

SandRidge Energy

North Park Basin

T7N-R80W-S9

Castle 0780 8-17H20

Wellbore #1

Design #1

Anticollision Summary Report

13 September, 2017

SandRidge Energy

Anticollision Summary Report

Company:	SandRidge Energy	Local Co-ordinate Reference:	Well Castle 0780 8-17H20
Project:	North Park Basin	TVD Reference:	WELL @ 8134.0usft
Reference Site:	T7N-R80W-S9	MD Reference:	WELL @ 8134.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Castle 0780 8-17H20	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	9/13/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	18,294.6	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-S17						
Castle 0780 1-17H20 - Wellbore #1 - Wellbore #1	12,578.6	11,711.0	3,918.7	3,735.2	21.354	CC
Castle 0780 1-17H20 - Wellbore #1 - Wellbore #1	17,900.0	16,939.0	3,946.6	3,569.1	10.453	ES
Castle 0780 1-17H20 - Wellbore #1 - Wellbore #1	18,294.6	16,939.0	3,976.4	3,591.3	10.325	SF
Castle 0780 3-17H20 - Wellbore #1 - Design #1	18,111.1	16,939.5	3,384.9	2,986.4	8.493	CC
Castle 0780 3-17H20 - Wellbore #1 - Design #1	18,200.0	16,952.7	3,385.8	2,985.2	8.454	ES
Castle 0780 3-17H20 - Wellbore #1 - Design #1	18,294.6	16,952.7	3,389.1	2,986.8	8.424	SF
Castle 0780 4-17H20 - Wellbore #1 - Design #1	8,529.5	7,915.9	2,720.7	2,674.1	58.400	CC
Castle 0780 4-17H20 - Wellbore #1 - Design #1	18,200.0	17,523.1	2,734.1	2,334.9	6.849	ES
Castle 0780 4-17H20 - Wellbore #1 - Design #1	18,294.6	17,523.1	2,738.1	2,337.1	6.828	SF
Castle 0780 9-17H20 - Wellbore #1 - Design #1	8,226.4	6,850.0	4,290.6	4,253.4	115.129	CC
Castle 0780 9-17H20 - Wellbore #1 - Design #1	8,300.0	6,878.0	4,291.1	4,252.8	112.103	ES
Castle 0780 9-17H20 - Wellbore #1 - Design #1	18,294.6	16,892.8	4,687.6	4,287.5	11.717	SF
Hebron 0780 4-18H - Wellbore #2 - Wellbore #2	257.6	295.7	4,791.9	4,790.9	4,519.044	CC
Hebron 0780 4-18H - Wellbore #2 - Wellbore #2	500.0	516.9	4,792.5	4,790.4	2,341.352	ES
Hebron 0780 4-18H - Wellbore #2 - Wellbore #2	15,500.0	11,903.0	5,857.9	5,614.8	24.096	SF
Hebron 0780 4-7H - Wellbore #1 - Wellbore #1	0.0	37.3	4,927.9			
Hebron 0780 4-7H - Wellbore #1 - Wellbore #1	16,600.0	6,292.0	9,990.7	9,803.9	53.473	SF
Mutual 0780 1-8H - Wellbore #1 - Design #1	7,500.0	7,823.4	3,725.2	3,688.8	102.188	ES
Mutual 0780 1-8H - Wellbore #1 - Design #1	7,509.2	7,816.0	3,725.2	3,688.8	102.371	CC
Mutual 0780 1-8H - Wellbore #1 - Design #1	16,500.0	6,650.0	9,106.8	8,920.7	48.940	SF
Mutual 0780 2-8H - Wellbore #1 - Wellbore #1	7,483.9	7,308.8	4,395.3	4,366.2	150.956	CC, ES
Mutual 0780 2-8H - Wellbore #1 - Wellbore #1	16,800.0	6,556.0	9,916.1	9,728.6	52.888	SF
Mutual 0780 3-8H - Wellbore #1 - Wellbore #1	7,391.1	7,951.0	3,103.5	3,068.9	89.575	CC, ES
Mutual 0780 3-8H - Wellbore #1 - Wellbore #1	14,700.0	6,904.0	7,473.1	7,323.4	49.929	SF
Mutual 0780 4-8H - Wellbore #1 - Wellbore #1	7,396.2	8,051.0	2,495.3	2,455.5	62.674	CC, ES
Mutual 0780 4-8H - Wellbore #1 - Wellbore #1	12,600.0	7,175.0	5,401.5	5,286.8	47.101	SF
Mutual 7-17H - Wellbore #1 - Wellbore #1	7,132.4	8,962.8	3,973.5	3,919.3	73.213	CC, ES
Mutual 7-17H - Wellbore #1 - Wellbore #1	17,000.0	6,751.0	9,994.8	9,799.7	51.225	SF

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Reference Well:	Castle 0780 8-17H20	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

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
T7N-R80W-S9						
Castle 0780 5-17H20 - Wellbore #1 - Design #1	2,500.0	2,500.0	45.4	34.4	4.132	CC, ES
Castle 0780 5-17H20 - Wellbore #1 - Design #1	2,600.0	2,598.5	47.0	35.6	4.117	SF
Castle 0780 6-17H20 - Wellbore #1 - Design #1	2,630.6	2,632.6	30.2	18.7	2.614	CC, ES
Castle 0780 6-17H20 - Wellbore #1 - Design #1	2,700.0	2,701.5	30.7	18.8	2.585	SF
Castle 0780 7-17H20 - Wellbore #1 - Design #1	2,766.0	2,768.0	15.1	2.9	1.242	Level 2, CC
Castle 0780 7-17H20 - Wellbore #1 - Design #1	2,800.0	2,802.0	15.1	2.8	1.227	Level 2, ES, SF
Gregory 0780 1-9H - Wellbore #1 - Wellbore #1	0.0	3.0	168.5			
Gregory 0780 1-9H - Wellbore #1 - Wellbore #1	100.0	102.4	168.6	168.4	844.790	ES
Gregory 0780 1-9H - Wellbore #1 - Wellbore #1	4,000.0	3,993.6	326.1	308.9	18.969	SF
Gregory 0780 2-9H - Wellbore #1 - Design #1	3,500.0	3,500.0	160.4	145.0	10.368	CC, ES
Gregory 0780 2-9H - Wellbore #1 - Design #1	3,700.0	3,699.8	165.4	149.1	10.125	SF
Gregory 0780 3-9H - Wellbore #1 - Design #1	2,900.0	2,900.0	171.9	159.2	13.458	CC, ES
Gregory 0780 3-9H - Wellbore #1 - Design #1	3,200.0	3,190.9	179.5	165.4	12.784	SF
Gregory 0780 4-9H - Wellbore #1 - Design #1	2,500.0	2,500.0	183.9	173.0	16.756	CC, ES
Gregory 0780 4-9H - Wellbore #1 - Design #1	2,900.0	2,890.2	193.7	181.0	15.266	SF
Janet 0780 1-16H21 - Wellbore #1 - Design #1	3,500.0	3,517.0	530.0	514.5	34.195	CC
Janet 0780 1-16H21 - Wellbore #1 - Design #1	18,294.6	17,846.0	662.6	255.4	1.627	Level 4, ES, SF
Janet 0780 2-16H21 - Wellbore #1 - Design #1	3,500.0	3,517.0	515.1	499.6	33.228	CC, ES
Janet 0780 2-16H21 - Wellbore #1 - Design #1	18,294.6	17,908.8	1,330.3	922.0	3.258	SF
Janet 0780 3-16H21 - Wellbore #1 - Design #1	3,507.0	3,524.6	500.1	484.5	32.199	CC, ES
Janet 0780 3-16H21 - Wellbore #1 - Design #1	18,294.6	18,042.6	1,998.9	1,590.0	4.889	SF
Janet 0780 4-16H21 - Wellbore #1 - Design #1	3,129.7	3,147.6	484.6	470.9	35.185	CC
Janet 0780 4-16H21 - Wellbore #1 - Design #1	3,200.0	3,217.1	484.7	470.6	34.430	ES
Janet 0780 4-16H21 - Wellbore #1 - Design #1	18,294.6	18,236.4	2,668.7	2,259.0	6.513	SF
Mutual 0780 5-8H - Wellbore #1 - Design #1	2,928.0	2,929.6	148.9	136.1	11.614	CC, ES
Mutual 0780 5-8H - Wellbore #1 - Design #1	3,100.0	3,098.0	152.0	138.4	11.188	SF
Mutual 0780 6-8H - Wellbore #1 - Design #1	3,498.5	3,505.6	142.6	127.3	9.305	CC
Mutual 0780 6-8H - Wellbore #1 - Design #1	4,235.2	4,228.0	144.5	125.9	7.749	ES
Mutual 0780 6-8H - Wellbore #1 - Design #1	4,400.0	4,390.3	147.3	128.1	7.644	SF
Mutual 0780 7-8H - Wellbore #1 - Design #1	4,735.9	4,747.2	19.2	-1.5	0.928	Level 1, CC, ES, SF
Mutual 0780 8-8H - Wellbore #1 - Design #1	4,726.9	4,744.5	130.7	110.1	6.346	CC, ES
Mutual 0780 8-8H - Wellbore #1 - Design #1	7,722.8	7,550.0	179.3	143.9	5.068	SF

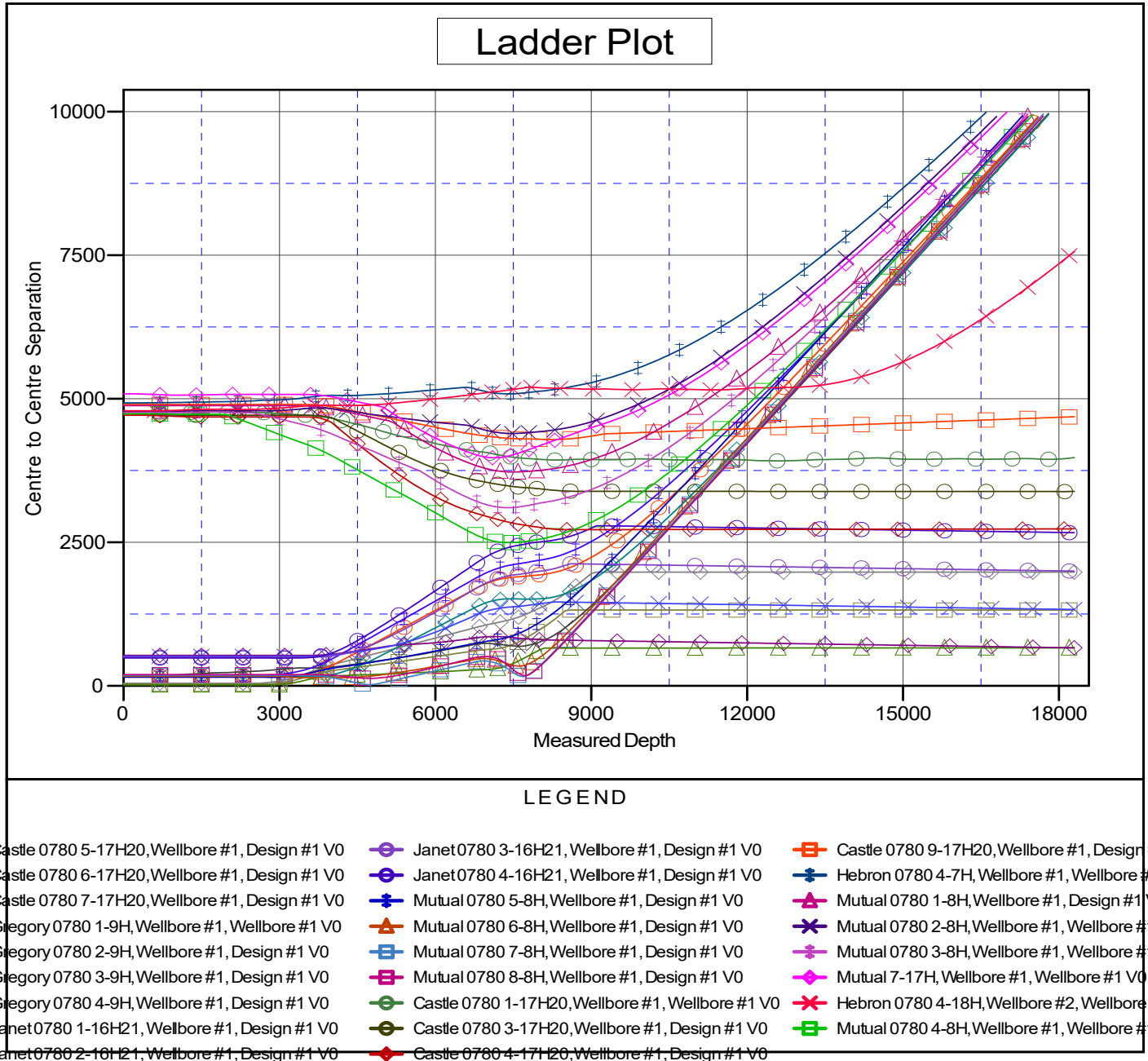
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Reference Wellbore	Wellbore #1	Database:	EDMProd
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 8134.0usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Castle 0780 8-17H20
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: -0.57°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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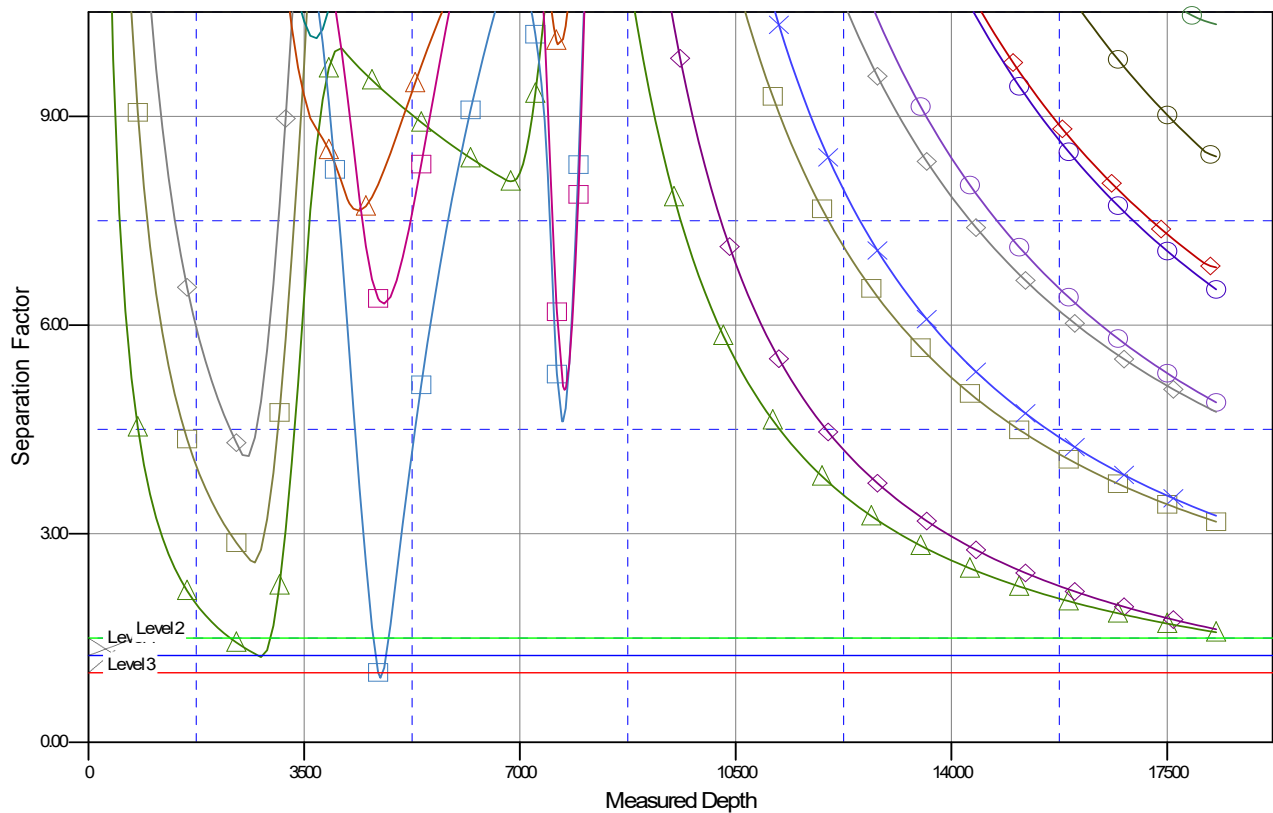
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Grid Convergence at Surface is: -0.57°

Separation Factor Plot



LEGEND

Castle 0780 5-17H20, Wellbore #1, Design #1 V0	Janet 0780 3-16H21, Wellbore #1, Design #1 V0	Castle 0780 9-17H20, Wellbore #1, Design #1 V0
Castle 0780 6-17H20, Wellbore #1, Design #1 V0	Janet 0780 4-16H21, Wellbore #1, Design #1 V0	Hebron 0780 4-7H, Wellbore #1, Wellbore #1
Castle 0780 7-17H20, Wellbore #1, Design #1 V0	Mutual 0780 5-8H, Wellbore #1, Design #1 V0	Mutual 0780 1-8H, Wellbore #1, Design #1 V0
Gregory 0780 1-9H, Wellbore #1, Wellbore #1 V0	Mutual 0780 6-8H, Wellbore #1, Design #1 V0	Mutual 0780 2-8H, Wellbore #1, Wellbore #1
Gregory 0780 2-9H, Wellbore #1, Design #1 V0	Mutual 0780 7-8H, Wellbore #1, Design #1 V0	Mutual 0780 3-8H, Wellbore #1, Wellbore #1
Gregory 0780 3-9H, Wellbore #1, Design #1 V0	Mutual 0780 8-8H, Wellbore #1, Design #1 V0	Mutual 7-17H, Wellbore #1, Wellbore #1 V0
Gregory 0780 4-9H, Wellbore #1, Design #1 V0	Castle 0780 1-17H20, Wellbore #1, Wellbore #1 V0	Hebron 0780 4-18H, Wellbore #2, Wellbore #2
Janet 0780 1-16H21, Wellbore #1, Design #1 V0	Castle 0780 3-17H20, Wellbore #1, Design #1 V0	Mutual 0780 4-8H, Wellbore #1, Wellbore #1
Janet 0780 2-16H21, Wellbore #1, Design #1 V0	Castle 0780 4-17H20, Wellbore #1, Design #1 V0	