

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD-BOYD PAD
BOYD 2413-07H**

**Plan A
Design #1**

Anticollision Summary Report

11 March, 2022

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well BOYD 2413-07H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Reference Site:	2N-64W-24 ARNOLD-BOYD PAD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BOYD 2413-07H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.45 sigma
Reference Wellbore	Plan A	Database:	EDM 5000.16 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference	Design #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	3/11/2022			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	1,934.00	Design #1 (Plan A)	ISCWSA MWD	Fixed:v2:standard declination	
1,934.00	17,122.64	Design #1 (Plan A)	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-64W-13 L.E. GERKIN PAD						
L.E. GERKIN 10H - Plan A - Design #1	8,100.00	16,342.52	775.49	528.53	3.140	SF
L.E. GERKIN 10H - Plan A - Design #1	17,123.36	7,286.02	767.88	524.20	3.151	CC, ES
L.E. GERKIN 10H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 11H - Plan A - Design #2	17,123.36	7,228.18	261.61	23.47	1.099	Level 2, CC, ES, SF
L.E. GERKIN 11H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 12H - Plan A - Design #1	8,159.80	16,136.86	266.19	24.79	1.103	Level 2, ES, SF
L.E. GERKIN 12H - Plan A - Design #1	17,123.36	7,171.91	264.97	28.16	1.119	Level 2, CC
L.E. GERKIN 12H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 13H - Plan A - Design #1	8,155.40	16,095.51	778.48	532.58	3.166	ES, SF
L.E. GERKIN 13H - Plan A - Design #1	17,123.36	7,119.26	777.56	538.78	3.256	CC
L.E. GERKIN 13H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 14H - Plan A - Design #1	8,100.00	16,109.47	1,295.95	1,049.45	5.257	SF
L.E. GERKIN 14H - Plan A - Design #1	8,150.87	16,092.84	1,295.50	1,049.15	5.259	ES
L.E. GERKIN 14H - Plan A - Design #1	17,123.36	7,112.43	1,294.84	1,056.11	5.424	CC
L.E. GERKIN 14H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 15H - Plan A - Design #1						Out of range
L.E. GERKIN 15H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 9H - Plan A - Design #1	8,100.00	16,488.65	1,304.35	1,056.91	5.271	SF
L.E. GERKIN 9H - Plan A - Design #1	17,123.36	7,035.87	1,283.08	1,045.27	5.395	CC, ES
L.E. GERKIN 9H - Plan A - VERDAD Existing Surface						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	16,476.48	6,759.00	1,095.05	652.72	2.476	CC
DARYL L ARNOLD #1 - Amoco D/A Well - No Surveys	16,500.00	6,759.00	1,095.30	652.60	2.474	ES, SF

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Reference Well:	BOYD 2413-07H	Survey Calculation Method:	Minimum Curvature
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Reference Wellbore	Plan A	Database:	EDM 5000.16 Single User Db
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
2N-64W-24 ARNOLD-BOYD PAD						
BOYD 2413-05H - Plan A - Design #1	200.00	200.00	31.88	24.31	4.212	CC, ES
BOYD 2413-05H - Plan A - Design #1	17,123.36	17,119.33	1,029.98	592.05	2.352	SF
BOYD 2413-06H - Plan A - Design #1	201.83	201.83	15.94	8.37	2.106	CC
BOYD 2413-06H - Plan A - Design #1	261.50	261.49	15.96	8.34	2.096	ES
BOYD 2413-06H - Plan A - Design #1	17,122.64	17,100.67	511.92	73.58	1.168	Level 2, SF
BOYD 2413-08H - Plan A - Design #1	206.07	206.07	15.94	8.37	2.105	CC
BOYD 2413-08H - Plan A - Design #1	261.50	261.45	15.97	8.36	2.097	ES
BOYD 2413-08H - Plan A - Design #1	17,123.36	17,175.91	517.77	79.66	1.182	Level 2, SF
BOYD 2413-09H - Plan A - Design #1	202.36	202.36	32.16	24.59	4.248	CC, ES
BOYD 2413-09H - Plan A - Design #1	17,123.36	17,263.56	1,035.00	597.86	2.368	SF
BOYD 2413-10H - Plan A - Design #1	200.00	200.00	48.10	40.53	6.355	CC, ES
BOYD 2413-10H - Plan A - Design #1	261.50	261.00	48.32	40.70	6.345	SF
BOYD 2413-11H - Plan A - Design #1	200.00	199.00	64.04	56.47	8.462	CC, ES, SF
2N-64W-24 ARNOLD-HELEN PAD						
HELEN 2536-05H - Plan B - Design #2	200.00	200.00	306.27	298.70	40.466	CC, ES
HELEN 2536-05H - Plan B - Design #2	6,750.00	6,535.13	1,277.61	1,211.85	19.430	SF
HELEN 2536-06H - Plan B - Design #2	204.21	205.21	294.09	286.52	38.841	CC, ES
HELEN 2536-06H - Plan B - Design #2	6,885.05	6,739.00	853.22	786.67	12.822	SF
HELEN 2536-07H - Plan B - Design #2	2,108.03	2,073.68	248.37	227.37	11.825	CC
HELEN 2536-07H - Plan B - Design #2	2,300.00	2,264.47	249.28	226.93	11.152	ES
HELEN 2536-07H - Plan B - Design #2	6,950.00	6,778.82	381.26	313.82	5.653	SF
HELEN 2536-08H - Plan B - Design #2	2,993.96	2,965.16	81.84	57.37	3.345	CC
HELEN 2536-08H - Plan B - Design #2	6,929.53	6,791.17	89.54	21.82	1.322	Level 3, ES, SF
HELEN 2536-09H - Plan B - Design #2	2,327.07	2,301.54	44.61	28.44	2.759	CC
HELEN 2536-09H - Plan B - Design #2	2,400.00	2,373.55	46.06	28.00	2.550	ES
HELEN 2536-09H - Plan B - Design #2	2,500.00	2,472.31	52.27	30.97	2.454	SF
HELEN 2536-10H - Plan B - Design #2	1,761.13	1,737.69	94.73	80.53	6.671	CC, ES
HELEN 2536-10H - Plan B - Design #2	1,900.00	1,873.27	99.37	83.98	6.459	SF
HELEN 2536-11H - Plan A - Design #1	1,474.26	1,450.32	108.02	95.37	8.545	CC, ES
HELEN 2536-11H - Plan A - Design #1	1,500.00	1,475.03	108.26	95.54	8.515	SF
HELEN 2536-12H - Plan A - Design #1	1,365.73	1,340.48	107.70	95.74	9.009	CC, ES, SF
2N-64W-24 Offsets						
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	335.81	339.20	67.26	59.55	8.723	CC, ES
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	400.00	403.11	67.62	59.83	8.681	SF
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	3.00	48.07			
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	387.46	391.03	48.09	40.33	6.193	ES
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	400.00	403.49	48.11	40.33	6.182	SF
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	163.06	162.06	334.62	327.06	44.264	CC, ES
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	1,900.00	1,651.83	668.49	651.05	38.339	SF
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	0.00	319.25			
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	1,700.00	1,525.28	516.01	500.40	33.063	SF
MCCLINTOCK ET AL #1 - JUNIPER D/A Well - No Surve						Out of range

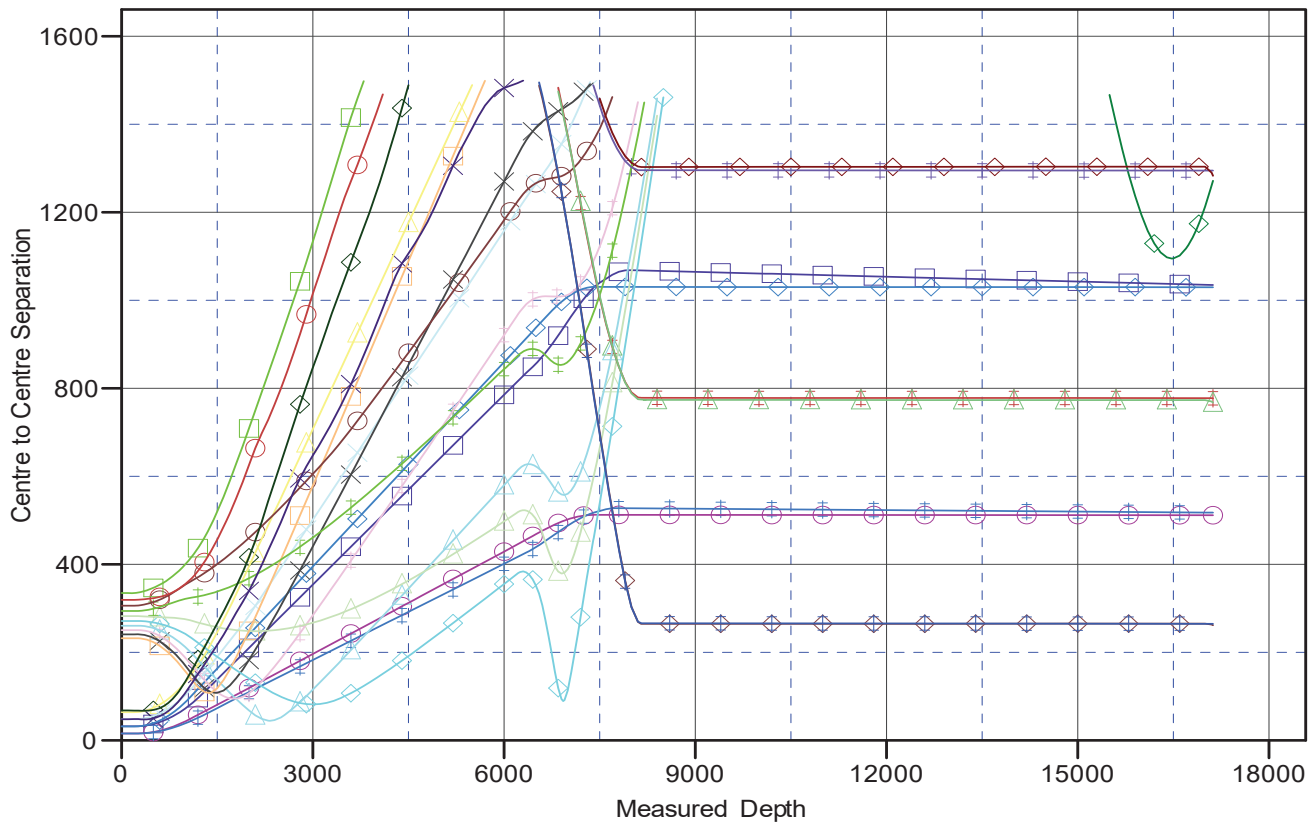
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Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

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: BOYD 2413-07H
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.65°

Ladder Plot



LEGEND

BOYD 2413-09H, Plan A, Design#1 V0	HELEN 2536-11H, Plan A, Design#1 V0	HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 2413-11H, Plan A, Design#1 V0	HELEN 2536-07H, Plan B, Design#2 V0	L.E. GERKN 13H, Plan A, Design#1 V0
BOYD 2413-08H, Plan A, Design#1 V0	HELEN 2536-12H, Plan A, Design#1 V0	L.E. GERKN 11H, Plan A, Design#2 V0
BOYD 2413-05H, Plan A, Design#1 V0	HELEN 2536-05H, Plan B, Design#2 V0	L.E. GERKN 14H, Plan A, Design#1 V0
BOYD 2413-10H, Plan A, Design#1 V0	HELEN 2536-08H, Plan B, Design#2 V0	L.E. GERKN 12H, Plan A, Design#1 V0
BOYD 2413-08H, Plan A, Design#2 V0	HELEN 2536-06H, Plan B, Design#2 V0	L.E. GERKN 9H, Plan A, Design#1 V0
DARYL L. ARNOLD #1, Amoco DIA Well, No Surveys V0	HELEN 24-41, VERDAD PR Well, Actual BKR Surveys V0	L.E. GERKN 10H, Plan A, Design#1 V0
HELEN 2536-09H, Plan B, Design#2 V0	BOYD 24-1H, VERDAD PR Well, Actual BKR Surveys V0	
HELEN 2536-10H, Plan B, Design#2 V0	BOYD 24-4H, VERDAD PR Well, Actual BKR Surveys V0	

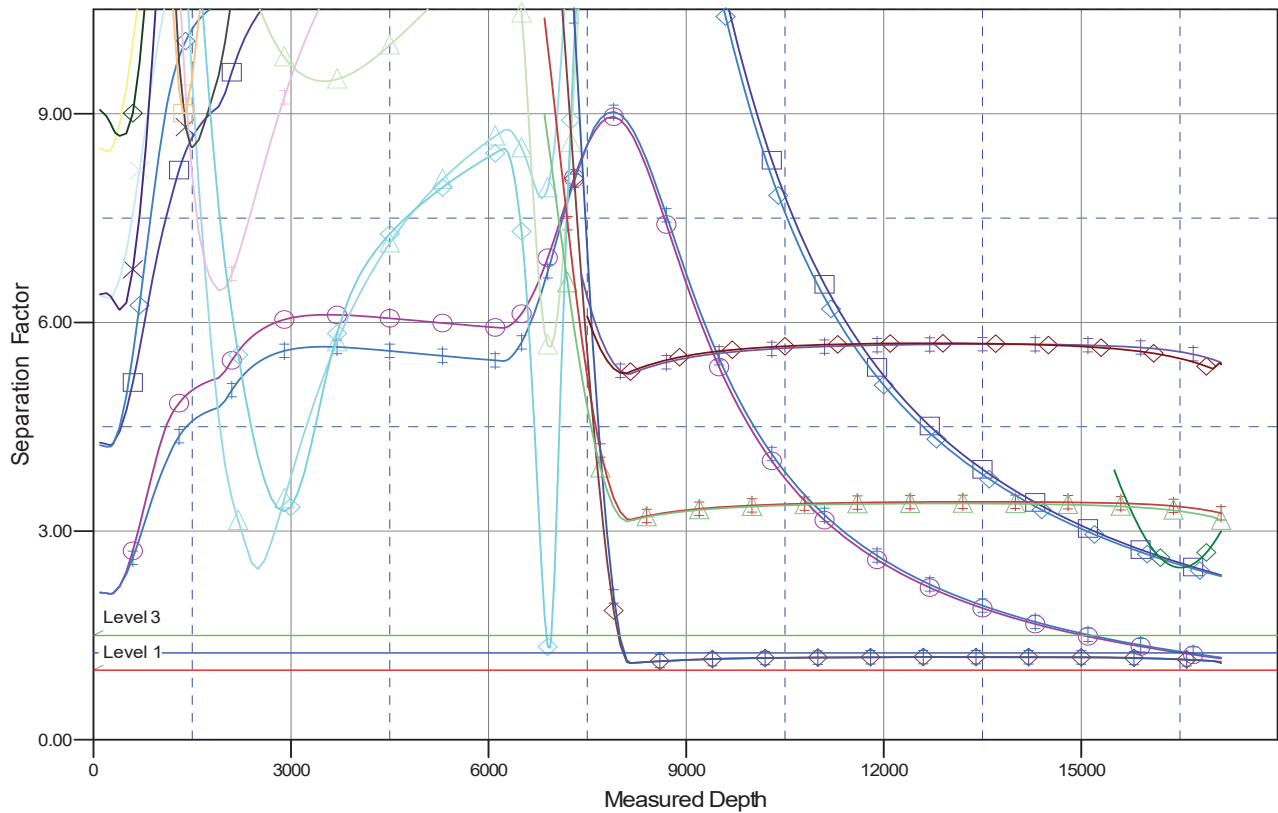
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Separation Factor Plot



LEGEND

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BOYD 241311H, Plan A, Design#1 V0	HELEN 2536-07H, Plan B, Design#2 V0	L.E. GERKN 13H, Plan A, Design#1 V0
BOYD 241308H, Plan A, Design#1 V0	HELEN 2536-12H, Plan A, Design#1 V0	L.E. GERKN 11H, Plan A, Design#2 V0
BOYD 241305H, Plan A, Design#1 V0	HELEN 2536-05H, Plan B, Design#2 V0	L.E. GERKN 14H, Plan A, Design#1 V0
BOYD 241310H, Plan A, Design#1 V0	HELEN 2536-08H, Plan B, Design#2 V0	L.E. GERKN 12H, Plan A, Design#1 V0
BOYD 241308H, Plan A, Design#1 V0	HELEN 2536-09H, Plan B, Design#2 V0	L.E. GERKN 9H, Plan A, Design#1 V0
DARYL L. RYKOLD #1, Amoco DIA Well, No Surveys V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0	L.E. GERKN 10H, Plan A, Design#1 V0
HELEN 2536-09H, Plan B, Design#2 V0	BOYD 24-1H, VERDAD PR Well, Actual BKR Surveys V0	
HELEN 2536-10H, Plan B, Design#2 V0	BOYD 24-4H, VERDAD PR Well, Actual BKR Surveys V0	