

VERDAD RESOURCES

WATTENBERG FIELD

7N-60W-09 BARRACUDA 0904 PAD

BARRACUDA 0904-01H

Plan B

Permit Rev-1

Anticollision Summary Report

25 August, 2020

HP

Anticollision Summary Report

Company:	VERDAD RESOURCES	Local Co-ordinate Reference:	Well BARRACUDA 0904-01H
Project:	WATTENBERG FIELD	TVD Reference:	RKB = 20' @ 4925.00usft (RIG)
Reference Site:	7N-60W-09 BARRACUDA 0904 PAD	MD Reference:	RKB = 20' @ 4925.00usft (RIG)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BARRACUDA 0904-01H	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:	Permit Rev-1	Offset TVD Reference:	Offset Datum

Reference	Permit Rev-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	8/25/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,500.00	Permit Rev-1 (Plan B)	ISCWSA MWD	Fixed:v2:standard declination
1,500.00	16,956.94	Permit Rev-1 (Plan B)	ISCWSA MWD	Fixed:v2:standard declination

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						
7N-60W-04 Offsets						
Pergamos 1-4-34-7-60 - Verdad PR Well - Actual Precisio						Out of range
Pergamos 1-4-44-7-60 - Verdad PR Well - Actual Precisio						Out of range
Pergamos 2-4-34-7-60 - Verdad PR Well - Actual Precisio						Out of range
Pergamos 2-4-44-7-60 - Verdad Original Well - Actual Pre						Out of range
Pergamos 2-4-44-7-60 - Verdad PR Sidetrack - Actual Pr						Out of range
SHOWERS #4-4 - DOC P&A Well - No Surveys	16,299.07	6,199.00	239.17	-203.47	0.540	Level 1, CC, ES, SF
WIGEON FED 33-28-1HN - Mallard Planned Well - Plann	16,957.81	6,822.49	159.46	-62.62	0.718	Level 1, CC, ES, SF
WIGEON FED 33-28-2HN - Mallard Planned Well - Plann	16,957.81	6,650.49	728.86	454.97	2.661	CC, ES, SF
WIGEON FED 33-28-3HN - Mallard Planned Well - Plann	16,957.81	6,545.92	1,361.65	1,091.93	5.048	CC, ES, SF
WIGEON FED 33-28-4HN - Mallard Planned Well - Plann						Out of range
WIGEON FED 33-28-5HN - Mallard Planned Well - Plann						Out of range
WIGEON FED 33-28-6HN - Mallard Planned Well - Plann						Out of range
WIGEON FED 33-28-7HN - Mallard Planned Well - Plann						Out of range
WIGEON FED 33-28-8HN - Mallard Planned Well - Plann						Out of range
7N-60W-05 Offsets Incomplete						
LEGGETT 1-5H - Red Hawk Pilot Hole - Actual BHI Surv						Out of range
LEGGETT 1-5H - Red Hawk Production Hole - Actual BH	13,105.18	10,513.00	1,036.24	841.81	5.330	CC
LEGGETT 1-5H - Red Hawk Production Hole - Actual BH	13,300.00	10,513.00	1,054.40	825.81	4.613	ES
LEGGETT 1-5H - Red Hawk Production Hole - Actual BH	13,600.00	10,513.00	1,148.33	879.27	4.268	SF

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Reference Wellbore	Plan B	Database:	EDM 5000.16 Single User Db
Reference Design:	Permit Rev-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						
7N-60W-06 Offsets Incomplete						
SHELDUCK 6-5-15HC - Mallard Planned Well - Planned	12,739.54	16,269.25	978.48	810.49	5.825	CC
SHELDUCK 6-5-15HC - Mallard Planned Well - Planned	13,000.00	16,269.25	1,012.55	774.82	4.259	ES
SHELDUCK 6-5-15HC - Mallard Planned Well - Planned	13,400.00	16,269.25	1,180.52	845.40	3.523	SF
SHELDUCK 6-5-16HN - Mallard Planned Well - Planned	12,554.43	16,094.52	945.11	780.52	5.742	CC
SHELDUCK 6-5-16HN - Mallard Planned Well - Planned	12,900.00	16,094.52	1,006.31	738.27	3.754	ES
SHELDUCK 6-5-16HN - Mallard Planned Well - Planned	13,200.00	16,094.52	1,144.55	806.37	3.384	SF
SHELDUCK 6-5-1HN - Mallard Planned Well - Planned M	16,638.81	16,050.58	933.55	671.70	3.565	CC
SHELDUCK 6-5-1HN - Mallard Planned Well - Planned M	16,900.00	16,050.58	969.40	647.19	3.009	ES
SHELDUCK 6-5-1HN - Mallard Planned Well - Planned M	16,957.81	16,050.58	986.55	647.36	2.909	SF
SHELDUCK 6-5-2HC - Mallard Planned Well - Planned M	16,454.45	16,229.94	966.40	712.91	3.812	CC
SHELDUCK 6-5-2HC - Mallard Planned Well - Planned M	16,700.00	16,229.94	997.10	689.61	3.243	ES
SHELDUCK 6-5-2HC - Mallard Planned Well - Planned M	16,957.81	16,229.94	1,089.63	717.26	2.926	SF
SHELDUCK 6-5-3HN - Mallard Planned Well - Planned M	16,269.25	16,031.81	934.67	685.30	3.748	CC
SHELDUCK 6-5-3HN - Mallard Planned Well - Planned M	16,600.00	16,031.81	991.47	654.98	2.947	ES
SHELDUCK 6-5-3HN - Mallard Planned Well - Planned M	16,800.00	16,031.81	1,074.85	691.92	2.807	SF
SHELDUCK 6-5-4HN - Mallard Planned Well - Planned M	15,899.41	16,027.84	935.47	696.72	3.918	CC
SHELDUCK 6-5-4HN - Mallard Planned Well - Planned M	16,200.00	16,027.84	982.58	660.27	3.049	ES
SHELDUCK 6-5-4HN - Mallard Planned Well - Planned M	16,500.00	16,027.84	1,111.67	721.26	2.847	SF
SHELDUCK 6-5-5HN - Mallard Planned Well - Planned M	15,529.08	16,042.55	936.63	705.86	4.059	CC
SHELDUCK 6-5-5HN - Mallard Planned Well - Planned M	15,800.00	16,042.55	975.02	666.81	3.163	ES
SHELDUCK 6-5-5HN - Mallard Planned Well - Planned M	16,100.00	16,042.55	1,096.92	716.41	2.883	SF
SHELDUCK 6-5-6HC - Mallard Planned Well - Planned M	15,343.80	16,244.92	969.09	742.30	4.273	CC
SHELDUCK 6-5-6HC - Mallard Planned Well - Planned M	15,600.00	16,244.92	1,002.38	708.39	3.410	ES
SHELDUCK 6-5-6HC - Mallard Planned Well - Planned M	15,900.00	16,244.92	1,117.36	750.30	3.044	SF
SHELDUCK 6-5-7HN - Mallard Planned Well - Planned M	15,159.33	16,068.29	937.35	712.19	4.163	CC
SHELDUCK 6-5-7HN - Mallard Planned Well - Planned M	15,500.00	16,068.29	997.34	673.24	3.077	ES
SHELDUCK 6-5-7HN - Mallard Planned Well - Planned M	15,700.00	16,068.29	1,082.11	711.46	2.919	SF
SHELDUCK 6-5-8HN - Mallard Planned Well - Planned M	14,788.53	16,119.92	938.72	717.35	4.240	CC
SHELDUCK 6-5-8HN - Mallard Planned Well - Planned M	15,100.00	16,119.92	989.04	676.82	3.168	ES
SHELDUCK 6-5-8HN - Mallard Planned Well - Planned M	15,400.00	16,119.92	1,120.30	740.76	2.952	SF
SHELDUCK 6-5-9HN - Mallard Planned Well - Planned M	14,404.32	16,112.91	939.53	724.61	4.372	CC
SHELDUCK 6-5-9HN - Mallard Planned Well - Planned M	14,700.00	16,112.91	984.96	704.70	3.515	ES
SHELDUCK 6-5-9HN - Mallard Planned Well - Planned M	15,000.00	16,112.91	1,112.45	760.21	3.158	SF
7N-60W-08 Offsets						
Pergamos 8-41-7-60 - Verdad PR Well - Actual Precision	11,657.96	5,921.00	989.81	825.21	6.013	CC
Pergamos 8-41-7-60 - Verdad PR Well - Actual Precision	11,700.00	5,921.00	990.70	823.73	5.933	ES
Pergamos 8-41-7-60 - Verdad PR Well - Actual Precision	11,800.00	5,921.00	999.95	828.14	5.820	SF
WEITZEL #8-2 - Unknown Operator - No Surveys						Out of range
WEITZEL #8-3 (05-123-06370) - IGS D/A Well - No Surve						Out of range
WEITZEL #8-3 (05-123-09370) - IGS P&A Well - No Surv						Out of range
WEITZEL-ROMANELLI #8-1 - Cummins Deam P&A Well						Out of range
7N-60W-09 BARRACUDA 0904 PAD						
BARRACUDA 0904-02H - Plan B - Permit Rev-1	200.00	200.00	15.00	7.43	1.982	CC, ES
BARRACUDA 0904-02H - Plan B - Permit Rev-1	16,957.81	16,771.56	569.65	89.10	1.185	Level 2, SF
BARRACUDA 0904-03H - Plan B - Permit Rev-1	200.00	200.00	30.00	22.43	3.963	CC, ES
BARRACUDA 0904-03H - Plan B - Permit Rev-1	16,957.81	16,656.79	1,139.33	657.71	2.366	SF
BARRACUDA 0904-04H - Plan B - Permit Rev-1	200.00	200.00	45.00	37.43	5.945	CC, ES, SF
BARRACUDA 0904-05H - Plan B - Permit Rev-1	200.00	200.00	60.00	52.43	7.927	CC, ES, SF
BARRACUDA 0904-06H - Plan B - Permit Rev-1	200.00	200.00	74.99	67.43	9.909	CC, ES, SF

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Reference Well:	BARRACUDA 0904-01H	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:	Permit Rev-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						
7N-60W-15 Offsets Incomplete						
WAVES 7-60 15A-16-1 - Bison Planned Well - Planned M	6,354.99	15,824.96	881.12	704.30	4.983	CC
WAVES 7-60 15A-16-1 - Bison Planned Well - Planned M	6,450.00	15,824.96	889.77	693.62	4.536	ES
WAVES 7-60 15A-16-1 - Bison Planned Well - Planned M	6,800.00	15,824.96	1,048.64	784.72	3.973	SF
WAVES 7-60 15A-16-2 - Bison Planned Well - Planned M	6,260.89	15,626.18	779.82	609.69	4.584	CC
WAVES 7-60 15A-16-2 - Bison Planned Well - Planned M	6,350.00	15,626.18	787.70	601.61	4.233	ES
WAVES 7-60 15A-16-2 - Bison Planned Well - Planned M	6,650.00	15,626.18	914.72	671.46	3.760	SF
WAVES 7-60 15A-16-3 - Bison Planned Well - Planned M	6,128.79	15,490.91	940.82	669.07	3.462	CC
WAVES 7-60 15A-16-3 - Bison Planned Well - Planned M	6,150.00	15,490.91	941.32	667.65	3.440	ES
WAVES 7-60 15A-16-3 - Bison Planned Well - Planned M	6,250.00	15,490.91	956.75	674.38	3.388	SF
WAVES 7-60 15A-16-4 - Bison Planned Well - Planned M	6,203.07	15,684.95	1,062.69	794.32	3.960	CC
WAVES 7-60 15A-16-4 - Bison Planned Well - Planned M	6,250.00	15,684.95	1,064.99	791.28	3.891	ES
WAVES 7-60 15A-16-4 - Bison Planned Well - Planned M	6,400.00	15,684.95	1,102.25	812.43	3.803	SF
7N-60W-17 Offsets						
Slick Rock 2-17-11-7-60 - Verdad Original Well - Actual P						Out of range
Slick Rock 2-17-11-7-60 - Verdad SI Sidetrack - Actual Pr	6,506.87	10,642.00	1,254.10	1,178.03	16.486	CC
Slick Rock 2-17-11-7-60 - Verdad SI Sidetrack - Actual Pr	6,550.00	10,642.00	1,255.81	1,175.72	15.679	ES
Slick Rock 2-17-11-7-60 - Verdad SI Sidetrack - Actual Pr	7,000.00	10,642.00	1,451.15	1,329.71	11.949	SF
8N-60W-29 Offsets Incomplete						
SHOVELER FED 29-32-8HN - Mallard Planned Well - Pla	16,957.81	16,964.69	871.08	585.80	3.053	CC, ES, SF

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Reference Site:	7N-60W-09 BARRACUDA 0904 PAD	MD Reference:	RKB = 20' @ 4925.00usft (RIG)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BARRACUDA 0904-01H	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:	Permit Rev-1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB = 20' @ 4925.00usft (RIG)

Offset Depths are relative to Offset Datum

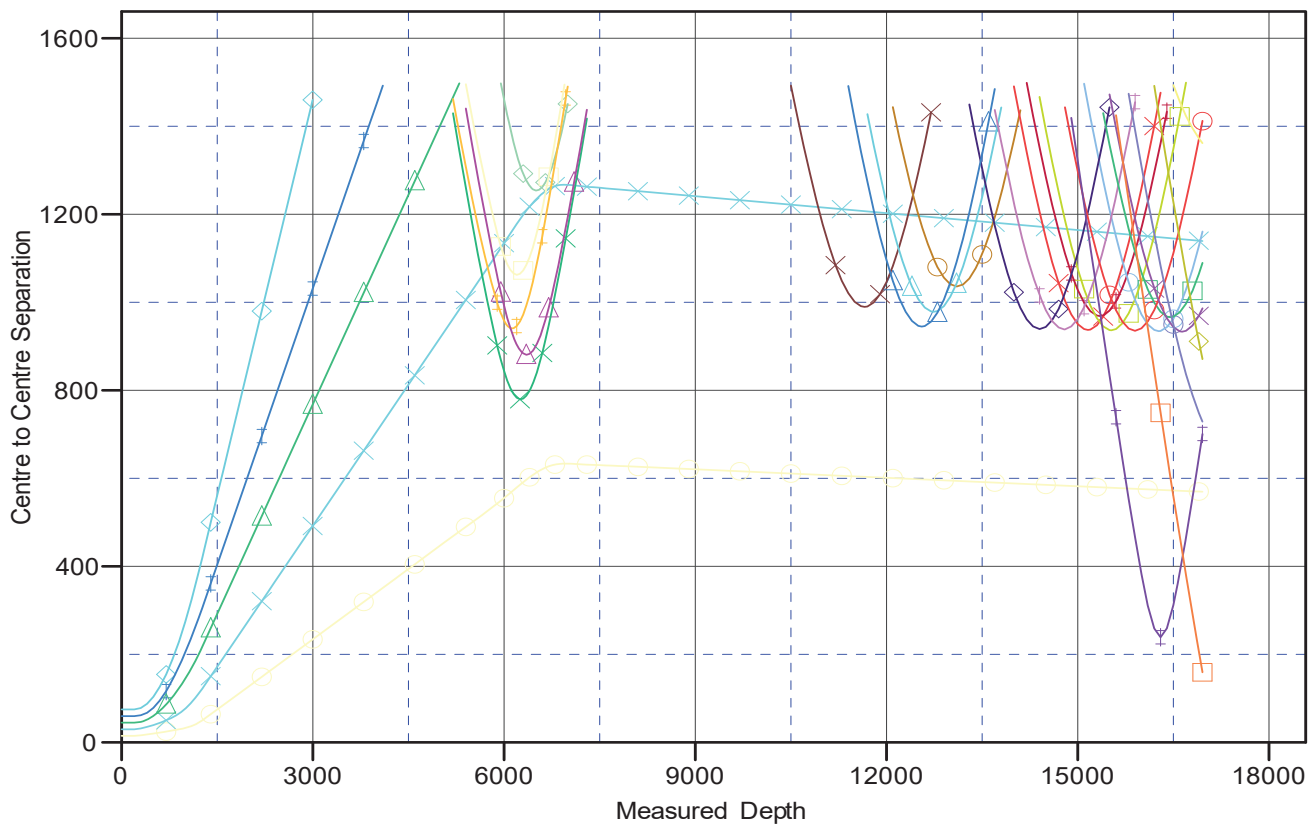
Central Meridian is -105.500000

Coordinates are relative to: BARRACUDA 0904-01H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.91°

Ladder Plot



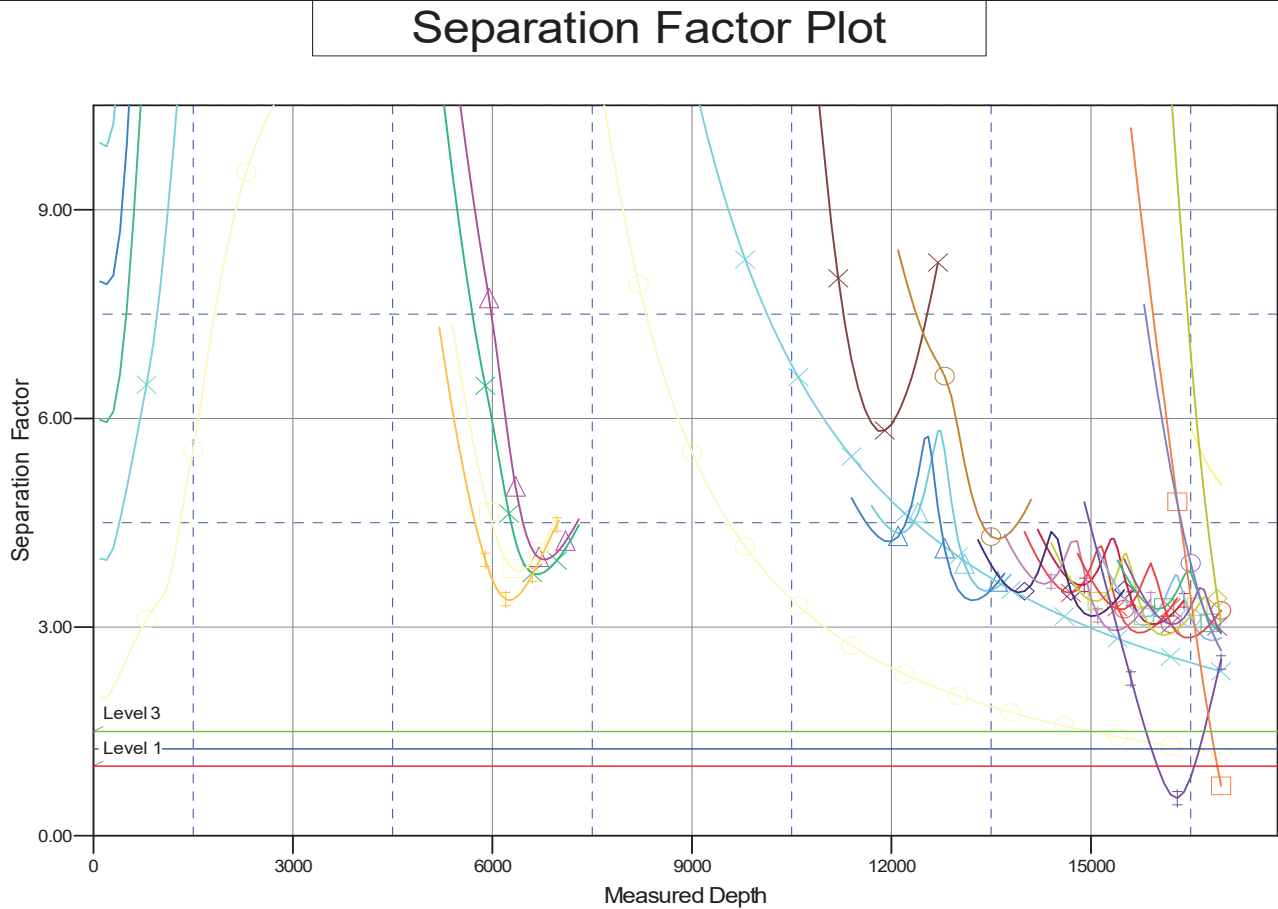
LEGEND

BARRACUDA 0904-02H, Plan B, Permit Rev-1 V0	Pergamos 841-7-60, Verdad PR Well, Actual Precision Surveys V0	SHELDUCK6-5-4HN, Mallard Planned Well, Planned MWD Surveys V0
BARRACUDA 0904-09H, Plan B, Permit Rev-1 V0	LEGGETT 15H, Red Hawk Production Hole, Actual BHI Surveys V0	SHELDUCK6-5-1HN, Mallard Planned Well, Planned MWD Surveys V0
BARRACUDA 0904-08H, Plan B, Permit Rev-1 V0	SHELDUCK6-5-7HN, Mallard Planned Well, Planned MWD Surveys V0	SHELDUCK6-5-16HN, Mallard Planned Well, Planned MWD Surveys V0
BARRACUDA 0904-03H, Plan B, Permit Rev-1 V0	SHELDUCK6-5-15HC, Mallard Planned Well, Planned MWD Surveys V0	SHOMERS #4-4, DCC PSA Well, No Surveys V0
BARRACUDA 0904-04H, Plan B, Permit Rev-1 V0	SHELDUCK6-5-6HC, Mallard Planned Well, Planned MWD Surveys V0	WIGON FED 33-28-1HN, Mallard Planned Well, Planned MWD Surveys V0
Slick Rock 217-11-7-60, Verdad S Sidetrack, Actual Precision Surveys V0	SHELDUCK6-5-5HN, Mallard Planned Well, Planned MWD Surveys V0	WIGON FED 33-28-2HN, Mallard Planned Well, Planned MWD Surveys V0
WAVES 7-40 15A-16-2, Bison Planned Well, Planned MWD Surveys V0	SHELDUCK6-5-3HN, Mallard Planned Well, Planned MWD Surveys V0	WIGON FED 33-28-3HN, Mallard Planned Well, Planned MWD Surveys V0
WAVES 7-40 15A-16-3, Bison Planned Well, Planned MWD Surveys V0	SHELDUCK6-5-9HN, Mallard Planned Well, Planned MWD Surveys V0	SHOVERLER FED 29-32-8HN, Mallard Planned Well, Planned MWD Surveys V0
WAVES 7-40 15A-16-4, Bison Planned Well, Planned MWD Surveys V0	SHELDUCK6-5-8HN, Mallard Planned Well, Planned MWD Surveys V0	
WAVES 7-40 15A-16-1, Bison Planned Well, Planned MWD Surveys V0	SHELDUCK6-5-2HC, Mallard Planned Well, Planned MWD Surveys V0	






















HP

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Coordinates are relative to: BARRACUDA 0904-01H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.91°



LEGEND

- | | | | | | |
|---|--|---|--|---|--|
|  | BARRACUDA 0004-02H, Plan B, Remit Rev-1 V0 |  | PERGAMES 841-7-02D, Verid PRA, Actual Precision Surveys V0 |  | SHELDUCK-6-48N, Malford Planned Well, Planned MWD Surveys V0 |
|  | BARRACUDA 0004-05H, Plan B, Remit Rev-1 V0 |  | LEGGETT 15H, Red Hawk Production Hole, Actual BH Surveys V0 |  | SHELDUCK-6-16N, Malford Planned Well, Planned MWD Surveys V0 |
|  | BARRACUDA 0004-04H, Plan B, Remit Rev-1 V0 |  | SHELDUCK-6-57H, Malford Planned Well, Planned MWD Surveys V0 |  | SHELDUCK-6-16HN, Malford Planned Well, Planned MWD Surveys V0 |
|  | BARRACUDA 0004-04H, Plan B, Remit Rev-1 V0 |  | SHELDUCK-6-5-19H, Malford Planned Well, Planned MWD Surveys V0 |  | SHOVERLEED 4-0, DCO PAA, No Surveys V0 |
|  | BARRACUDA 0004-04H, Plan B, Remit Rev-1 V0 |  | SHELDUCK-6-5-24H, Malford Planned Well, Planned MWD Surveys V0 |  | WGEON FED 33-28-28N, Malford Planned Well, Planned MWD Surveys V0 |
|  | Slick Rock 217-11-7-60, Verid S Sidetrack, Actual Precision Surveys V0 |  | SHELDUCK-6-5-58H, Malford Planned Well, Planned MWD Surveys V0 |  | WGEON FED 33-28-28N, Malford Planned Well, Planned MWD Surveys V0 |
|  | WAVES 74D 15A-16-2, Bison Planned Well, Planned MWD Surveys V0 |  | SHELDUCK-6-5-38H, Malford Planned Well, Planned MWD Surveys V0 |  | WGEON FED 33-28-28N, Malford Planned Well, Planned MWD Surveys V0 |
|  | WAVES 74D 15A-16-3, Bison Planned Well, Planned MWD Surveys V0 |  | SHELDUCK-6-5-38H, Malford Planned Well, Planned MWD Surveys V0 |  | SHOVERLEED FED 29-32-84N, Malford Planned Well, Planned MWD Surveys V0 |
|  | WAVES 74D 15A-16-4, Bison Planned Well, Planned MWD Surveys V0 |  | SHELDUCK-6-5-84H, Malford Planned Well, Planned MWD Surveys V0 | | |
|  | WAVES 74D 15A-16-1, Bison Planned Well, Planned MWD Surveys V0 |  | SHELDUCK-6-5-2HC, Malford Planned Well, Planned MWD Surveys V0 | | |