

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD-BOYD PAD
BOYD 2413-10H**

**Plan A
Design #1**

Anticollision Summary Report

11 March, 2022

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well BOYD 2413-10H
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 2413-10H	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	17,393.29	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						Out of range
L.E. GERKIN 10H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 11H - Plan A - Design #2						Out of range
L.E. GERKIN 11H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 12H - Plan A - Design #1	8,400.00	16,152.59	1,342.62	1,093.27	5.385	SF
L.E. GERKIN 12H - Plan A - Design #1	17,393.99	7,080.92	1,292.91	1,052.81	5.385	CC, ES
L.E. GERKIN 12H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 13H - Plan A - Design #1	17,393.99	7,105.60	778.93	540.99	3.274	CC, ES, SF
L.E. GERKIN 13H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 14H - Plan A - Design #1	17,393.99	7,098.73	264.58	28.74	1.122	Level 2, CC, ES, SF
L.E. GERKIN 14H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 15H - Plan A - Design #1	8,386.29	16,126.80	219.29	-20.30	0.915	Level 1, CC, ES, SF
L.E. GERKIN 15H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 9H - Plan A - Design #1						Out of range
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	16,069.62	6,728.00	17.59	-406.28	0.042	Level 1, CC, ES, SF
DARYL L ARNOLD #1 - Amoco D/A Well - No Surveys						Out of range
2N-64W-24 ARNOLD-BOYD PAD						
BOYD 2413-05H - Plan A - Design #1	200.00	200.00	79.98	72.41	10.568	CC, ES
BOYD 2413-05H - Plan A - Design #1	219.50	219.34	80.00	72.42	10.552	SF
BOYD 2413-06H - Plan A - Design #1	219.50	219.50	64.04	56.46	8.447	CC, ES, SF
BOYD 2413-07H - Plan A - Design #1	219.50	219.50	48.10	40.52	6.344	CC, ES, SF
BOYD 2413-08H - Plan A - Design #1	219.50	219.50	32.16	24.58	4.242	CC, ES
BOYD 2413-08H - Plan A - Design #1	17,390.65	17,178.75	1,035.01	598.66	2.372	SF
BOYD 2413-09H - Plan A - Design #1	219.50	219.50	15.94	8.36	2.102	CC, ES
BOYD 2413-09H - Plan A - Design #1	17,392.44	17,267.30	517.79	82.37	1.189	Level 2, SF
BOYD 2413-11H - Plan A - Design #1	200.00	199.00	15.94	8.38	2.107	CC, ES
BOYD 2413-11H - Plan A - Design #1	17,393.99	17,615.30	517.20	79.97	1.183	Level 2, SF

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well BOYD 2413-10H
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 2413-10H	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

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-HELEN PAD						
HELEN 2536-05H - Plan B - Design #2	200.00	200.00	344.35	336.79	45.498	CC, ES
HELEN 2536-05H - Plan B - Design #2	1,970.00	1,835.49	732.45	712.87	37.397	SF
HELEN 2536-06H - Plan B - Design #2	219.50	220.50	331.22	323.64	43.683	CC, ES
HELEN 2536-06H - Plan B - Design #2	1,970.00	1,875.22	644.95	625.04	32.400	SF
HELEN 2536-07H - Plan B - Design #2	219.50	220.50	318.59	311.01	42.017	CC, ES
HELEN 2536-07H - Plan B - Design #2	1,970.00	1,918.17	528.67	508.27	25.910	SF
HELEN 2536-08H - Plan B - Design #2	219.50	220.50	306.27	298.69	40.393	CC
HELEN 2536-08H - Plan B - Design #2	220.37	221.37	306.27	298.69	40.389	ES
HELEN 2536-08H - Plan B - Design #2	7,050.00	6,905.14	1,326.01	1,251.99	17.914	SF
HELEN 2536-09H - Plan B - Design #2	219.50	219.50	294.30	286.72	38.815	CC
HELEN 2536-09H - Plan B - Design #2	1,219.50	1,224.04	297.02	284.14	23.065	ES
HELEN 2536-09H - Plan B - Design #2	7,150.00	6,977.58	875.59	797.23	11.174	SF
HELEN 2536-10H - Plan B - Design #2	2,565.78	2,576.25	213.68	185.67	7.629	CC
HELEN 2536-10H - Plan B - Design #2	2,700.00	2,709.71	214.16	185.44	7.457	ES
HELEN 2536-10H - Plan B - Design #2	7,200.00	7,040.41	420.15	334.78	4.921	SF
HELEN 2536-11H - Plan A - Design #1	3,266.33	3,276.78	48.39	26.16	2.177	CC
HELEN 2536-11H - Plan A - Design #1	7,150.00	7,081.62	62.55	-31.50	0.665	Level 1, ES, SF
HELEN 2536-12H - Plan A - Design #1	2,300.00	2,311.28	67.11	42.80	2.761	SF
HELEN 2536-12H - Plan A - Design #1	2,500.00	2,509.03	57.57	38.65	3.044	ES
HELEN 2536-12H - Plan A - Design #1	2,532.87	2,541.53	57.36	39.32	3.179	CC
2N-64W-24 Offsets						
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	245.44	249.19	115.94	108.32	15.218	CC, ES
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	300.00	304.02	116.22	108.54	15.148	SF
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	3.00	96.17			
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	300.00	303.88	97.27	89.61	12.693	SF
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	160.85	159.85	374.57	367.01	49.557	CC, ES
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	300.00	283.61	377.62	369.96	49.306	SF
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	0.00	358.21			
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	700.00	655.47	391.79	383.32	46.231	SF
MCCLINTOCK ET AL #1 - JUNIPER D/A Well - No Surve	9,166.15	6,750.00	388.04	111.43	1.403	Level 3, CC, ES, SF

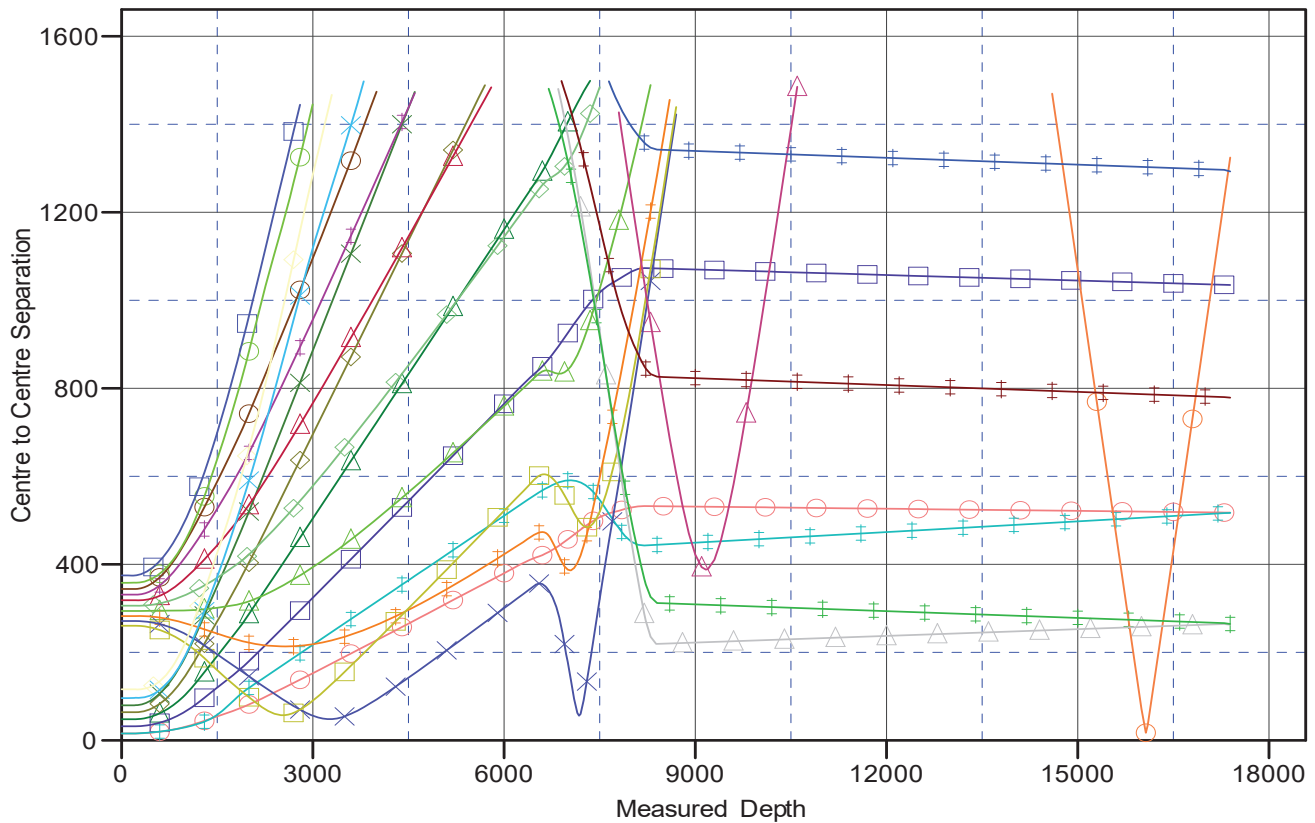
Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well BOYD 2413-10H
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 2413-10H	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 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 2413-10H
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.65°

Ladder Plot



LEGEND

BOYD 241309H, Plan A, Design #1 V0	HELEN 2536-10H, Plan B, Design#2 V0	BOYD 24-1H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241307H, Plan A, Design #1 V0	HELEN 2536-11H, Plan A, Design#1 V0	BOYD 24-4H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241311H, Plan A, Design #1 V0	HELEN 2536-07H, Plan B, Design#2 V0	MOCLINTOCK ET AL #1, JUNIPER DIA Well, No 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 241305H, Plan A, Design #1 V0	HELEN 2536-05H, Plan B, Design#2 V0	L.E. GERKIN 13H, Plan A, Design#1 V0
BOYD 241308H, Plan A, Design #1 V0	HELEN 2536-08H, Plan B, Design#2 V0	L.E. GERKIN 15H, Plan A, Design#1 V0
ARNOLD #1, Barrett Resources P/A Well, No Surveys V0	HELEN 2536-06H, Plan B, Design#2 V0	L.E. GERKIN 14H, Plan A, Design#1 V0
HELEN 2536-09H, Plan B, Design#2 V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0	L.E. GERKIN 12H, Plan A, Design#1 V0

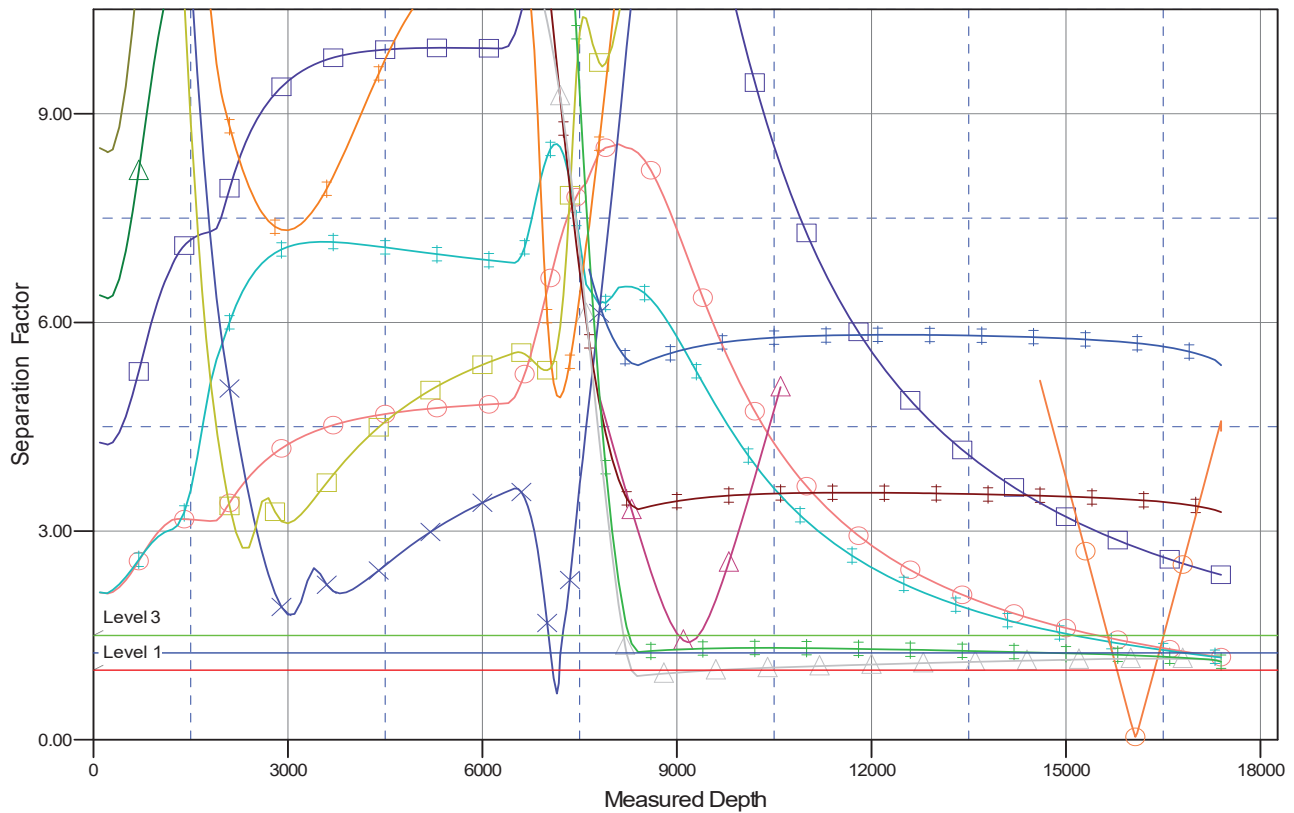
Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well BOYD 2413-10H
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 2413-10H	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 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 2413-10H
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.65°

Separation Factor Plot



LEGEND

BOYD 2413-09H, Plan A, Design#1 V0	HELEN 2538-10H, Plan B, Design#2 V0	BOYD 24-1H VERDAD PR Well, Actual BKR Surveys V0
BOYD 2413-07H, Plan A, Design#1 V0	HELEN 2538-11H, Plan A, Design#1 V0	BOYD 24-4H VERDAD PR Well, Actual BKR Surveys V0
BOYD 2413-11H, Plan A, Design#1 V0	HELEN 2538-07H, Plan B, Design#2 V0	MCCOUNT COCK ET AL #1, JUNPER DIA Well, No Surveys V0
BOYD 2413-06H, Plan A, Design#1 V0	HELEN 2538-12H, Plan A, Design#1 V0	HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 2413-05H, Plan A, Design#1 V0	HELEN 2538-05H, Plan B, Design#2 V0	L.E. GERKIN 13H, Plan A, Design#1 V0
BOYD 2413-08H, Plan A, Design#1 V0	HELEN 2538-08H, Plan B, Design#2 V0	L.E. GERKIN 15H, Plan A, Design#1 V0
ARNOLD #1, Barrett Resources PA Well, No Surveys V0	HELEN 2538-06H, Plan B, Design#2 V0	L.E. GERKIN 14H, Plan A, Design#1 V0
HELEN 2538-09H, Plan B, Design#2 V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0	L.E. GERKIN 12H, Plan A, Design#1 V0