

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD-HELEN PAD
HELEN 2536-12H**

**Plan A
Design #1**

Anticollision Summary Report

17 December, 2021

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Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well HELEN 2536-12H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Reference Site:	2N-64W-24 ARNOLD-HELEN PAD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HELEN 2536-12H	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	12/17/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	1,908.00	Design #1 (Plan A)	ISCWSA MWD	Fixed:v2:standard declination	
1,908.00	17,564.76	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 1930-07H - Wellbore #1 - Design #1	12,202.67	15,103.27	523.28	220.67	1.729	CC, ES, SF
2N-64W-13 L.E. GERKIN PAD (RED HAWK)						
L.E. GERKIN 10H - Red Hawk Planned Well - Cathedral						Out of range
L.E. GERKIN 11H - Red Hawk Planned Well - Cathedral	6,803.17	16,457.40	1,290.90	1,058.10	5.545	CC
L.E. GERKIN 11H - Red Hawk Planned Well - Cathedral	6,900.00	16,457.40	1,294.53	1,056.01	5.427	ES
L.E. GERKIN 11H - Red Hawk Planned Well - Cathedral	7,000.00	16,457.40	1,306.46	1,063.35	5.374	SF
L.E. GERKIN 12H - Red Hawk Planned Well - Cathedral	6,923.95	16,446.50	1,025.82	800.74	4.558	CC
L.E. GERKIN 12H - Red Hawk Planned Well - Cathedral	6,950.00	16,446.50	1,026.17	799.14	4.520	ES
L.E. GERKIN 12H - Red Hawk Planned Well - Cathedral	7,050.00	16,446.50	1,036.51	803.82	4.454	SF
L.E. GERKIN 13H - Red Hawk Planned Well - Cathedral	7,007.12	16,448.80	776.87	571.07	3.775	CC
L.E. GERKIN 13H - Red Hawk Planned Well - Cathedral	7,050.00	16,448.80	778.74	569.35	3.719	ES
L.E. GERKIN 13H - Red Hawk Planned Well - Cathedral	7,100.00	16,448.80	785.57	573.09	3.697	SF
L.E. GERKIN 14H - Red Hawk Planned Well - Cathedral	7,078.99	16,481.10	572.02	410.77	3.547	CC
L.E. GERKIN 14H - Red Hawk Planned Well - Cathedral	7,100.00	16,481.10	572.65	409.39	3.508	ES
L.E. GERKIN 14H - Red Hawk Planned Well - Cathedral	7,150.00	16,481.10	579.19	412.14	3.467	SF
L.E. GERKIN 15H - Red Hawk Planned Well - Cathedral	7,050.00	16,511.10	489.67	376.80	4.338	SF
L.E. GERKIN 15H - Red Hawk Planned Well - Cathedral	7,144.85	16,511.10	473.64	368.29	4.496	CC, ES
L.E. GERKIN 9H - Red Hawk Planned Well - Cathedral P						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

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Reference Wellbore	Plan A	Database:	EDM 5000.16 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

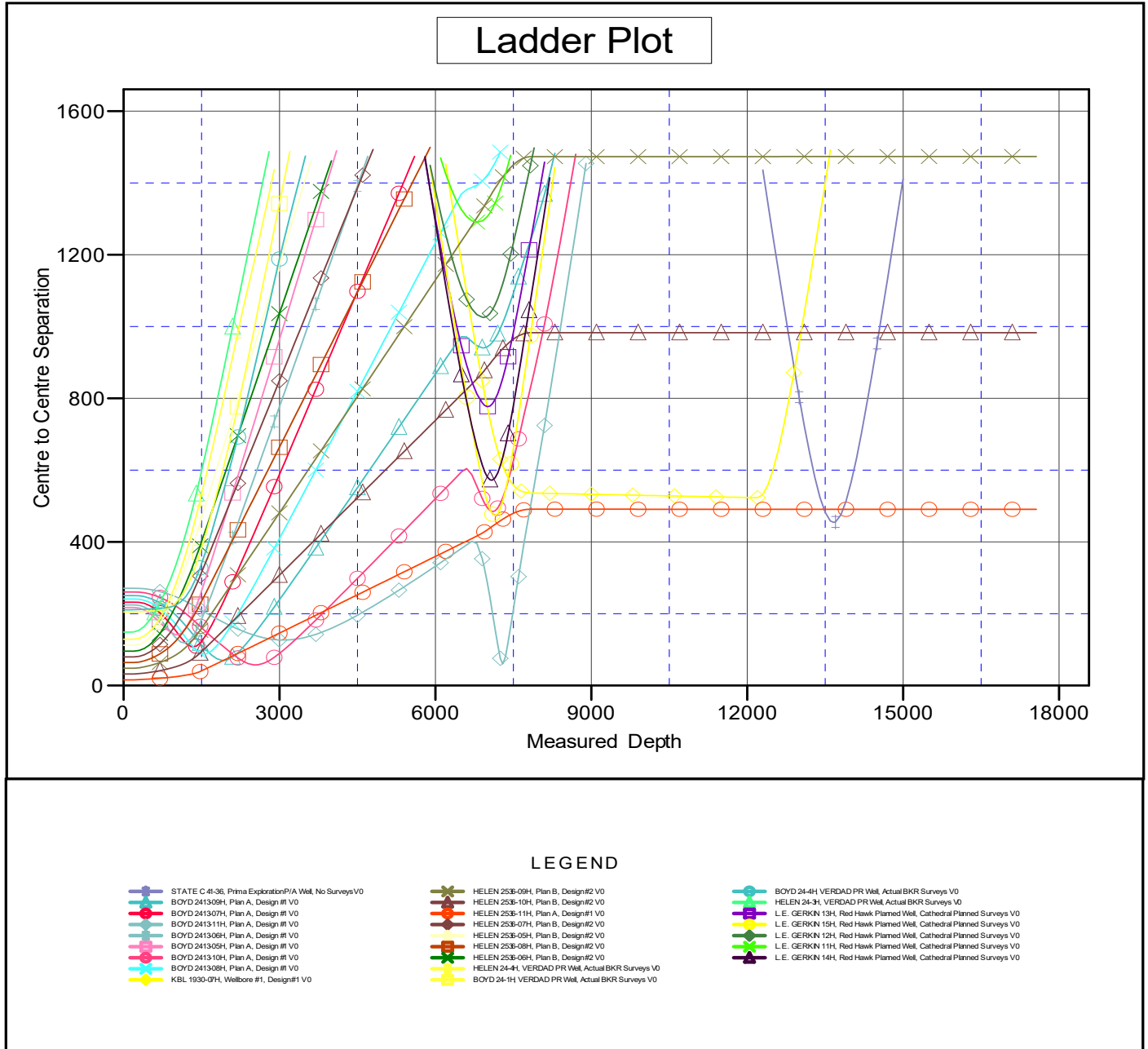
Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
2N-64W-24 ARNOLD-BOYD PAD						
BOYD 2413-05H - Plan A - Design #1	1,031.29	1,064.07	141.37	131.19	13.884	CC, ES
BOYD 2413-05H - Plan A - Design #1	1,100.00	1,127.54	144.43	133.66	13.419	SF
BOYD 2413-06H - Plan A - Design #1	1,164.50	1,194.43	118.99	108.16	10.986	CC, ES
BOYD 2413-06H - Plan A - Design #1	1,200.00	1,227.73	119.79	108.68	10.786	SF
BOYD 2413-07H - Plan A - Design #1	1,340.49	1,365.74	107.70	95.74	9.009	CC, ES
BOYD 2413-07H - Plan A - Design #1	1,400.00	1,422.13	109.82	97.56	8.958	SF
BOYD 2413-08H - Plan A - Design #1	1,555.77	1,571.00	88.35	74.31	6.291	CC, ES, SF
BOYD 2413-09H - Plan A - Design #1	1,800.00	1,805.76	74.47	55.38	3.901	SF
BOYD 2413-09H - Plan A - Design #1	1,900.00	1,903.48	69.92	52.06	3.913	ES
BOYD 2413-09H - Plan A - Design #1	1,922.93	1,925.89	69.75	52.30	3.996	CC
BOYD 2413-10H - Plan A - Design #1	2,400.00	2,392.93	61.14	39.01	2.763	SF
BOYD 2413-10H - Plan A - Design #1	2,500.00	2,491.81	57.69	38.56	3.016	ES
BOYD 2413-10H - Plan A - Design #1	2,541.53	2,532.88	57.36	39.32	3.179	CC
BOYD 2413-11H - Plan A - Design #1	7,295.16	7,380.39	60.72	-24.37	0.714	Level 1, CC
BOYD 2413-11H - Plan A - Design #1	7,300.00	7,380.36	60.91	-27.57	0.688	Level 1, ES, SF
2N-64W-24 ARNOLD-HELEN PAD						
HELEN 2536-05H - Plan B - Design #2	201.00	201.00	112.14	104.57	14.816	CC, ES, SF
HELEN 2536-06H - Plan B - Design #2	201.00	202.00	95.92	88.35	12.672	CC, ES, SF
HELEN 2536-07H - Plan B - Design #2	201.00	202.00	79.98	72.41	10.566	CC, ES, SF
HELEN 2536-08H - Plan B - Design #2	201.00	202.00	64.04	56.47	8.460	CC, ES, SF
HELEN 2536-09H - Plan B - Design #2	201.00	201.00	48.10	40.53	6.355	CC, ES
HELEN 2536-09H - Plan B - Design #2	17,564.76	17,159.27	1,473.94	938.47	2.753	SF
HELEN 2536-10H - Plan B - Design #2	201.00	201.00	32.16	24.59	4.249	CC, ES
HELEN 2536-10H - Plan B - Design #2	17,556.85	17,260.22	982.88	446.82	1.834	SF
HELEN 2536-11H - Plan A - Design #1	201.00	201.00	15.94	8.37	2.106	CC
HELEN 2536-11H - Plan A - Design #1	17,561.83	17,397.66	491.02	-45.56	0.915	Level 1, ES, SF
2N-64W-24 Offsets						
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	0.00	3.00	205.15			
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	100.00	103.00	205.15	197.61	27.235	ES
BOYD 24-1H - VERDAD PR Well - Actual BKR Surveys	1,000.00	1,008.47	230.12	220.35	23.540	SF
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	3.00	210.99			
BOYD 24-4H - VERDAD PR Well - Actual BKR Surveys	1,100.00	1,114.55	232.97	222.63	22.533	SF
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	143.49	142.55	149.03	141.48	19.740	CC, ES
HELEN 24-3H - VERDAD PR Well - Actual BKR Surveys	201.00	197.57	149.49	141.90	19.716	SF
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	0.00	0.00	128.94			
HELEN 24-4H - VERDAD PR Well - Actual BKR Surveys	201.00	198.75	129.10	121.52	17.022	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	13,600.00	6,778.00	458.67	37.69	1.090	Level 2, ES, SF
STATE C 41-36 - Prima Exploration P/A Well - No Survey	13,662.34	6,778.00	454.41	37.98	1.091	Level 2, CC

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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: HELEN 2536-12H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°



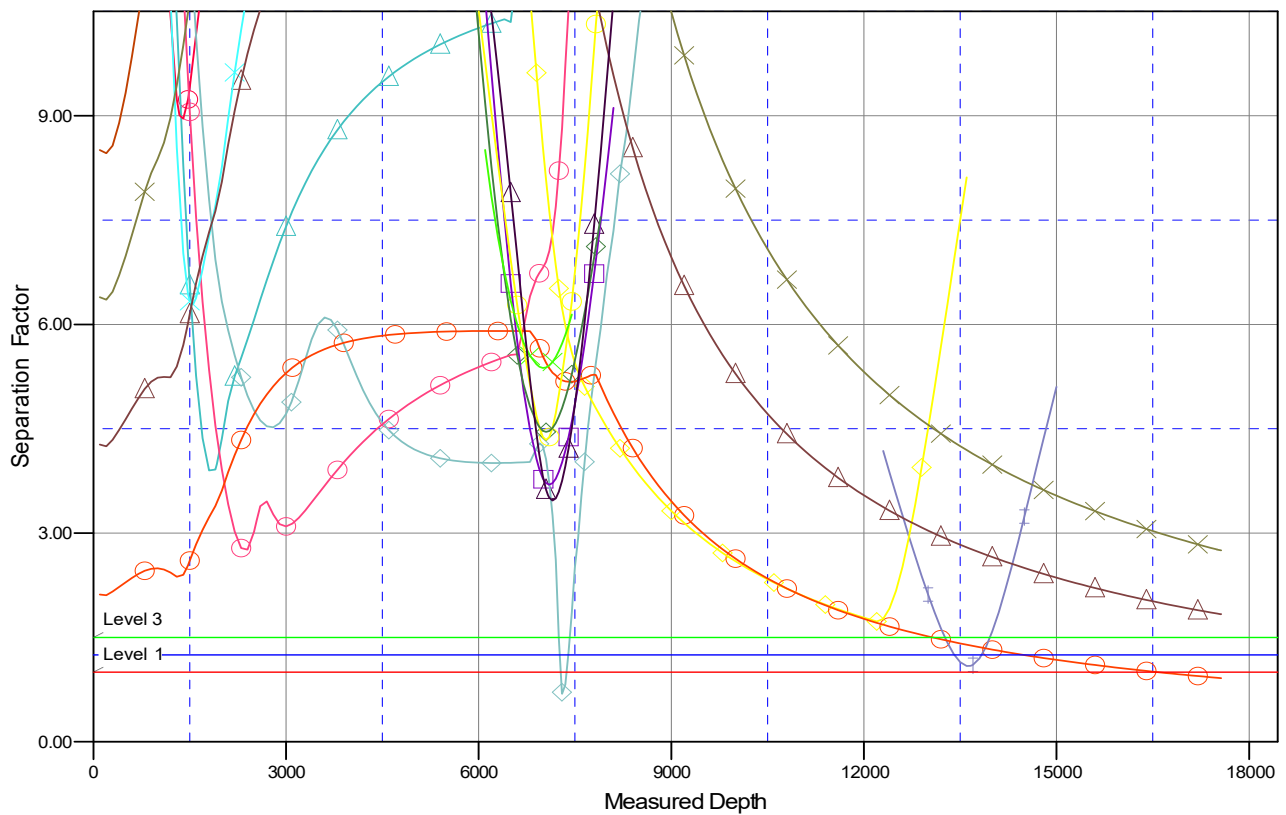
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Separation Factor Plot



LEGEND

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|---|---|---|
| <ul style="list-style-type: none"> STATE C 41-36, Prima Exploration P/A Well, No Surveys V0 BOYD 241309H, Plan A, Design #1 V0 BOYD 241307H, Plan A, Design #1 V0 BOYD 241311H, Plan A, Design #1 V0 BOYD 241308H, Plan A, Design #1 V0 BOYD 241305H, Plan A, Design #1 V0 BOYD 241310H, Plan A, Design #1 V0 BOYD 241308H, Plan A, Design #1 V0 KBL 1930-07H, Wellbore #1, Design #1 V0 | <ul style="list-style-type: none"> HELEN 2536-09H, Plan B, Design #2 V0 HELEN 2536-10H, Plan B, Design #2 V0 HELEN 2536-11H, Plan A, Design #1 V0 HELEN 2536-07H, Plan B, Design #2 V0 HELEN 2536-09H, Plan B, Design #2 V0 HELEN 2536-08H, Plan B, Design #2 V0 HELEN 2536-08H, Plan B, Design #2 V0 HELEN 2536-08H, Plan B, Design #2 V0 HELEN 24-4H, VERDAD PR Well, Actual BKR Surveys V0 BOYD 24-1H, VERDAD PR Well, Actual BKR Surveys V0 | <ul style="list-style-type: none"> BOYD 24-4H, VERDAD PR Well, Actual BKR Surveys V0 HELEN 24-3H, VERDAD PR Well, Actual BKR Surveys V0 L.E. GERKIN 13H, Red Hawk Planned Well, Cathedral Planned Surveys V0 L.E. GERKIN 15H, Red Hawk Planned Well, Cathedral Planned Surveys V0 L.E. GERKIN 12H, Red Hawk Planned Well, Cathedral Planned Surveys V0 L.E. GERKIN 11H, Red Hawk Planned Well, Cathedral Planned Surveys V0 L.E. GERKIN 14H, Red Hawk Planned Well, Cathedral Planned Surveys V0 |
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