90.00	179.74	5,585.0	-15,793.4	-1,281.2	15,793.4	0.00	0.00	0.00
21,600.0	90.00	179.74	5,585.0	-15,893.4	-1,280.7	15,893.4	0.00	0.00	0.00
21,700.0	90.00	179.74	5,585.0	-15,993.4	-1,280.3	15,993.4	0.00	0.00	0.00
21,800.0	90.00	179.74	5,585.0	-16,093.4	-1,279.8	16,093.4	0.00	0.00	0.00
21,900.0	90.00	179.74	5,585.0	-16,193.4	-1,279.3	16,193.4	0.00	0.00	0.00
21,937.0	90.00	179.74	5,585.0	-16,230.4	-1,279.2	16,230.4	0.00	0.00	0.00
TD at 21937.0									

### Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Rabbit Ears 1	0.00	0.00	5,585.0	-16,230.4	-1,279.2	1,401,840.71	2,733,233.62	40° 25' 56.991 N	106° 27' 29.919 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

### Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,320.7	5,240.0	Niobrara		0.00	

# SandRidge Energy, Inc.

## Survey Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Well:</b>	REU 0681 1-23H35	<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

### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2900	2900	0	0	Start Build 2.00
3719	3708	11	-116	Start 1455.1 hold at 3718.7 MD
5174	5104	50	-524	Start DLS 12.00 TFO -67.25
5610	5446	-104	-715	Start 150.0 hold at 5609.9 MD
5760	5521	-206	-795	Start DLS 12.00 TFO 0.00
6010	5585	-394	-942	Start DLS 3.00 TFO -90.00
7285	5585	-1579	-1347	Start 14651.6 hold at 7285.4 MD
21,937	5585	-16,230	-1279	TD at 21937.0

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------

# **SandRidge Energy**

**North Park Basin**

**T6N-R81W-S23**

**REU 0681 1-23H35**

**Wellbore #1**

**Design #1**

## **Anticollision Summary Report**

**17 May, 2017**

**SandRidge Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Reference Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	REU 0681 1-23H35	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMProd
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Design #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		WARNING: There is hidden tight data in this project
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0 usft		<b>Error Surface:</b> Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b> 5/17/2017				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	21,937.0	Design #1 (Wellbore #1)	Sperry MWD	Fixed:v2:standard declination	

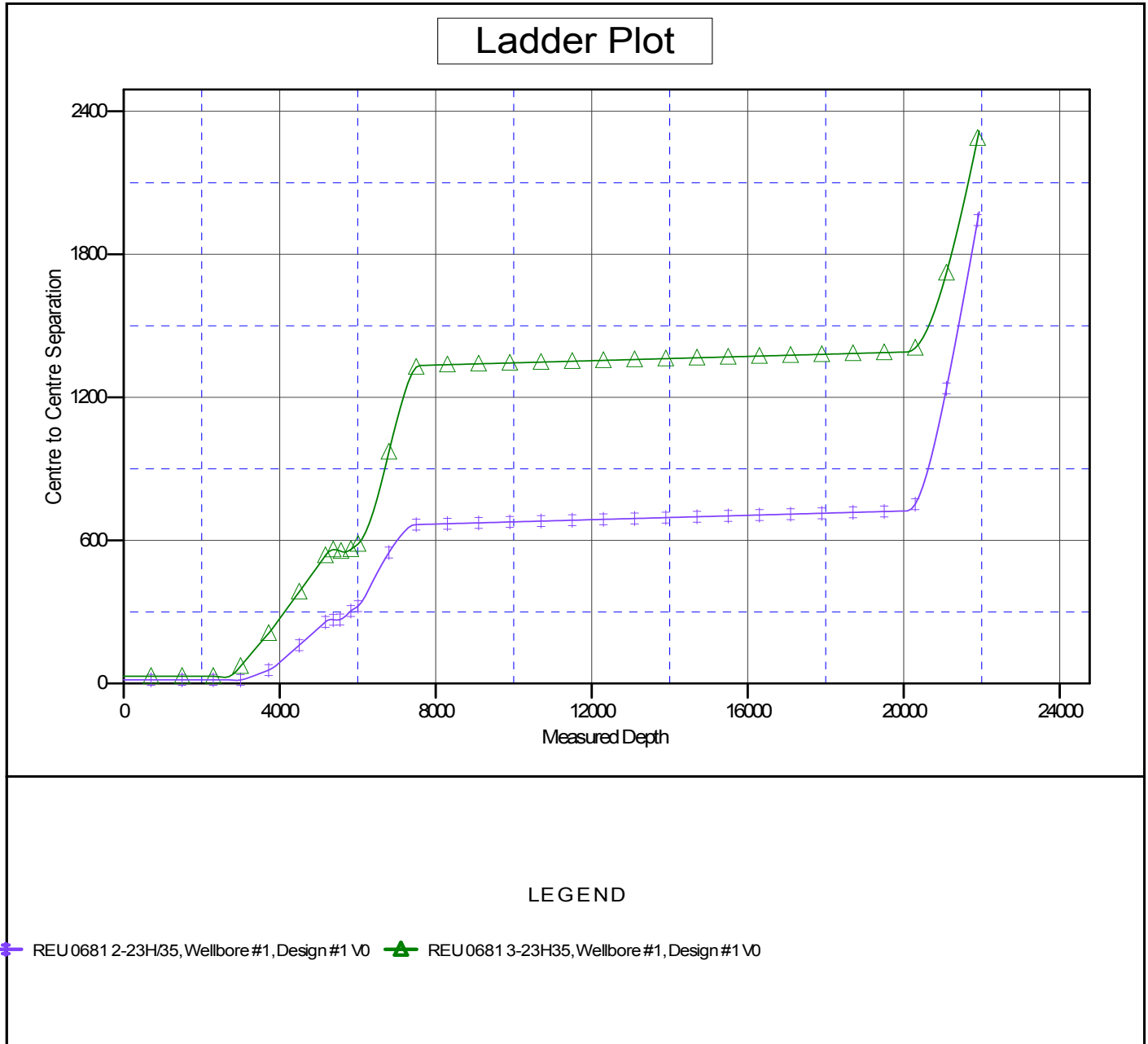
<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (usft)</b>	<b>Offset Measured Depth (usft)</b>	<b>Distance Between Centres (usft)</b>	<b>Distance Between Ellipses (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
T6N-R81W-S23						
REU 0681 2-23H/35 - Wellbore #1 - Design #1	2,905.6	2,905.8	13.1	0.3	1.024	Level 2, CC, ES, SF
REU 0681 3-23H35 - Wellbore #1 - Design #1	2,597.4	2,597.9	25.7	14.3	2.264	CC
REU 0681 3-23H35 - Wellbore #1 - Design #1	2,600.0	2,600.5	25.7	14.3	2.261	ES, SF

**SandRidge Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Reference Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	REU 0681 1-23H35	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMProd
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB @ 8324.0usft  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: REU 0681 1-23H35  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: -0.62°



# SandRidge Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	SandRidge Energy	<b>Local Co-ordinate Reference:</b>	Well REU 0681 1-23H35
<b>Project:</b>	North Park Basin	<b>TVD Reference:</b>	KB @ 8324.0usft
<b>Reference Site:</b>	T6N-R81W-S23	<b>MD Reference:</b>	KB @ 8324.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	REU 0681 1-23H35	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMProd
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB @ 8324.0usft

Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: REU 0681 1-23H35

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: -0.62°

