

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD PAD
HELEN 2536-10H**

**Plan B
Design #2**

Anticollision Summary Report

14 December, 2021

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well HELEN 2536-10H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Reference Site:	2N-64W-24 ARNOLD PAD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HELEN 2536-10H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Plan B	Database:	EDM 5000.16 Single User Db
Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Reference	Design #2		
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 ellipse separation of 1,000.00usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Added to Error Values

Survey Tool Program	Date	12/14/2021			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	1,908.00	Design #2 (Plan B)	ISCWSA MWD	Fixed:v2:standard declination	
1,908.00	17,261.05	Design #2 (Plan B)	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
2N-63W-19 KBL PAD						
KBL 1930-07H - Wellbore #1 - Design #1						Out of range
2N-64W-13 Offsets						
ARNOLD #1 - Barrett Resources P/A Well - No Surveys						Out of range
DARYL L ARNOLD #1 - Amoco D/A Well - No Surveys						Out of range
2N-64W-24 ARNOLD PAD						
HELEN 2536-05H - Plan B - Design #2	240.00	240.00	79.98	72.38	10.527	CC, ES
HELEN 2536-05H - Plan B - Design #2	300.00	300.00	80.49	72.84	10.519	SF
HELEN 2536-06H - Plan B - Design #2	203.80	204.80	63.76	56.19	8.421	CC
HELEN 2536-06H - Plan B - Design #2	240.00	240.92	63.77	56.18	8.394	ES, SF
HELEN 2536-07H - Plan B - Design #2	240.00	241.00	47.82	40.22	6.294	CC, ES
HELEN 2536-07H - Plan B - Design #2	17,251.90	17,058.69	1,426.33	891.32	2.666	SF
HELEN 2536-08H - Plan B - Design #2	240.00	241.00	31.88	24.28	4.196	CC, ES
HELEN 2536-08H - Plan B - Design #2	17,261.05	17,091.54	982.06	447.32	1.837	SF
HELEN 2536-09H - Plan B - Design #2	240.00	240.00	15.94	8.34	2.098	CC
HELEN 2536-09H - Plan B - Design #2	17,261.05	17,159.27	491.03	-43.72	0.918	Level 1, ES, SF
HELEN 2536-11H - Plan A - Design #1	201.48	201.48	16.22	8.65	2.143	CC
HELEN 2536-11H - Plan A - Design #1	17,261.05	17,393.56	491.86	-43.84	0.918	Level 1, ES, SF
HELEN 2536-12H - Plan A - Design #1	200.00	200.00	32.16	24.59	4.249	CC, ES
HELEN 2536-12H - Plan A - Design #1	17,261.05	17,557.71	982.88	446.78	1.833	SF

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Reference Design:	Design #2	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						
2N-64W-24 ARNOLD-BOYD PAD						
BOYD 2413-05H - Plan A - Design #1	1,130.71	1,167.84	135.90	125.27	12.786	CC, ES
BOYD 2413-05H - Plan A - Design #1	1,300.00	1,326.18	149.40	137.16	12.213	SF
BOYD 2413-06H - Plan A - Design #1	1,348.69	1,379.41	116.15	104.31	9.807	CC, ES
BOYD 2413-06H - Plan A - Design #1	1,500.00	1,524.49	123.85	110.66	9.386	SF
BOYD 2413-07H - Plan A - Design #1	1,737.68	1,761.13	94.73	80.53	6.671	CC, ES
BOYD 2413-07H - Plan A - Design #1	1,900.00	1,919.61	101.01	85.22	6.395	SF
BOYD 2413-08H - Plan A - Design #1	2,339.66	2,352.92	36.82	20.93	2.318	CC
BOYD 2413-08H - Plan A - Design #1	2,400.00	2,412.52	38.00	20.92	2.224	ES
BOYD 2413-08H - Plan A - Design #1	2,500.00	2,511.30	44.50	23.44	2.113	SF
BOYD 2413-09H - Plan A - Design #1	6,950.00	7,063.85	69.28	0.02	1.000	Level 2, ES, SF
BOYD 2413-09H - Plan A - Design #1	6,952.35	7,064.05	69.24	0.75	1.011	Level 2, CC
BOYD 2413-10H - Plan A - Design #1	2,576.25	2,565.78	213.68	185.67	7.629	CC
BOYD 2413-10H - Plan A - Design #1	2,700.00	2,688.83	214.09	185.42	7.469	ES
BOYD 2413-10H - Plan A - Design #1	7,200.00	7,050.00	419.00	334.63	4.966	SF
BOYD 2413-11H - Plan A - Design #1	1,220.21	1,198.04	292.66	279.70	22.586	CC
BOYD 2413-11H - Plan A - Design #1	1,400.00	1,373.18	294.09	278.63	19.024	ES
BOYD 2413-11H - Plan A - Design #1	7,700.00	7,050.00	1,094.26	982.30	9.774	SF
2N-64W-24 Offsets						
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	0.00	3.00	215.72			
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	100.00	102.96	215.73	208.20	28.640	ES
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	1,152.00	1,171.98	247.20	236.66	23.449	SF
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	3.00	224.21			
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	1,200.00	1,226.47	243.97	233.19	22.628	SF
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	143.94	142.98	116.87	109.32	15.480	CC, ES
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	200.00	197.11	117.32	109.73	15.474	SF
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	0.00	96.78			
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	240.00	237.67	97.03	89.41	12.740	SF
MCCLINTOCK ET AL #1 - JUNIPER D/A Well - No Surve						Out of range
2N-64W-36 Offsets						
STATE C 14-36 - Noble Energy T/A Well - No Surveys						Out of range
STATE C 41-36 - Prima Exploration P/A Well - No Survey	13,365.69	6,778.00	528.56	113.10	1.272	Level 3, CC
STATE C 41-36 - Prima Exploration P/A Well - No Survey	13,400.00	6,778.00	529.68	111.54	1.267	Level 3, ES, SF

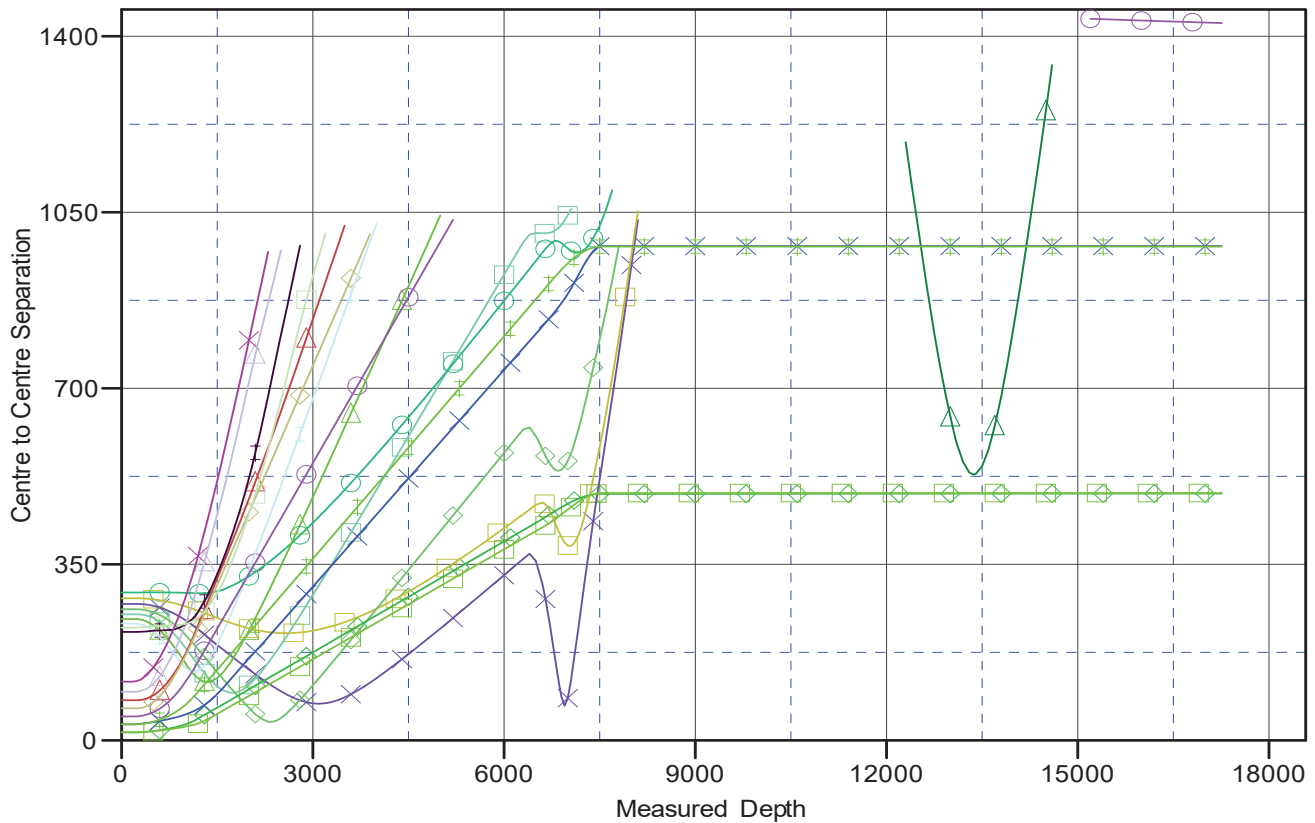
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Reference Design:	Design #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB = 20' @ 4944.00usft (Drilling Rig)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: HELEN 2536-10H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°

Ladder Plot



LEGEND

STATE C-41-36, Prima Exploration P/A Well, No Surveys V0	BOYD 241309H, Plan A, Design #1 V0	HELEN 2536-09H, Plan B, Design #2 V0
BOYD 241309H, Plan A, Design #1 V0	HELEN 2536-09H, Plan B, Design #2 V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241307H, Plan A, Design #1 V0	HELEN 2536-11H, Plan A, Design #1 V0	BOYD 24-1H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241311H, Plan A, Design #1 V0	HELEN 2536-07H, Plan B, Design #2 V0	BOYD 24-4H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241308H, Plan A, Design #1 V0	HELEN 2536-12H, Plan A, Design #1 V0	HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241308H, Plan A, Design #1 V0	HELEN 2536-08H, Plan B, Design #2 V0	
BOYD 241310H, Plan A, Design #1 V0	HELEN 2536-08H, Plan B, Design #2 V0	

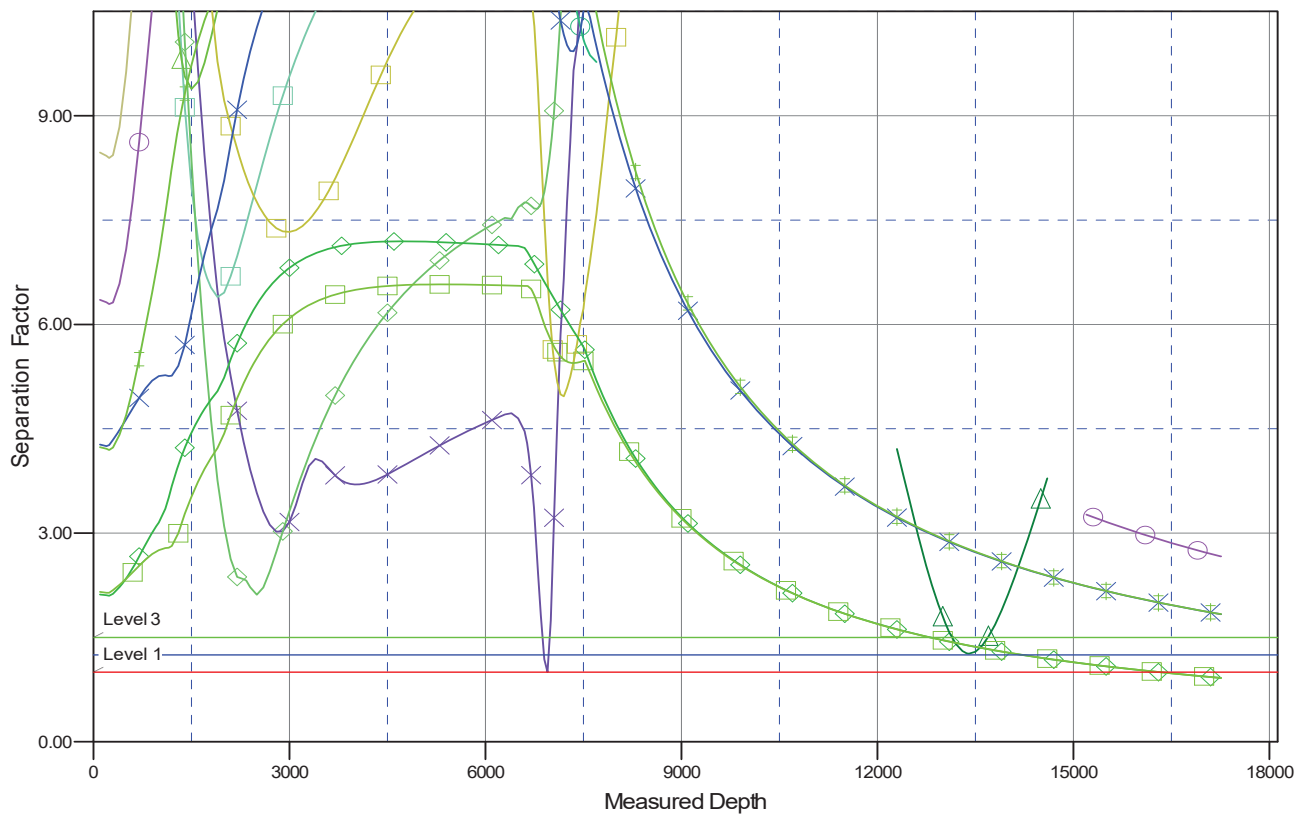
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Coordinates are relative to: HELEN 2536-10H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°

Separation Factor Plot



LEGEND

STATE C-4-36, Prima Exploration P/A Well, No Surveys V0	BOYD 241308H, Plan A, Design #1 V0	HELEN 2536-08H, Plan B, Design #2 V0
BOYD 241309H, Plan A, Design #1 V0	HELEN 2536-09H, Plan B, Design #2 V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241307H, Plan A, Design #1 V0	HELEN 2536-11H, Plan A, Design #1 V0	BOYD 24-1H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241311H, Plan A, Design #1 V0	HELEN 2536-07H, Plan B, Design #2 V0	BOYD 24-4H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241306H, Plan A, Design #1 V0	HELEN 2536-12H, Plan A, Design #1 V0	HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241305H, Plan A, Design #1 V0	HELEN 2536-08H, Plan B, Design #2 V0	
BOYD 241310H, Plan A, Design #1 V0	HELEN 2536-08H, Plan B, Design #2 V0	