

VERDAD RESOURCES

WATTENBERG FIELD

8N-60W-11 SONIC STAR 1101 PAD

SONIC STAR 1101-09H

Wellbore #1

Plan #1

Anticollision Summary Report

20 August, 2020

HP

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well SONIC STAR 1101-09H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4901.00usft (RIG)
Reference Site:	8N-60W-11 SONIC STAR 1101 PAD	MD Reference:	RKB = 20' @ 4901.00usft (RIG)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	SONIC STAR 1101-09H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 1,500.00usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Added to Error Values

Survey Tool Program	Date	8/20/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,700.00	Plan #1 (Wellbore #1)	ISCWSA MWD	Fixed:v2:standard declination
1,700.00	15,243.25	Plan #1 (Wellbore #1)	ISCWSA MWD	Fixed:v2:standard declination

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
8N-60W-11 SONIC STAR 1101 PAD						
SONIC STAR 1101-01H - Wellbore #1 - Design #3	250.00	247.00	120.06	112.46	15.787	CC, ES
SONIC STAR 1101-01H - Wellbore #1 - Design #3	1,300.00	1,273.32	198.74	185.99	15.583	SF
SONIC STAR 1101-02H - Wellbore #1 - Design #1	250.00	248.00	105.05	97.45	13.813	CC, ES
SONIC STAR 1101-02H - Wellbore #1 - Design #1	1,400.00	1,378.10	176.09	161.80	12.322	SF
SONIC STAR 1101-03H - Wellbore #1 - Design #1	250.00	248.00	90.04	82.44	11.839	CC, ES
SONIC STAR 1101-03H - Wellbore #1 - Design #1	1,500.00	1,481.39	153.36	137.31	9.559	SF
SONIC STAR 1101-04H - Wellbore #1 - Design #1	250.00	248.00	75.03	67.42	9.865	CC, ES
SONIC STAR 1101-04H - Wellbore #1 - Design #1	1,600.00	1,584.58	129.78	111.58	7.132	SF
SONIC STAR 1101-05H - Wellbore #1 - Design #1	250.00	248.00	60.06	52.45	7.896	CC
SONIC STAR 1101-05H - Wellbore #1 - Design #1	300.00	297.65	60.10	52.45	7.856	ES
SONIC STAR 1101-05H - Wellbore #1 - Design #1	15,206.13	14,738.34	1,239.04	866.41	3.325	SF
SONIC STAR 1101-06H - Wellbore #1 - Design #1	250.00	249.00	45.04	37.44	5.922	CC
SONIC STAR 1101-06H - Wellbore #1 - Design #1	300.00	298.76	45.07	37.42	5.892	ES
SONIC STAR 1101-06H - Wellbore #1 - Design #1	15,216.51	14,842.49	929.29	556.44	2.492	SF
SONIC STAR 1101-07H - Wellbore #1 - Design #1	250.00	249.00	30.03	22.42	3.948	CC
SONIC STAR 1101-07H - Wellbore #1 - Design #1	300.00	298.86	30.04	22.39	3.927	ES
SONIC STAR 1101-07H - Wellbore #1 - Design #1	15,200.01	15,052.50	632.22	262.86	1.712	SF
SONIC STAR 1101-08H - Wellbore #1 - Design #1	250.00	250.00	15.01	7.41	1.974	CC
SONIC STAR 1101-08H - Wellbore #1 - Design #1	15,201.21	15,062.23	309.75	-61.99	0.833	Level 1, ES, SF
SONIC STAR 1101-10H - Wellbore #1 - Design #1	250.00	250.00	14.98	7.37	1.969	CC
SONIC STAR 1101-10H - Wellbore #1 - Design #1	2,000.00	2,001.50	24.59	-2.28	0.915	Level 1, SF
SONIC STAR 1101-10H - Wellbore #1 - Design #1	15,243.25	15,500.41	334.02	-11.08	0.968	Level 1, ES
SONIC STAR 1101-11H - Wellbore #1 - Design #1	255.82	256.83	29.99	22.38	3.940	CC
SONIC STAR 1101-11H - Wellbore #1 - Design #1	1,900.00	1,903.75	45.29	19.97	1.788	ES
SONIC STAR 1101-11H - Wellbore #1 - Design #1	15,243.25	15,557.83	619.53	246.28	1.660	SF
SONIC STAR 1101-12H - Wellbore #1 - Design #1	253.95	254.96	45.00	37.39	5.914	CC
SONIC STAR 1101-12H - Wellbore #1 - Design #1	300.00	301.15	45.02	37.37	5.883	ES
SONIC STAR 1101-12H - Wellbore #1 - Design #1	15,243.25	15,735.12	929.29	556.19	2.491	SF
SONIC STAR 1101-13H - Wellbore #1 - Design #1	252.98	254.00	60.02	52.41	7.887	CC
SONIC STAR 1101-13H - Wellbore #1 - Design #1	300.00	301.18	60.04	52.39	7.846	ES
SONIC STAR 1101-13H - Wellbore #1 - Design #1	2,100.00	2,104.74	93.10	63.99	3.198	SF
SONIC STAR 1101-14H - Wellbore #1 - Design #1	252.37	253.39	75.03	67.42	9.861	CC
SONIC STAR 1101-14H - Wellbore #1 - Design #1	300.00	301.21	75.06	67.40	9.809	ES
SONIC STAR 1101-14H - Wellbore #1 - Design #1	2,200.00	2,203.91	119.29	88.16	3.832	SF
SONIC STAR 1101-15H - Wellbore #1 - Design #1	252.03	253.05	90.00	82.40	11.830	CC
SONIC STAR 1101-15H - Wellbore #1 - Design #1	300.00	301.24	90.03	82.38	11.766	ES

HP

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well SONIC STAR 1101-09H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4901.00usft (RIG)
Reference Site:	8N-60W-11 SONIC STAR 1101 PAD	MD Reference:	RKB = 20' @ 4901.00usft (RIG)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	SONIC STAR 1101-09H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan #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
Offset Well - Wellbore - Design						
8N-60W-11 SONIC STAR 1101 PAD						
SONIC STAR 1101-15H - Wellbore #1 - Design #1	2,300.00	2,302.04	146.20	113.04	4.409	SF
SONIC STAR 1101-16H - Wellbore #1 - Design #1	251.76	252.77	105.02	97.41	13.803	CC
SONIC STAR 1101-16H - Wellbore #1 - Design #1	300.00	301.27	105.05	97.40	13.729	ES
SONIC STAR 1101-16H - Wellbore #1 - Design #1	2,300.00	2,302.75	165.14	131.71	4.939	SF
8N-60W-12 Offsets						
COLORADO NATIONAL BANK #1 - Shell P&A Well - No						Out of range
8N-60W-14 Offsets						
BOOMSLANG FED 8-60 14A-13-18-1 - Bison Planned W	6,810.11	8,892.74	91.00	-76.80	0.542	Level 1, CC
BOOMSLANG FED 8-60 14A-13-18-1 - Bison Planned W	6,850.00	8,910.72	98.84	-87.23	0.531	Level 1, ES, SF
BOOMSLANG FED 8-60 14A-13-18-2 - Bison PR Well -	6,916.25	9,080.26	213.23	102.36	1.923	CC
BOOMSLANG FED 8-60 14A-13-18-2 - Bison PR Well -	6,950.00	9,093.39	216.34	96.86	1.811	ES
BOOMSLANG FED 8-60 14A-13-18-2 - Bison PR Well -	7,000.00	9,111.93	231.82	103.73	1.810	SF
BOOMSLANG FED 8-60 14A-13-18-3 - Bison PR Well -	6,719.69	8,998.18	721.34	598.95	5.894	CC
BOOMSLANG FED 8-60 14A-13-18-3 - Bison PR Well -	6,750.00	9,012.74	722.54	598.53	5.826	ES
BOOMSLANG FED 8-60 14A-13-18-3 - Bison PR Well -	6,800.00	9,036.87	729.76	603.40	5.775	SF
BOOMSLANG FED 8-60 14A-13-18-4 - Bison PR Well -	6,667.98	8,896.51	1,358.24	1,235.48	11.064	CC, ES
BOOMSLANG FED 8-60 14A-13-18-4 - Bison PR Well -	6,800.00	8,970.37	1,376.64	1,249.62	10.838	SF
8N-60W-14 SCHNEIDER 1414 PAD						
SCHNEIDER 1414-12H - Wellbore #1 - Design #2						Out of range
9N-59W-30 PTASNIK FED PAD						
PTASNIK FED 3031 01H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 02H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 03H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 04H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 05H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 06H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 07H - Wellbore #1 - Design #2						Out of range
PTASNIK FED 3031 08H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 09H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 10H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 11H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 12H - Wellbore #1 - Design #1						Out of range
PTASNIK FED 3031 13H - Wellbore #1 - Design #1						Out of range

HP

Anticollision Summary Report

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Reference Site:	8N-60W-11 SONIC STAR 1101 PAD	MD Reference:	RKB = 20' @ 4901.00usft (RIG)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	SONIC STAR 1101-09H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)		Separation Factor	Warning
Offset Well - Wellbore - Design						
9N-59W-31 Offsets						
AF 1 - Mallard Planned Well - Planned Surveys						Out of range
AF 2 - Mallard Planned Well - Planned MWD Surveys						Out of range
ANDERSEN FED 6-5-1HN - Mallard Planned Well - Plan						Out of range
ANDERSEN FED 6-5-2HN - Mallard Planned Well - Plan						Out of range
ANDERSON FED 6-5-10HN - Mallard Planned Well - Pla						Out of range
ANDERSON FED 6-5-3HC - Mallard Planned Well - Plan						Out of range
ANDERSON FED 6-5-4HN - Mallard Planned Well - Plan						Out of range
ANDERSON FED 6-5-5HN - Mallard Planned Well - Plan						Out of range
ANDERSON FED 6-5-6HN - Mallard Planned Well - Plan						Out of range
ANDERSON FED 6-5-7HN - Mallard Planned Well - Plan						Out of range
ANDERSON FED 6-5-8HC - Mallard Planned Well - Plan						Out of range
ANDERSON FED 6-5-9HN - Mallard Planned Well - Plan						Out of range
RAINBOW-SHULL #1 - Toltek D/A Well - No Surveys						Out of range
SHULL FED 31-32-10HN - Mallard Planned Well - Plann						Out of range
SHULL FED 31-32-1HN - Mallard PR Well - Actual Malla						Out of range
SHULL FED 31-32-2HC - Mallard PR Well - Actual Malla						Out of range
SHULL FED 31-32-3HN - Mallard Planned Well (Now Pro						Out of range
SHULL FED 31-32-4HN - Mallard Planned Well (Now PR						Out of range
SHULL FED 31-32-5HN - Mallard Planned Well - Planne						Out of range
SHULL FED 31-32-6HN - Mallard Planned Well - Planne						Out of range
SHULL FED 31-32-7HN - Mallard Planned Well - Planne						Out of range
SHULL FED 31-32-8HC - Mallard Planned Well - Planne						Out of range
SHULL FED 31-32-9HN - Mallard Planned Well - Planne						Out of range
Shull Fed-9-59-31-0508CDE - Mallard Planned Well - Pla						Out of range
Shull Fed-9-59-31-1209AE - Mallard Planned Well - Plan						Out of range
Shull Fed-9-59-31-2124BE - Mallard Planned Well - Plan						Out of range
Shull Fed-9-59-31-2124CE2 - Mallard Planned Well - Pla						Out of range
9N-60W-25 PEGGY 2501 PAD						
PEGGY 2501-01H - Verdad SI Well - Actual Baker Surve						Out of range
PEGGY 2501-02H - Verdad PR Well - Actual Baker Surv						Out of range
PEGGY 2501-04H - Wellbore #2 - Design #1						Out of range
PEGGY 2501-06H - Wellbore #2 - Design #1						Out of range
PEGGY 2501-08H - Wellbore #2 - Design #1	15,243.25	14,399.40	927.37	543.41	2.415	CC, ES, SF
PEGGY 2501-10H - Wellbore #2 - Design #1	15,243.25	14,235.97	374.10	54.50	1.171	Level 2, CC, ES, SF
PEGGY 2501-12H - Wellbore #2 - Design #1	15,243.25	14,306.14	410.45	96.41	1.307	Level 3, CC, ES, SF
PEGGY 2501-14H - Wellbore #2 - Design #1	15,243.25	14,647.68	972.39	600.61	2.615	CC, ES, SF
PEGGY 2501-16H - Wellbore #2 - Design #1						Out of range
9N-60W-35 Offsets Incomplete						
PINTAIL FED 2-11-8HN - Mallard Planned Well - Planned						Out of range
PINTAIL FED 2-11-9HN - Mallard Planned Well - Planned						Out of range
Shull 1-35-9-60 - Carrizo PR Well - Actual Precision Surv						Out of range
Shull 2-35-9-60 - Verdad PR Well - Actual Precision Surv						Out of range
Shull 3-35-9-60 - Verdad PR Well - Actual Precision Surv						Out of range

Anticollision Summary Report

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Reference Site:	8N-60W-11 SONIC STAR 1101 PAD	MD Reference:	RKB = 20' @ 4901.00usft (RIG)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	SONIC STAR 1101-09H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan #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
Offset Well - Wellbore - Design						
9N-60W-36 Offsets						
STATE-HUSKY #1 - Bennett D/A Well - No Surveys						Out of range

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well SONIC STAR 1101-09H
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Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB = 20' @ 4901.00usft (RIG)

Offset Depths are relative to Offset Datum

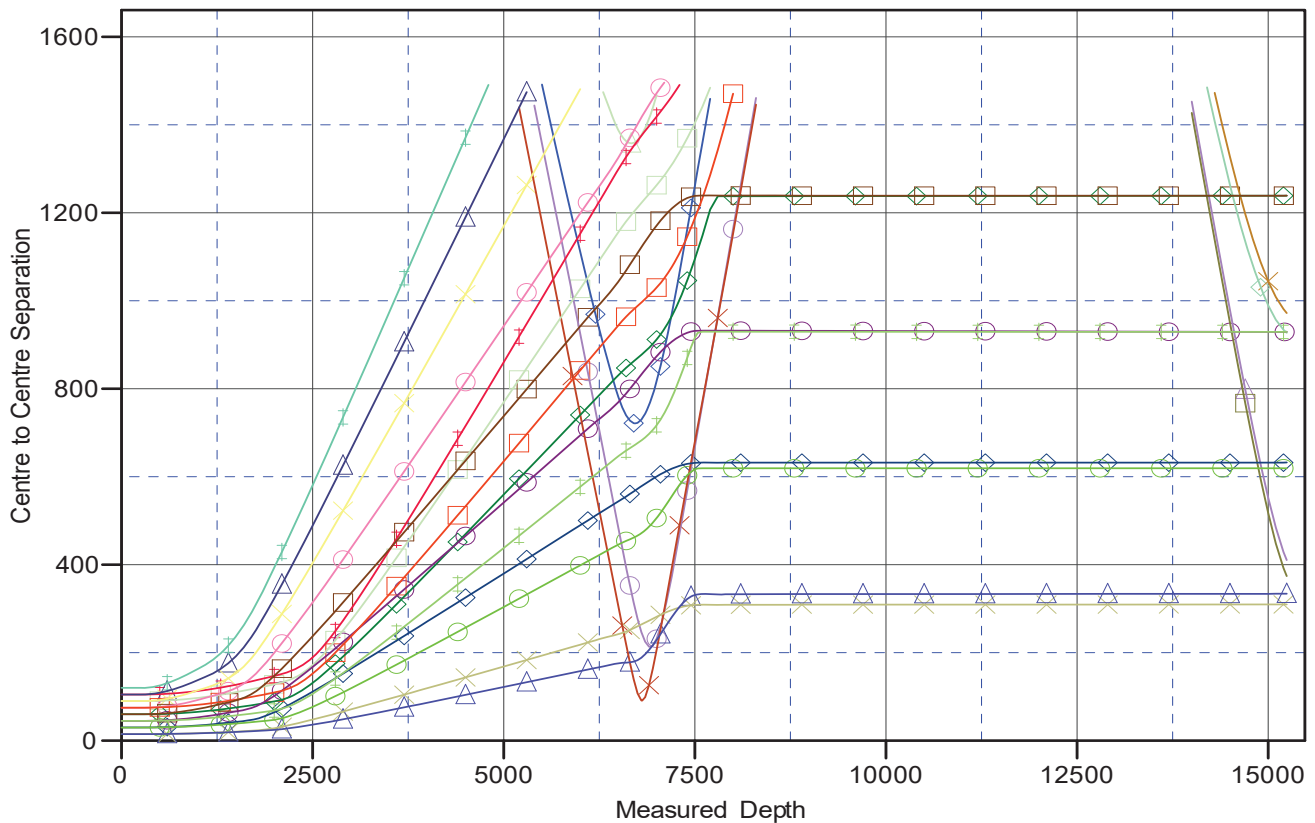
Central Meridian is -105.500000

Coordinates are relative to: SONIC STAR 1101-09H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.94°

Ladder Plot



LEGEND

BOOMSLAND FED 8-60 14A-13-182, Beacon PR Well, Actual Baker Surveys V0
 BOOMSLAND FED 8-60 14A-13-183, Beacon PR Well, Actual Baker Surveys V0
 BOOMSLAND FED 8-60 14A-13-184, Beacon PR Well, Actual Baker Surveys V0
 BOOMSLAND FED 8-60 14A-13-181, Beacon Planned Well, Planned Beacon MWD Surveys V0
 PEGGY 2501-08H, Wellbore #2, Design #1 V0
 PEGGY 2501-14H, Wellbore #2, Design #1 V0
 PEGGY 2501-12H, Wellbore #2, Design #1 V0
 PEGGY 2501-10H, Wellbore #2, Design #1 V0

SONIC STAR 1101-16H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-15H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-04H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-07H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-08H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-02H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-13H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-06H, Wellbore #1, Design #1 V0

SONIC STAR 1101-03H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-10H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-01H, Wellbore #1, Design #3 V0
 SONIC STAR 1101-14H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-12H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-05H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-11H, Wellbore #1, Design #1 V0

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well SONIC STAR 1101-09H
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Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB = 20' @ 4901.00usft (RIG)

Offset Depths are relative to Offset Datum

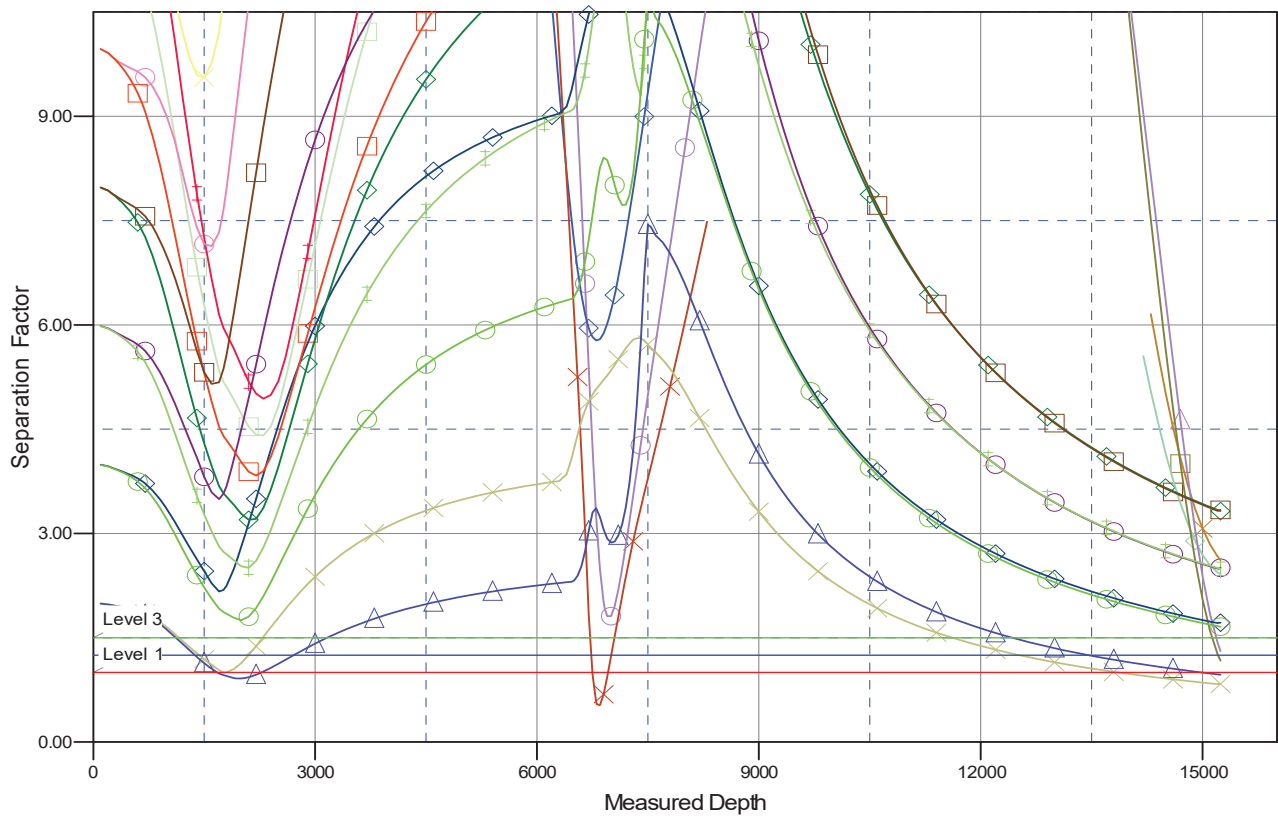
Central Meridian is -105.500000

Coordinates are relative to: SONIC STAR 1101-09H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.94°

Separation Factor Plot



LEGEND

BOOMS LANG FED 8-60 14A-13-182, Bison PR Well, Actual Baker Surveys V0
 BOOMS LANG FED 8-60 14A-13-183, Bison PR Well, Actual Baker Surveys V0
 BOOMS LANG FED 8-60 14A-13-184, Bison PR Well, Actual Baker Surveys V0
 BOOMS LANG FED 8-60 14A-13-181, Bison Planned Well, Planned Bison MWD Surveys V0
 PEGGY 2501-08H, Wellbore #2, Design #1 V0
 PEGGY 2501-14H, Wellbore #2, Design #1 V0
 PEGGY 2501-12H, Wellbore #2, Design #1 V0
 PEGGY 2501-10H, Wellbore #2, Design #1 V0

SONIC STAR 1101-16H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-15H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-09H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-07H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-08H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-02H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-13H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-06H, Wellbore #1, Design #1 V0

SONIC STAR 1101-03H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-10H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-01H, Wellbore #1, Design #3 V0
 SONIC STAR 1101-14H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-08H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-12H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-05H, Wellbore #1, Design #1 V0
 SONIC STAR 1101-11H, Wellbore #1, Design #1 V0