

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD-BOYD PAD
BOYD 2413-11H**

**Plan A
Design #1**

Anticollision Summary Report

11 March, 2022

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Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well BOYD 2413-11H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4943.00usft (RIG)
Reference Site:	2N-64W-24 ARNOLD-BOYD PAD	MD Reference:	RKB = 20' @ 4943.00usft (RIG)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BOYD 2413-11H	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	17,620.22	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-63W-19 KBL PAD						
KBL 1918-01H - Wellbore #1 - Design #1	15,195.32	12,564.57	543.60	239.38	1.787	CC, ES, SF
KBL 1930-07H - Wellbore #1 - Design #1	7,500.00	10,158.16	532.65	433.67	5.381	SF
KBL 1930-07H - Wellbore #1 - Design #1	7,650.00	10,022.36	520.49	426.56	5.541	ES
KBL 1930-07H - Wellbore #1 - Design #1	7,681.49	9,992.23	520.18	427.29	5.600	CC
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						Out of range
L.E. GERKIN 12H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 13H - Plan A - Design #1	8,616.78	16,111.23	1,270.06	1,016.40	5.007	CC, ES, SF
L.E. GERKIN 13H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 14H - Plan A - Design #1	8,612.81	16,109.47	753.05	499.25	2.967	CC, ES, SF
L.E. GERKIN 14H - Plan A - VERDAD Existing Surface						Out of range
L.E. GERKIN 15H - Plan A - Design #1	8,609.61	16,126.80	241.24	-9.32	0.963	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	16,291.12	6,729.00	488.89	63.10	1.148	Level 2, CC, ES, SF
DARYL L ARNOLD #1 - Amoco D/A Well - No Surveys						Out of range

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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-BOYD PAD						
BOYD 2413-05H - Plan A - Design #1	116.35	117.35	95.92	88.39	12.737	CC
BOYD 2413-05H - Plan A - Design #1	201.35	202.33	95.92	88.35	12.672	ES, SF
BOYD 2413-06H - Plan A - Design #1	201.35	202.35	79.98	72.41	10.566	CC, ES, SF
BOYD 2413-07H - Plan A - Design #1	201.35	202.35	64.04	56.47	8.460	CC, ES, SF
BOYD 2413-08H - Plan A - Design #1	201.35	202.35	48.10	40.53	6.355	CC, ES, SF
BOYD 2413-09H - Plan A - Design #1	201.35	202.35	31.88	24.31	4.212	CC, ES
BOYD 2413-09H - Plan A - Design #1	17,620.22	17,267.30	1,035.02	598.09	2.369	SF
BOYD 2413-10H - Plan A - Design #1	201.35	202.35	15.94	8.37	2.106	CC, ES
BOYD 2413-10H - Plan A - Design #1	17,620.22	17,393.99	517.23	80.49	1.184	Level 2, SF
2N-64W-24 ARNOLD-HELEN PAD						
HELEN 2536-05H - Plan B - Design #2	201.35	202.35	357.31	349.74	47.202	CC, ES
HELEN 2536-05H - Plan B - Design #2	1,900.00	1,734.16	810.13	790.86	42.052	SF
HELEN 2536-06H - Plan B - Design #2	201.35	203.35	343.92	336.35	45.431	CC, ES
HELEN 2536-06H - Plan B - Design #2	1,900.00	1,778.29	727.78	708.15	37.070	SF
HELEN 2536-07H - Plan B - Design #2	201.35	203.35	331.00	323.43	43.725	CC, ES
HELEN 2536-07H - Plan B - Design #2	1,900.00	1,827.70	617.75	597.59	30.642	SF
HELEN 2536-08H - Plan B - Design #2	201.35	203.35	318.36	310.79	42.055	CC, ES
HELEN 2536-08H - Plan B - Design #2	1,900.00	1,866.33	512.64	491.51	24.252	SF
HELEN 2536-09H - Plan B - Design #2	201.35	202.35	306.03	298.47	40.428	CC, ES
HELEN 2536-09H - Plan B - Design #2	7,400.00	7,040.57	1,478.67	1,395.10	17.692	SF
HELEN 2536-10H - Plan B - Design #2	1,198.04	1,220.21	292.66	279.70	22.586	CC
HELEN 2536-10H - Plan B - Design #2	1,400.00	1,421.69	294.54	278.72	18.609	ES
HELEN 2536-10H - Plan B - Design #2	7,500.00	7,111.40	1,025.15	934.59	11.321	SF
HELEN 2536-11H - Plan A - Design #1	1,923.24	1,951.04	241.40	216.58	9.723	CC
HELEN 2536-11H - Plan A - Design #1	2,000.00	2,027.25	241.58	216.06	9.468	ES
HELEN 2536-11H - Plan A - Design #1	7,450.00	7,216.88	539.54	442.24	5.545	SF
HELEN 2536-12H - Plan A - Design #1	7,380.39	7,295.17	60.72	-24.39	0.713	Level 1, CC
HELEN 2536-12H - Plan A - Design #1	7,400.00	7,294.86	63.80	-41.90	0.604	Level 1, ES, SF
2N-64W-24 Offsets						
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	217.60	222.21	131.98	124.39	17.376	CC, ES
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	300.00	305.15	132.71	125.04	17.297	SF
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	4.00	112.11			
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	300.00	305.02	113.77	106.10	14.844	SF
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	159.24	159.24	388.03	380.47	51.342	CC, ES
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	300.00	283.84	391.54	383.88	51.123	SF
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	0.00	371.40			
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	500.00	477.16	385.25	377.28	48.328	SF
MCCLINTOCK ET AL #1 - JUNIPER D/A Well - No Surve	9,390.87	6,751.00	62.57	-217.97	0.223	Level 1, CC, SF
MCCLINTOCK ET AL #1 - JUNIPER D/A Well - No Surve	9,400.00	6,751.00	63.23	-218.07	0.225	Level 1, ES

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

Reference Depths are relative to RKB = 20' @ 4943.00usft (RIG)

Offset Depths are relative to Offset Datum

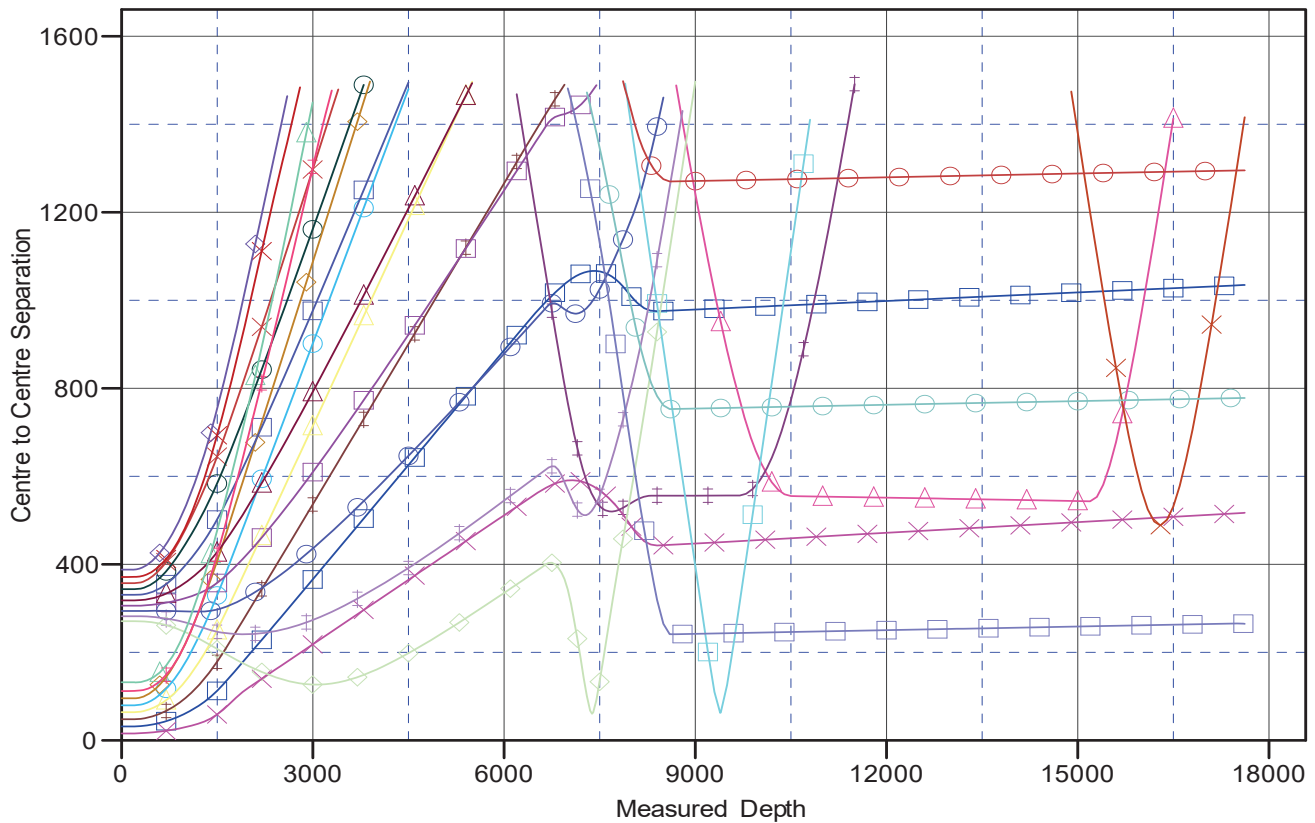
Central Meridian is -105.500000

Coordinates are relative to: BOYD 2413-11H

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 2535-09H, Plan B, Design#2 V0	BOYD 24-1H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241307H, Plan A, Design#1 V0	HELEN 2535-10H, Plan B, Design#2 V0	BOYD 24-4H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241308H, Plan A, Design#1 V0	HELEN 2535-11H, Plan A, Design#1 V0	MCJUNTCOK ET AL #1, JUNIPER/D/A Well, No Surveys V0
BOYD 241305H, Plan A, Design#1 V0	HELEN 2535-07H, Plan B, Design#2 V0	HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241310H, Plan A, Design#1 V0	HELEN 2535-12H, Plan A, Design#1 V0	L.E. GERKIN 13H, Plan A, Design#1 V0
BOYD 241308H, Plan A, Design#1 V0	HELEN 2535-09H, Plan B, Design#2 V0	L.E. GERKIN 15H, Plan A, Design#1 V0
KBL 1918-07H, Wellbore #1, Design#1 V0	HELEN 2535-09H, Plan B, Design#2 V0	L.E. GERKIN 14H, Plan A, Design#1 V0
KBL 1930-07H, Wellbore #1, Design#1 V0	HELEN 2535-09H, Plan B, Design#2 V0	
ARNOLD #1, Barrett Resources P/A Well, No Surveys V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0	

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Offset Depths are relative to Offset Datum

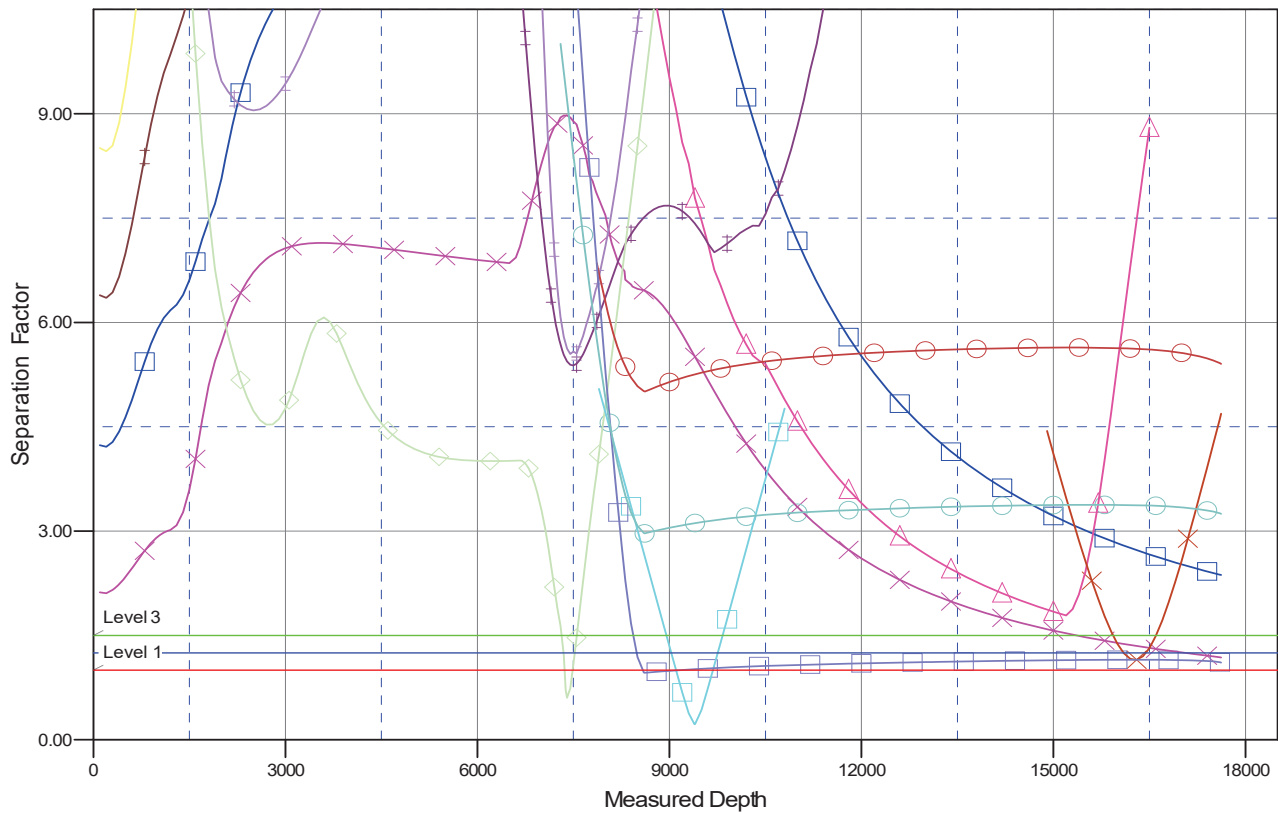
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Grid Convergence at Surface is: 0.65°

Separation Factor Plot



LEGEND

BOYD 241309H, Plan A, Design #1 V0	HELEN 2538-09H, Plan B, Design #2 V0	BOYD 24-1H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241307H, Plan A, Design #1 V0	HELEN 2538-10H, Plan B, Design #2 V0	BOYD 24-4H VERDAD PR Well, Actual BKR Surveys V0
BOYD 241306H, Plan A, Design #1 V0	HELEN 2538-11H, Plan A, Design #1 V0	MCCOUNT COK ET AL #1, JUNIPER DIA Well, No Surveys V0
BOYD 241305H, Plan A, Design #1 V0	HELEN 2538-07H, Plan B, Design #2 V0	HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0
BOYD 241310H, Plan A, Design #1 V0	HELEN 2538-12H, Plan A, Design #1 V0	L.E. GERKIN 13H, Plan A, Design #1 V0
BOYD 241308H, Plan A, Design #1 V0	HELEN 2538-09H, Plan B, Design #2 V0	L.E. GERKIN 15H, Plan A, Design #1 V0
KBL 1918-07H, Wellbore #1, Design #1 V0	HELEN 2538-09H, Plan B, Design #2 V0	L.E. GERKIN 14H, Plan A, Design #1 V0
KBL 1930-07H, Wellbore #1, Design #1 V0	HELEN 2538-06H, Plan B, Design #2 V0	
ARNOLD #1, Barnett Resources PA Well, No Surveys V0	HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0	