

SandRidge Energy

North Park Basin

T7N-R80W-S16

Mallard 0780 1-15H22

Wellbore #1

Plan: Design #1

Standard Survey Report

30 August, 2017

SandRidge Energy

Survey Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Mallard 0780 1-15H22
Project:	North Park Basin	TVD Reference:	KB @ 8136.0usft
Site:	T7N-R80W-S16	MD Reference:	KB @ 8136.0usft
Well:	Mallard 0780 1-15H22	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		T7N-R80W-S16			
Site Position:		Northing:	1,453,179.12 usft	Latitude:	40° 34' 26.505 N
From:	Map	Easting:	2,754,928.85 usft	Longitude:	106° 22' 55.973 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.57 °

Well	Mallard 0780 1-15H22					
Well Position	+N-S	0.0 usft	Northing:	1,456,767.99 usft	Latitude:	40° 35' 2.313 N
	+E-W	0.0 usft	Easting:	2,758,464.93 usft	Longitude:	106° 22' 10.607 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,112.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.87	66.98	53,193

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	174.15		

Survey Tool Program	Date	8/30/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	17,870.6	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:	Mallard 0780 1-15H22	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
3,400.0	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
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 2.00									
4,600.0	2.00	90.00	4,600.0	0.0	1.7	0.2	2.00	2.00	0.00
4,700.0	4.00	90.00	4,699.8	0.0	7.0	0.7	2.00	2.00	0.00
4,800.0	6.00	90.00	4,799.5	0.0	15.7	1.6	2.00	2.00	0.00
4,900.0	8.00	90.00	4,898.7	0.0	27.9	2.8	2.00	2.00	0.00
5,000.0	10.00	90.00	4,997.5	0.0	43.5	4.4	2.00	2.00	0.00
5,100.0	12.00	90.00	5,095.6	0.0	62.6	6.4	2.00	2.00	0.00
5,200.0	14.00	90.00	5,193.1	0.0	85.1	8.7	2.00	2.00	0.00

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Well:	Mallard 0780 1-15H22	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)
5,300.0	16.00	90.00	5,289.6	0.0	111.0	11.3	2.00	2.00	0.00
5,400.0	18.00	90.00	5,385.3	0.0	140.2	14.3	2.00	2.00	0.00
5,500.0	20.00	90.00	5,479.8	0.0	172.8	17.6	2.00	2.00	0.00
5,600.0	22.00	90.00	5,573.2	0.0	208.6	21.3	2.00	2.00	0.00
5,607.6	22.15	90.00	5,580.2	0.0	211.5	21.6	2.00	2.00	0.00
Start 1746.5 hold at 5607.6 MD									
5,700.0	22.15	90.00	5,665.8	0.0	246.3	25.1	0.00	0.00	0.00
5,800.0	22.15	90.00	5,758.4	0.0	284.0	29.0	0.00	0.00	0.00
5,900.0	22.15	90.00	5,851.0	0.0	321.7	32.8	0.00	0.00	0.00
6,000.0	22.15	90.00	5,943.6	0.0	359.4	36.6	0.00	0.00	0.00
6,100.0	22.15	90.00	6,036.3	0.0	397.1	40.5	0.00	0.00	0.00
6,200.0	22.15	90.00	6,128.9	0.0	434.8	44.3	0.00	0.00	0.00
6,300.0	22.15	90.00	6,221.5	0.0	472.5	48.2	0.00	0.00	0.00
6,400.0	22.15	90.00	6,314.1	0.0	510.2	52.0	0.00	0.00	0.00
6,500.0	22.15	90.00	6,406.7	0.0	548.0	55.9	0.00	0.00	0.00
6,600.0	22.15	90.00	6,499.4	0.0	585.7	59.7	0.00	0.00	0.00
6,700.0	22.15	90.00	6,592.0	0.0	623.4	63.6	0.00	0.00	0.00
6,800.0	22.15	90.00	6,684.6	0.0	661.1	67.4	0.00	0.00	0.00
6,900.0	22.15	90.00	6,777.2	0.0	698.8	71.2	0.00	0.00	0.00
7,000.0	22.15	90.00	6,869.8	0.0	736.5	75.1	0.00	0.00	0.00
7,100.0	22.15	90.00	6,962.5	0.0	774.2	78.9	0.00	0.00	0.00
7,200.0	22.15	90.00	7,055.1	0.0	811.9	82.8	0.00	0.00	0.00
7,300.0	22.15	90.00	7,147.7	0.0	849.6	86.6	0.00	0.00	0.00
7,354.1	22.15	90.00	7,197.8	0.0	870.0	88.7	0.00	0.00	0.00
Start DLS 12.00 TFO 90.00									
7,400.0	22.79	104.34	7,240.2	-2.2	887.3	92.7	12.00	1.40	31.25
7,500.0	27.96	129.92	7,330.8	-22.1	924.2	116.2	12.00	5.17	25.57
7,556.9	32.44	140.18	7,380.0	-42.4	944.2	138.5	12.00	7.89	18.04
Niobrara									
7,600.0	36.29	146.33	7,415.6	-61.9	958.7	159.4	12.00	8.91	14.26
7,700.0	46.08	156.92	7,490.9	-119.9	989.3	220.2	12.00	9.80	10.60
7,800.0	56.58	164.41	7,553.3	-193.5	1,014.7	296.0	12.00	10.49	7.49
7,900.0	67.42	170.25	7,600.2	-279.5	1,033.8	383.5	12.00	10.84	5.84
8,000.0	78.44	175.23	7,629.6	-374.2	1,045.8	478.9	12.00	11.02	4.97
8,100.0	89.54	179.81	7,640.0	-473.4	1,050.0	578.0	12.00	11.10	4.59
8,104.1	90.00	180.00	7,640.0	-477.4	1,050.0	582.0	12.06	11.17	4.55
Start 9766.5 hold at 8104.1 MD									
8,200.0	90.00	180.00	7,640.0	-573.4	1,050.0	677.4	0.00	0.00	0.00
8,300.0	90.00	180.00	7,640.0	-673.4	1,050.0	776.9	0.00	0.00	0.00
8,400.0	90.00	180.00	7,640.0	-773.4	1,050.0	876.4	0.00	0.00	0.00
8,500.0	90.00	180.00	7,640.0	-873.4	1,050.0	975.9	0.00	0.00	0.00
8,600.0	90.00	180.00	7,640.0	-973.4	1,050.0	1,075.3	0.00	0.00	0.00
8,700.0	90.00	180.00	7,640.0	-1,073.4	1,050.0	1,174.8	0.00	0.00	0.00
8,800.0	90.00	180.00	7,640.0	-1,173.4	1,050.0	1,274.3	0.00	0.00	0.00

SandRidge Energy

Survey Report

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Project:	North Park Basin	TVD Reference:	KB @ 8136.0usft
Site:	T7N-R80W-S16	MD Reference:	KB @ 8136.0usft
Well:	Mallard 0780 1-15H22	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)
8,900.0	90.00	180.00	7,640.0	-1,273.4	1,050.0	1,373.8	0.00	0.00	0.00
9,000.0	90.00	180.00	7,640.0	-1,373.4	1,050.0	1,473.3	0.00	0.00	0.00
9,100.0	90.00	180.00	7,640.0	-1,473.4	1,050.0	1,572.7	0.00	0.00	0.00
9,200.0	90.00	180.00	7,640.0	-1,573.4	1,050.0	1,672.2	0.00	0.00	0.00
9,300.0	90.00	180.00	7,640.0	-1,673.4	1,050.0	1,771.7	0.00	0.00	0.00
9,400.0	90.00	180.00	7,640.0	-1,773.4	1,050.0	1,871.2	0.00	0.00	0.00
9,500.0	90.00	180.00	7,640.0	-1,873.4	1,050.0	1,970.7	0.00	0.00	0.00
9,600.0	90.00	180.00	7,640.0	-1,973.4	1,050.0	2,070.1	0.00	0.00	0.00
9,700.0	90.00	180.00	7,640.0	-2,073.4	1,050.0	2,169.6	0.00	0.00	0.00
9,800.0	90.00	180.00	7,640.0	-2,173.4	1,050.0	2,269.1	0.00	0.00	0.00
9,900.0	90.00	180.00	7,640.0	-2,273.4	1,050.0	2,368.6	0.00	0.00	0.00
10,000.0	90.00	180.00	7,640.0	-2,373.4	1,050.0	2,468.1	0.00	0.00	0.00
10,100.0	90.00	180.00	7,640.0	-2,473.4	1,050.0	2,567.5	0.00	0.00	0.00
10,200.0	90.00	180.00	7,640.0	-2,573.4	1,050.0	2,667.0	0.00	0.00	0.00
10,300.0	90.00	180.00	7,640.0	-2,673.4	1,050.0	2,766.5	0.00	0.00	0.00
10,400.0	90.00	180.00	7,640.0	-2,773.4	1,050.0	2,866.0	0.00	0.00	0.00
10,500.0	90.00	180.00	7,640.0	-2,873.4	1,050.0	2,965.4	0.00	0.00	0.00
10,600.0	90.00	180.00	7,640.0	-2,973.4	1,050.0	3,064.9	0.00	0.00	0.00
10,700.0	90.00	180.00	7,640.0	-3,073.4	1,050.0	3,164.4	0.00	0.00	0.00
10,800.0	90.00	180.00	7,640.0	-3,173.4	1,050.0	3,263.9	0.00	0.00	0.00
10,900.0	90.00	180.00	7,640.0	-3,273.4	1,050.0	3,363.4	0.00	0.00	0.00
11,000.0	90.00	180.00	7,640.0	-3,373.4	1,050.0	3,462.8	0.00	0.00	0.00
11,100.0	90.00	180.00	7,640.0	-3,473.4	1,050.0	3,562.3	0.00	0.00	0.00
11,200.0	90.00	180.00	7,640.0	-3,573.4	1,050.0	3,661.8	0.00	0.00	0.00
11,300.0	90.00	180.00	7,640.0	-3,673.4	1,050.0	3,761.3	0.00	0.00	0.00
11,400.0	90.00	180.00	7,640.0	-3,773.4	1,050.0	3,860.8	0.00	0.00	0.00
11,500.0	90.00	180.00	7,640.0	-3,873.4	1,050.0	3,960.2	0.00	0.00	0.00
11,600.0	90.00	180.00	7,640.0	-3,973.4	1,050.0	4,059.7	0.00	0.00	0.00
11,700.0	90.00	180.00	7,640.0	-4,073.4	1,050.0	4,159.2	0.00	0.00	0.00
11,800.0	90.00	180.00	7,640.0	-4,173.4	1,050.0	4,258.7	0.00	0.00	0.00
11,900.0	90.00	180.00	7,640.0	-4,273.4	1,050.0	4,358.1	0.00	0.00	0.00
12,000.0	90.00	180.00	7,640.0	-4,373.4	1,050.0	4,457.6	0.00	0.00	0.00
12,100.0	90.00	180.00	7,640.0	-4,473.4	1,050.0	4,557.1	0.00	0.00	0.00
12,200.0	90.00	180.00	7,640.0	-4,573.4	1,050.0	4,656.6	0.00	0.00	0.00
12,300.0	90.00	180.00	7,640.0	-4,673.4	1,050.0	4,756.1	0.00	0.00	0.00
12,400.0	90.00	180.00	7,640.0	-4,773.4	1,050.0	4,855.5	0.00	0.00	0.00
12,500.0	90.00	180.00	7,640.0	-4,873.4	1,050.0	4,955.0	0.00	0.00	0.00
12,600.0	90.00	180.00	7,640.0	-4,973.4	1,050.0	5,054.5	0.00	0.00	0.00
12,700.0	90.00	180.00	7,640.0	-5,073.4	1,050.0	5,154.0	0.00	0.00	0.00
12,800.0	90.00	180.00	7,640.0	-5,173.4	1,050.0	5,253.5	0.00	0.00	0.00
12,900.0	90.00	180.00	7,640.0	-5,273.4	1,050.0	5,352.9	0.00	0.00	0.00
13,000.0	90.00	180.00	7,640.0	-5,373.4	1,050.0	5,452.4	0.00	0.00	0.00
13,100.0	90.00	180.00	7,640.0	-5,473.4	1,050.0	5,551.9	0.00	0.00	0.00

SandRidge Energy

Survey Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Mallard 0780 1-15H22
Project:	North Park Basin	TVD Reference:	KB @ 8136.0usft
Site:	T7N-R80W-S16	MD Reference:	KB @ 8136.0usft
Well:	Mallard 0780 1-15H22	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)
13,200.0	90.00	180.00	7,640.0	-5,573.4	1,050.0	5,651.4	0.00	0.00	0.00
13,300.0	90.00	180.00	7,640.0	-5,673.4	1,050.0	5,750.9	0.00	0.00	0.00
13,400.0	90.00	180.00	7,640.0	-5,773.4	1,050.0	5,850.3	0.00	0.00	0.00
13,500.0	90.00	180.00	7,640.0	-5,873.4	1,050.0	5,949.8	0.00	0.00	0.00
13,600.0	90.00	180.00	7,640.0	-5,973.4	1,050.0	6,049.3	0.00	0.00	0.00
13,700.0	90.00	180.00	7,640.0	-6,073.4	1,050.0	6,148.8	0.00	0.00	0.00
13,800.0	90.00	180.00	7,640.0	-6,173.4	1,050.0	6,248.2	0.00	0.00	0.00
13,900.0	90.00	180.00	7,640.0	-6,273.4	1,050.0	6,347.7	0.00	0.00	0.00
14,000.0	90.00	180.00	7,640.0	-6,373.4	1,050.0	6,447.2	0.00	0.00	0.00
14,100.0	90.00	180.00	7,640.0	-6,473.4	1,050.0	6,546.7	0.00	0.00	0.00
14,200.0	90.00	180.00	7,640.0	-6,573.4	1,050.0	6,646.2	0.00	0.00	0.00
14,300.0	90.00	180.00	7,640.0	-6,673.4	1,050.0	6,745.6	0.00	0.00	0.00
14,400.0	90.00	180.00	7,640.0	-6,773.4	1,050.0	6,845.1	0.00	0.00	0.00
14,500.0	90.00	180.00	7,640.0	-6,873.4	1,050.0	6,944.6	0.00	0.00	0.00
14,600.0	90.00	180.00	7,640.0	-6,973.4	1,050.0	7,044.1	0.00	0.00	0.00
14,700.0	90.00	180.00	7,640.0	-7,073.4	1,050.0	7,143.6	0.00	0.00	0.00
14,800.0	90.00	180.00	7,640.0	-7,173.4	1,050.0	7,243.0	0.00	0.00	0.00
14,900.0	90.00	180.00	7,640.0	-7,273.4	1,050.0	7,342.5	0.00	0.00	0.00
15,000.0	90.00	180.00	7,640.0	-7,373.4	1,050.0	7,442.0	0.00	0.00	0.00
15,100.0	90.00	180.00	7,640.0	-7,473.4	1,050.0	7,541.5	0.00	0.00	0.00
15,200.0	90.00	180.00	7,640.0	-7,573.4	1,050.0	7,640.9	0.00	0.00	0.00
15,300.0	90.00	180.00	7,640.0	-7,673.4	1,050.0	7,740.4	0.00	0.00	0.00
15,400.0	90.00	180.00	7,640.0	-7,773.4	1,050.0	7,839.9	0.00	0.00	0.00
15,500.0	90.00	180.00	7,640.0	-7,873.4	1,050.0	7,939.4	0.00	0.00	0.00
15,600.0	90.00	180.00	7,640.0	-7,973.4	1,050.0	8,038.9	0.00	0.00	0.00
15,700.0	90.00	180.00	7,640.0	-8,073.4	1,050.0	8,138.3	0.00	0.00	0.00
15,800.0	90.00	180.00	7,640.0	-8,173.4	1,050.0	8,237.8	0.00	0.00	0.00
15,900.0	90.00	180.00	7,640.0	-8,273.4	1,050.0	8,337.3	0.00	0.00	0.00
16,000.0	90.00	180.00	7,640.0	-8,373.4	1,050.0	8,436.8	0.00	0.00	0.00
16,100.0	90.00	180.00	7,640.0	-8,473.4	1,050.0	8,536.3	0.00	0.00	0.00
16,200.0	90.00	180.00	7,640.0	-8,573.4	1,050.0	8,635.7	0.00	0.00	0.00
16,300.0	90.00	180.00	7,640.0	-8,673.4	1,050.0	8,735.2	0.00	0.00	0.00
16,400.0	90.00	180.00	7,640.0	-8,773.4	1,050.0	8,834.7	0.00	0.00	0.00
16,500.0	90.00	180.00	7,640.0	-8,873.4	1,050.0	8,934.2	0.00	0.00	0.00
16,600.0	90.00	180.00	7,640.0	-8,973.4	1,050.0	9,033.7	0.00	0.00	0.00
16,700.0	90.00	180.00	7,640.0	-9,073.4	1,049.9	9,133.1	0.00	0.00	0.00
16,800.0	90.00	180.00	7,640.0	-9,173.4	1,049.9	9,232.6	0.00	0.00	0.00
16,900.0	90.00	180.00	7,640.0	-9,273.4	1,049.9	9,332.1	0.00	0.00	0.00
17,000.0	90.00	180.00	7,640.0	-9,373.4	1,049.9	9,431.6	0.00	0.00	0.00
17,100.0	90.00	180.00	7,640.0	-9,473.4	1,049.9	9,531.0	0.00	0.00	0.00
17,200.0	90.00	180.00	7,640.0	-9,573.4	1,049.9	9,630.5	0.00	0.00	0.00
17,300.0	90.00	180.00	7,640.0	-9,673.4	1,049.9	9,730.0	0.00	0.00	0.00
17,400.0	90.00	180.00	7,640.0	-9,773.4	1,049.9	9,829.5	0.00	0.00	0.00
17,500.0	90.00	180.00	7,640.0	-9,873.4	1,049.9	9,929.0	0.00	0.00	0.00

SandRidge Energy

Survey Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Mallard 0780 1-15H22
Project:	North Park Basin	TVD Reference:	KB @ 8136.0usft
Site:	T7N-R80W-S16	MD Reference:	KB @ 8136.0usft
Well:	Mallard 0780 1-15H22	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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)
17,600.0	90.00	180.00	7,640.0	-9,973.4	1,049.9	10,028.4	0.00	0.00	0.00
17,700.0	90.00	180.00	7,640.0	-10,073.4	1,049.9	10,127.9	0.00	0.00	0.00
17,800.0	90.00	180.00	7,640.0	-10,173.4	1,049.9	10,227.4	0.00	0.00	0.00
17,870.6	90.00	180.00	7,640.0	-10,243.9	1,049.9	10,297.6	0.00	0.00	0.00
TD at 17870.6									

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
Mallard BHL - plan hits target center - Point	0.00	360.00	7,640.0	-10,243.9	1,049.9	1,446,524.04	2,759,514.87	40° 33' 21.192 N	106° 21' 55.703 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,500.0	2,500.0	9 5/8" Surface Casing	9-5/8	12-1/4
18,535.2		5 1/2" Production Casing	5-1/2	8-3/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,556.9	7,380.0	Niobrara		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4500	4500	0	0	Start Build 2.00
5608	5580	0	211	Start 1746.5 hold at 5607.6 MD
7354	7198	0	870	Start DLS 12.00 TFO 90.00
8104	7640	-477	1050	Start 9766.5 hold at 8104.1 MD
17,871	7640	-10,244	1050	TD at 17870.6

Checked By: _____ Approved By: _____ Date: _____

SandRidge Energy

North Park Basin

T7N-R80W-S16

Mallard 0780 1-15H22

Wellbore #1

Design #1

Anticollision Summary Report

30 August, 2017

SandRidge Energy

Anticollision Summary Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Mallard 0780 1-15H22
Project:	North Park Basin	TVD Reference:	KB @ 8136.0usft
Reference Site:	T7N-R80W-S16	MD Reference:	KB @ 8136.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Mallard 0780 1-15H22	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMProd
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date	8/30/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	17,870.6	Design #1 (Wellbore #1)	Sperry MWD	Fixed:v2:standard declination

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
T7N-R80W-S21						
Evans 0780 1-21H - Wellbore #1 - Design #1	12,497.2	7,450.7	3,226.4	3,112.2	28.257	CC
Evans 0780 1-21H - Wellbore #1 - Design #1	17,700.0	13,205.7	3,343.3	3,000.1	9.740	ES
Evans 0780 1-21H - Wellbore #1 - Design #1	17,870.6	13,205.7	3,352.1	3,005.6	9.674	SF
Evans 0780 2-21H - Wellbore #1 - Design #1	13,026.6	8,728.5	2,705.8	2,582.4	21.940	CC
Evans 0780 2-21H - Wellbore #1 - Design #1	17,700.0	13,328.9	2,719.6	2,435.2	9.561	ES
Evans 0780 2-21H - Wellbore #1 - Design #1	17,870.6	13,328.9	2,729.6	2,441.9	9.489	SF
Evans 0780 3-21H - Wellbore #1 - Design #1	12,796.2	8,644.5	2,097.0	1,979.7	17.871	CC
Evans 0780 3-21H - Wellbore #1 - Design #1	17,700.0	13,503.4	2,116.2	1,839.6	7.650	ES
Evans 0780 3-21H - Wellbore #1 - Design #1	17,870.6	13,503.4	2,127.8	1,848.1	7.607	SF
Evans 0780 4-21H - Wellbore #1 - Design #1	13,294.3	9,350.0	1,563.0	1,441.3	12.839	CC
Evans 0780 4-21H - Wellbore #1 - Design #1	17,700.0	13,709.1	1,587.9	1,331.5	6.193	ES
Evans 0780 4-21H - Wellbore #1 - Design #1	17,800.0	13,709.1	1,594.0	1,336.0	6.177	SF
Ray Ranch 0780 1-16H - Wellbore #1 - Design #1	7,026.3	13,475.8	3,077.9	2,965.2	27.304	CC, ES
Ray Ranch 0780 1-16H - Wellbore #1 - Design #1	14,600.0	7,642.4	3,470.1	3,318.0	22.815	SF
Ray Ranch 0780 2-16H - Wellbore #1 - Design #1	7,384.8	13,590.8	2,511.3	2,397.3	22.037	CC, ES
Ray Ranch 0780 2-16H - Wellbore #1 - Design #1	14,100.0	7,926.3	2,766.0	2,622.8	19.309	SF
Ray Ranch 0780 3-16H - Wellbore #1 - Design #1	7,750.0	13,689.4	1,941.1	1,828.8	17.287	ES
Ray Ranch 0780 3-16H - Wellbore #1 - Design #1	7,778.0	13,668.0	1,941.0	1,828.9	17.311	CC
Ray Ranch 0780 3-16H - Wellbore #1 - Design #1	13,600.0	8,500.0	2,128.5	1,996.1	16.077	SF
Ray Ranch 0780 4-16H - Wellbore #1 - Design #1	8,025.0	13,429.5	1,426.2	1,321.6	13.639	ES
Ray Ranch 0780 4-16H - Wellbore #1 - Design #1	8,062.0	13,392.8	1,425.9	1,321.8	13.701	CC
Ray Ranch 0780 4-16H - Wellbore #1 - Design #1	13,200.0	8,414.6	1,535.5	1,409.4	12.175	SF

SandRidge Energy

Anticollision Summary Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Mallard 0780 1-15H22
Project:	North Park Basin	TVD Reference:	KB @ 8136.0usft
Reference Site:	T7N-R80W-S16	MD Reference:	KB @ 8136.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Mallard 0780 1-15H22	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMProd
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 8136.0usft

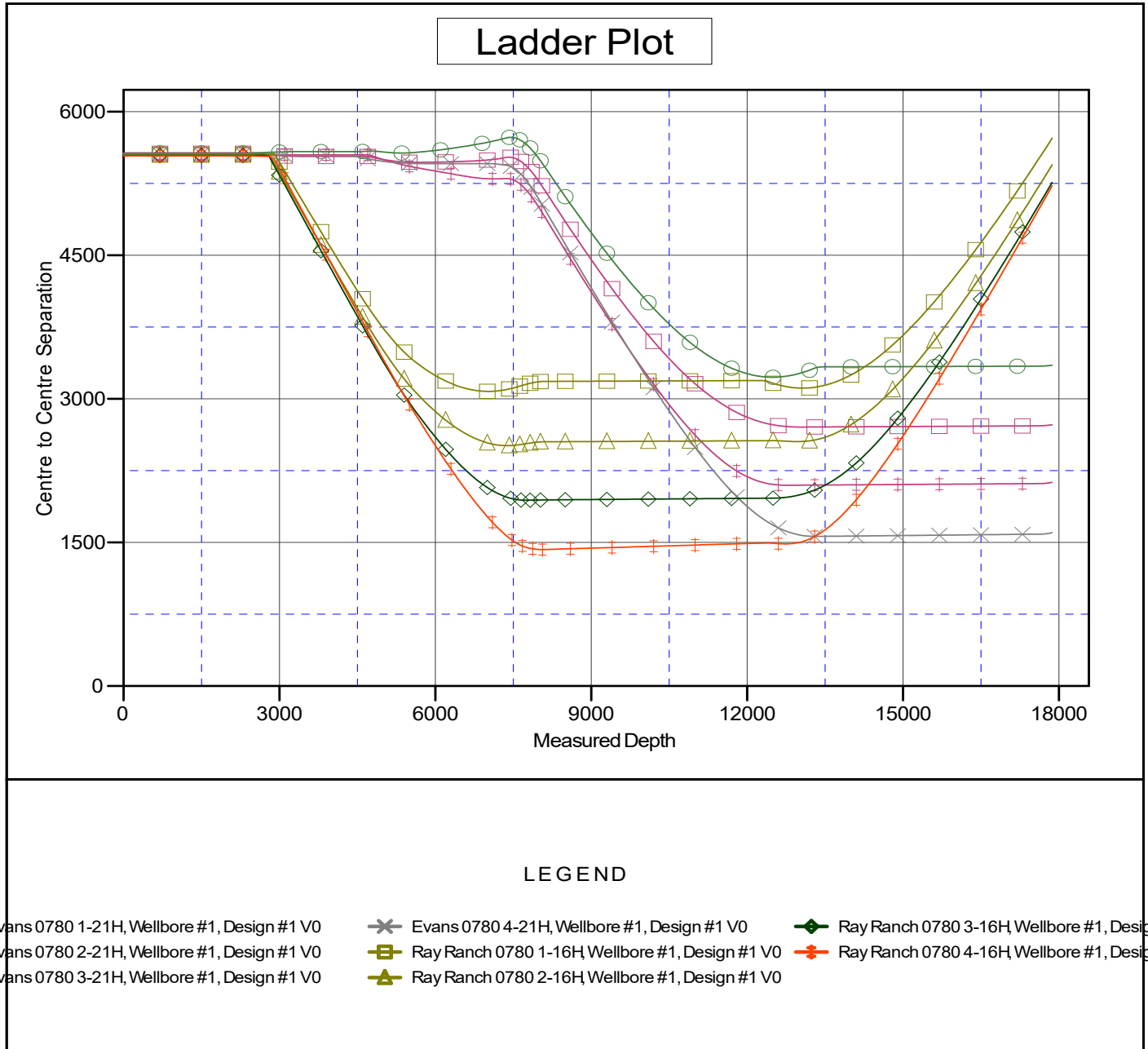
Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Mallard 0780 1-15H22

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: -0.56°



SandRidge Energy

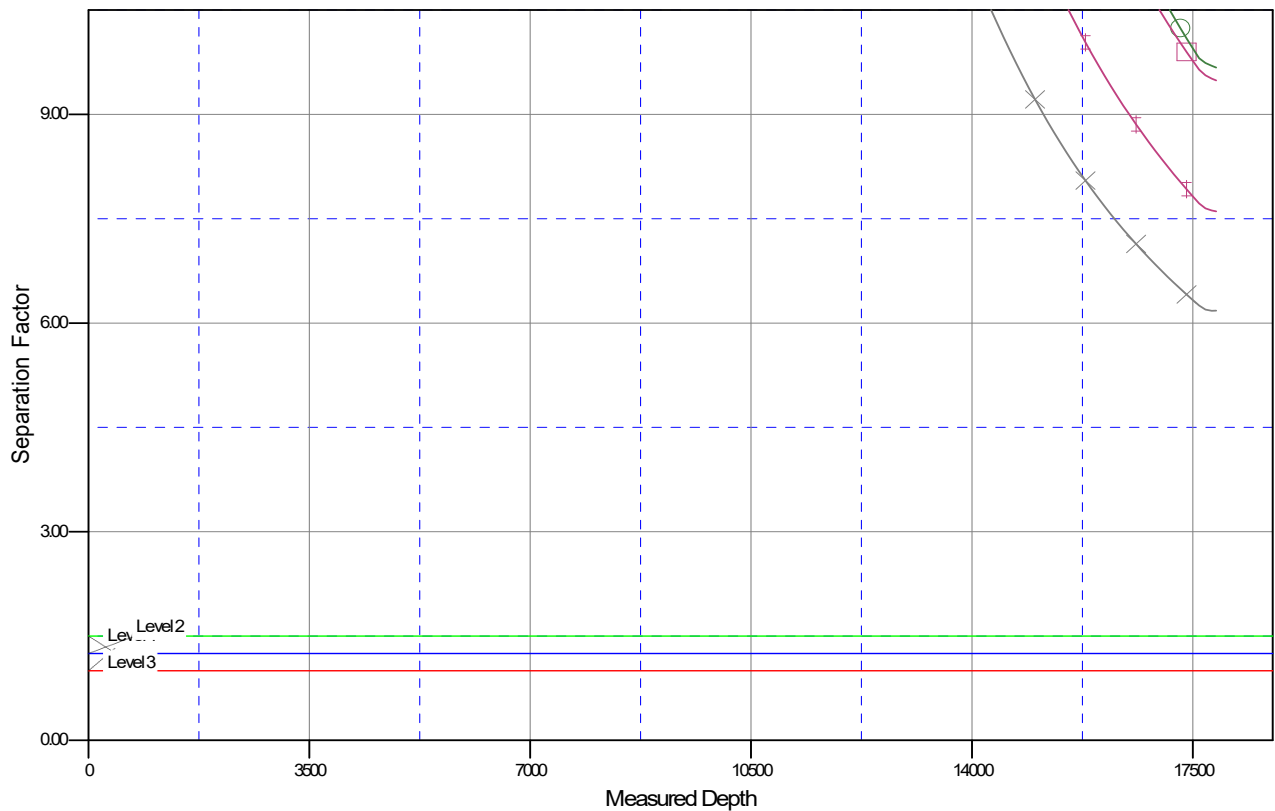
Anticollision Summary Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Mallard 0780 1-15H22
Project:	North Park Basin	TVD Reference:	KB @ 8136.0usft
Reference Site:	T7N-R80W-S16	MD Reference:	KB @ 8136.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Mallard 0780 1-15H22	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMProd
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 8136.0usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Mallard 0780 1-15H22
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: -0.56°

Separation Factor Plot



LEGEND

Evans 0780 1-21H, Wellbore #1, Design #1 V0	✕ Evans 0780 4-21H, Wellbore #1, Design #1 V0	◆ Ray Ranch 0780 3-16H, Wellbore #1, Design #1 V0
Evans 0780 2-21H, Wellbore #1, Design #1 V0	⊞ Ray Ranch 0780 1-16H, Wellbore #1, Design #1 V0	⊞ Ray Ranch 0780 4-16H, Wellbore #1, Design #1 V0
Evans 0780 3-21H, Wellbore #1, Design #1 V0	▲ Ray Ranch 0780 2-16H, Wellbore #1, Design #1 V0	