Northern Region - DJ Basin

Wells Ranch
BB Section 18
SLW Ranch State B14-658

Original Drilling
Plan 1

Anticollision Summary Report

26 September, 2017

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well SLW Ranch State B14-658
Project:	Wells Ranch	**TVD Reference:**	WELL @ 4619.0ft
Reference Site:	BB Section 18	**MD Reference:**	WELL @ 4619.0ft
Site Error:	0.0 ft	**North Reference:**	Grid
Reference Well:	SLW Ranch State B14-658	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Original Drilling	**Database:**	EDMP
Reference Design:	Plan 1	**Offset TVD Reference:**	Offset Datum

Reference	Plan 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 center-center distance of 10,000.0 ft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 9/26/2017

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	15,892.3	Plan 1 (Original Drilling)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
B Section 13						
Ford 13-01 - Wellbore #1 - Wellbore #1- As Drilled	10,467.0	6,636.6	2,459.6	2,381.7	31.559	CC
Ford 13-01 - Wellbore #1 - Wellbore #1- As Drilled	10,500.0	6,637.2	2,459.8	2,381.5	31.398	ES
Ford 13-01 - Wellbore #1 - Wellbore #1- As Drilled	11,100.0	6,649.8	2,539.9	2,455.6	30.146	SF
Ford 23-13 - Wellbore #1 - Wellbore #1- As Drilled	10,407.1	6,568.9	1,337.6	1,260.5	17.341	CC, ES
Ford 23-13 - Wellbore #1 - Wellbore #1- As Drilled	10,600.0	6,577.1	1,351.5	1,272.2	17.052	SF
Lohr 13-01 - Original Drilling - Original Drilling - As Drilled	8,759.6	6,537.0	493.1	399.1	5.244	CC, ES, SF
Lohr 13-02 - Original Drilling - Original Drilling - As Drilled	9,180.0	6,486.4	1,449.6	1,386.2	22.846	CC
Lohr 13-02 - Original Drilling - Original Drilling - As Drilled	9,200.0	6,486.4	1,449.8	1,386.2	22.789	ES
Lohr 13-02 - Original Drilling - Original Drilling - As Drilled	9,400.0	6,486.0	1,466.2	1,401.2	22.563	SF
Lohr 13-04 - Original Drilling - Original Drilling - As Drilled	7,765.2	6,540.0	76.8	-8.7	0.898	Level 1, CC, ES, SF
Lohr 32-13 - Original Drilling - Original Drilling - APD - Re	9,068.1	6,560.8	25.5	-37.3	0.407	Level 1, CC, ES, SF
Lohr 41-13 - Original Drilling - Original Drilling - As Drilled	7,844.4	6,499.5	1,253.3	1,201.8	24.345	CC, ES
Lohr 41-13 - Original Drilling - Original Drilling - As Drilled	8,000.0	6,499.3	1,262.9	1,210.6	24.126	SF
Lohr 5 - Original Drilling - Original Drilling - as Drilled	8,647.7	6,514.3	990.9	866.7	7.977	CC, ES
Lohr 5 - Original Drilling - Original Drilling - as Drilled	8,700.0	6,514.9	992.3	867.6	7.955	SF
Maggie B13-12 - Wellbore #1 - Wellbore #1- As Drilled	12,078.8	6,508.5	1,118.5	1,022.0	11.597	CC
Maggie B13-12 - Wellbore #1 - Wellbore #1- As Drilled	12,100.0	6,509.4	1,118.7	1,021.9	11.563	ES
Maggie B13-12 - Wellbore #1 - Wellbore #1- As Drilled	12,200.0	6,513.4	1,125.0	1,027.2	11.500	SF
Maggie B13-13 - Wellbore #1 - Wellbore #1- As Drilled	11,932.5	6,509.6	2,576.7	2,482.1	27.235	CC, ES
Maggie B13-13 - Wellbore #1 - Wellbore #1- As Drilled	12,500.0	6,513.3	2,638.6	2,538.2	26.299	SF
Miller Deppe 1 - Original Drilling - Original Drilling - As Dr	10,386.0	6,583.2	1,234.8	1,157.7	16.016	CC
Miller Deppe 1 - Original Drilling - Original Drilling - As Dr	10,400.0	6,582.9	1,234.8	1,157.6	15.992	ES
Miller Deppe 1 - Original Drilling - Original Drilling - As Dr	10,500.0	6,581.0	1,240.0	1,162.1	15.915	SF
Miller Deppe 11-13 - Original Drilling - Original Drilling - A	11,875.1	6,597.5	1,242.9	1,148.6	13.179	CC, ES
Miller Deppe 11-13 - Original Drilling - Original Drilling - A	12,000.0	6,594.1	1,249.2	1,154.0	13.130	SF
Miller Deppe 12-13 - Original Drilling - Original Drilling - A	11,756.3	6,565.7	298.8	206.0	3.220	CC, ES, SF
Miller Deppe 22-13 - Original Drilling - Original Drilling - A	10,189.4	6,538.4	345.6	270.9	4.631	CC, ES, SF
Nakagawa PM B13-10 - Wellbore #1 - Wellbore #1- As D	9,142.6	6,575.2	1,240.6	1,177.0	19.503	CC, ES
Nakagawa PM B13-10 - Wellbore #1 - Wellbore #1- As D	9,300.0	6,574.6	1,250.5	1,185.2	19.146	SF
Nakagawa PMB13-09 - Original Drilling - Original Drilling	7,710.1	6,515.9	1,149.9	1,099.2	22.684	CC, ES
Nakagawa PMB13-09 - Original Drilling - Original Drilling	7,900.0	6,511.2	1,165.5	1,113.3	22.321	SF
Nakagawa PMB13-16 - Original Drilling - Original Drilling	7,712.0	6,515.3	2,549.9	2,499.2	50.311	CC, ES
Nakagawa PMB13-16 - Original Drilling - Original Drilling	8,600.0	6,505.4	2,700.3	2,642.6	46.804	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well SLW Ranch State B14-658
Project:	Wells Ranch	**TVD Reference:**	WELL @ 4619.0ft
Reference Site:	BB Section 18	**MD Reference:**	WELL @ 4619.0ft
Site Error:	0.0 ft	**North Reference:**	Grid
Reference Well:	SLW Ranch State B14-658	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Original Drilling	**Database:**	EDMP
Reference Design:	Plan 1	**Offset TVD Reference:**	Offset Datum

Summary

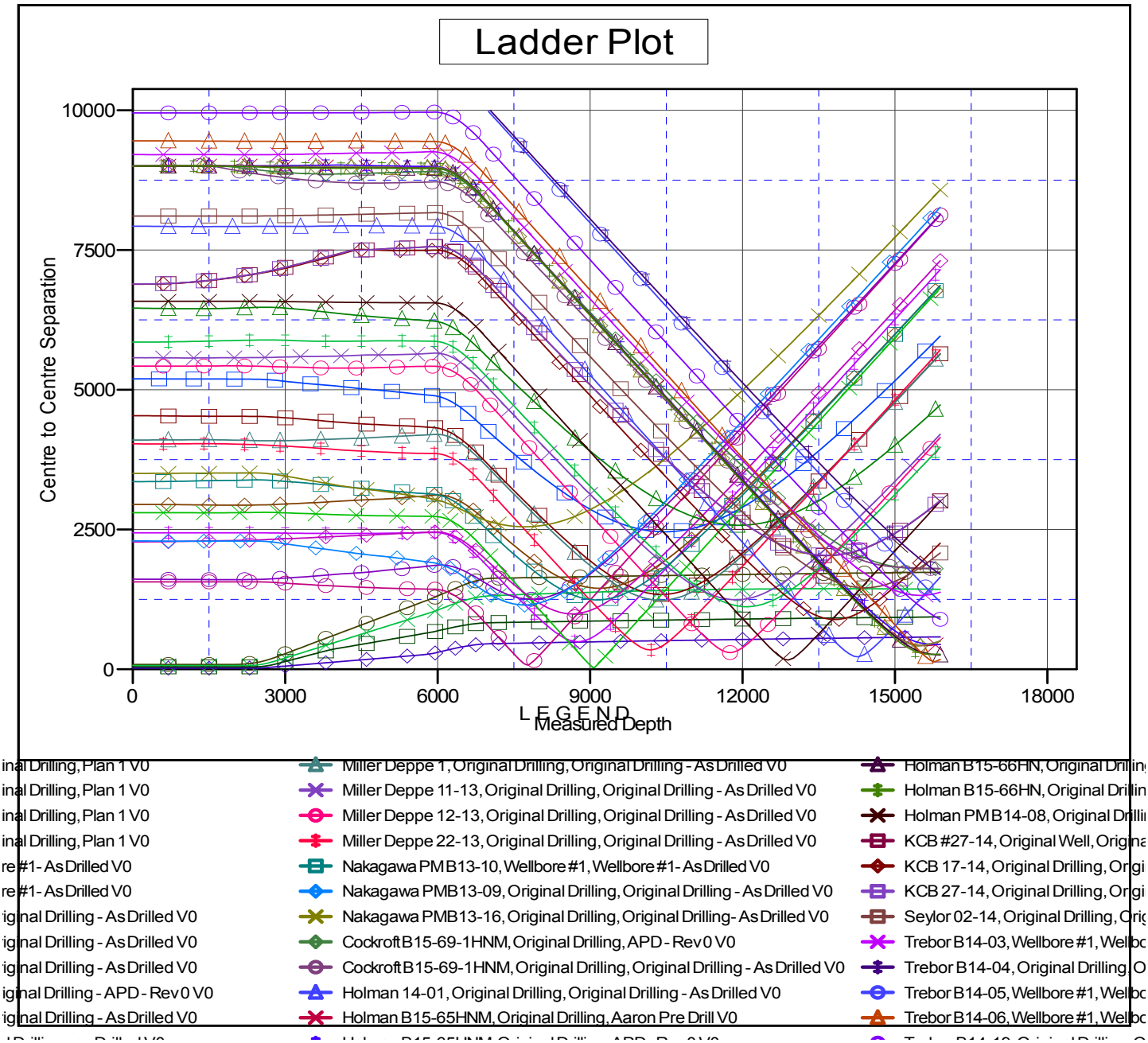
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
B Section 14						
Cockroft B15-69-1HNM - Original Drilling - APD - Rev 0	15,688.6	6,899.8	1,800.6	1,683.5	15.373	CC
Cockroft B15-69-1HNM - Original Drilling - APD - Rev 0	15,892.9	7,104.0	1,800.8	1,681.1	15.052	ES, SF
Cockroft B15-69-1HNM - Original Drilling - Original Drillin	15,892.9	7,363.3	1,800.8	1,653.2	12.202	CC, ES, SF
Holman 14-01 - Original Drilling - Original Drilling - As Dr	14,260.4	6,546.8	224.3	101.7	1.829	CC, ES, SF
Holman B15-65HNM - Original Drilling - Aaron Pre Drill	15,561.7	6,587.3	423.3	309.1	3.705	CC
Holman B15-65HNM - Original Drilling - Aaron Pre Drill	15,600.0	6,618.6	423.9	308.7	3.677	ES
Holman B15-65HNM - Original Drilling - Aaron Pre Drill	15,700.0	6,710.5	429.7	312.5	3.668	SF
Holman B15-65HNM - Original Drilling - APD - Rev 0	15,892.9	6,905.4	444.4	324.8	3.716	CC, ES, SF
Holman B15-65HNM - Original Drilling - Design #3	15,477.2	6,473.2	423.1	293.1	3.255	CC
Holman B15-65HNM - Original Drilling - Design #3	15,500.0	6,484.0	423.5	292.7	3.237	ES, SF
Holman B15-65HNM - Original Drilling - Original Drilling -	15,477.2	6,473.2	423.1	293.1	3.255	CC
Holman B15-65HNM - Original Drilling - Original Drilling -	15,500.0	6,484.0	423.5	292.7	3.237	ES, SF
Holman B15-66HN - Original Drilling - APD - Rev 0	15,892.9	6,898.7	256.6	136.9	2.144	CC, ES, SF
Holman B15-66HN - Original Drilling - Original Drilling	15,712.1	6,749.5	267.2	128.6	1.928	CC
Holman B15-66HN - Original Drilling - Original Drilling	15,892.9	6,944.9	268.9	127.6	1.903	ES, SF
Holman PM B14-08 - Original Drilling - Original Drilling -	12,890.6	6,543.0	166.6	26.1	1.186	Level 2, CC, ES, SF
KCB #27-14 - Original Well - Original Well - As Drilled	13,667.5	6,653.6	2,033.7	1,916.2	17.302	CC
KCB #27-14 - Original Well - Original Well - As Drilled	13,700.0	6,653.5	2,034.0	1,916.0	17.249	ES
KCB #27-14 - Original Well - Original Well - As Drilled	13,900.0	6,652.9	2,046.9	1,927.2	17.093	SF
KCB 17-14 - Original Drilling - Original Drilling - As Drilled	13,800.0	6,642.1	890.7	762.4	6.945	SF
KCB 17-14 - Original Drilling - Original Drilling - As Drilled	13,818.3	6,642.5	890.5	762.3	6.949	CC, ES
KCB 27-14 - Original Drilling - Original Drilling - As Drilled	13,664.4	6,633.8	2,040.2	1,922.7	17.360	CC
KCB 27-14 - Original Drilling - Original Drilling - As Drilled	13,700.0	6,633.7	2,040.5	1,922.5	17.302	ES
KCB 27-14 - Original Drilling - Original Drilling - As Drilled	13,900.0	6,633.0	2,053.7	1,934.0	17.149	SF
Seylor 02-14 - Original Drilling - Original Drilling - As Drill	14,405.3	6,540.0	1,457.1	1,298.5	9.185	CC, ES
Seylor 02-14 - Original Drilling - Original Drilling - As Drill	14,500.0	6,540.0	1,460.2	1,300.8	9.162	SF
Trebor B14-03 - Wellbore #1 - Wellbore #1- As Drilled	15,500.0	6,536.0	1,321.3	1,183.8	9.610	CC
Trebor B14-03 - Wellbore #1 - Wellbore #1- As Drilled	15,500.0	6,536.0	1,321.3	1,183.8	9.610	ES
Trebor B14-03 - Wellbore #1 - Wellbore #1- As Drilled	15,600.0	6,531.2	1,325.1	1,187.0	9.594	SF
Trebor B14-04 - Original Drilling - Original Drilling - As Dr	15,892.9	6,593.6	1,697.3	1,577.5	14.174	CC, ES, SF
Trebor B14-05 - Wellbore #1 - Wellbore #1- As Drilled	15,892.9	6,601.2	1,203.4	1,120.7	14.547	CC, ES, SF
Trebor B14-06 - Wellbore #1 - Wellbore #1- As Drilled	15,782.7	6,543.5	136.6	-4.4	0.969	Level 1, CC, ES, SF
Trebor B14-19 - Original Drilling - Original Drilling - As Dr	15,892.9	6,544.0	894.5	727.7	5.362	CC, ES, SF
BB Section 18						
SLW Ranch State B14-667 - Original Drilling - Plan 1	2,400.0	2,400.0	21.9	5.1	1.306	Level 3, CC, ES, SF
SLW Ranch State B14-672 - Original Drilling - Plan 1	2,400.0	2,401.0	43.7	27.0	2.611	CC, ES, SF
SLW Ranch State B14-679 - Original Drilling - Plan 1	2,200.0	2,201.0	65.6	50.3	4.283	CC, ES
SLW Ranch State B14-679 - Original Drilling - Plan 1	2,300.0	2,298.7	67.3	51.3	4.204	SF
SLW Ranch State B14-685 - Original Drilling - Plan 1	2,000.0	2,001.0	87.4	73.6	6.300	CC, ES
SLW Ranch State B14-685 - Original Drilling - Plan 1	2,100.0	2,098.0	89.2	74.6	6.117	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well SLW Ranch State B14-658
Project:	Wells Ranch	**TVD Reference:**	WELL @ 4619.0ft
Reference Site:	BB Section 18	**MD Reference:**	WELL @ 4619.0ft
Site Error:	0.0 ft	**North Reference:**	Grid
Reference Well:	SLW Ranch State B14-658	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Original Drilling	**Database:**	EDMP
Reference Design:	Plan 1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4619.0ft	Coordinates are relative to: SLW Ranch State B14-658
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.5000000	Grid Convergence at Surface is: 0.65°

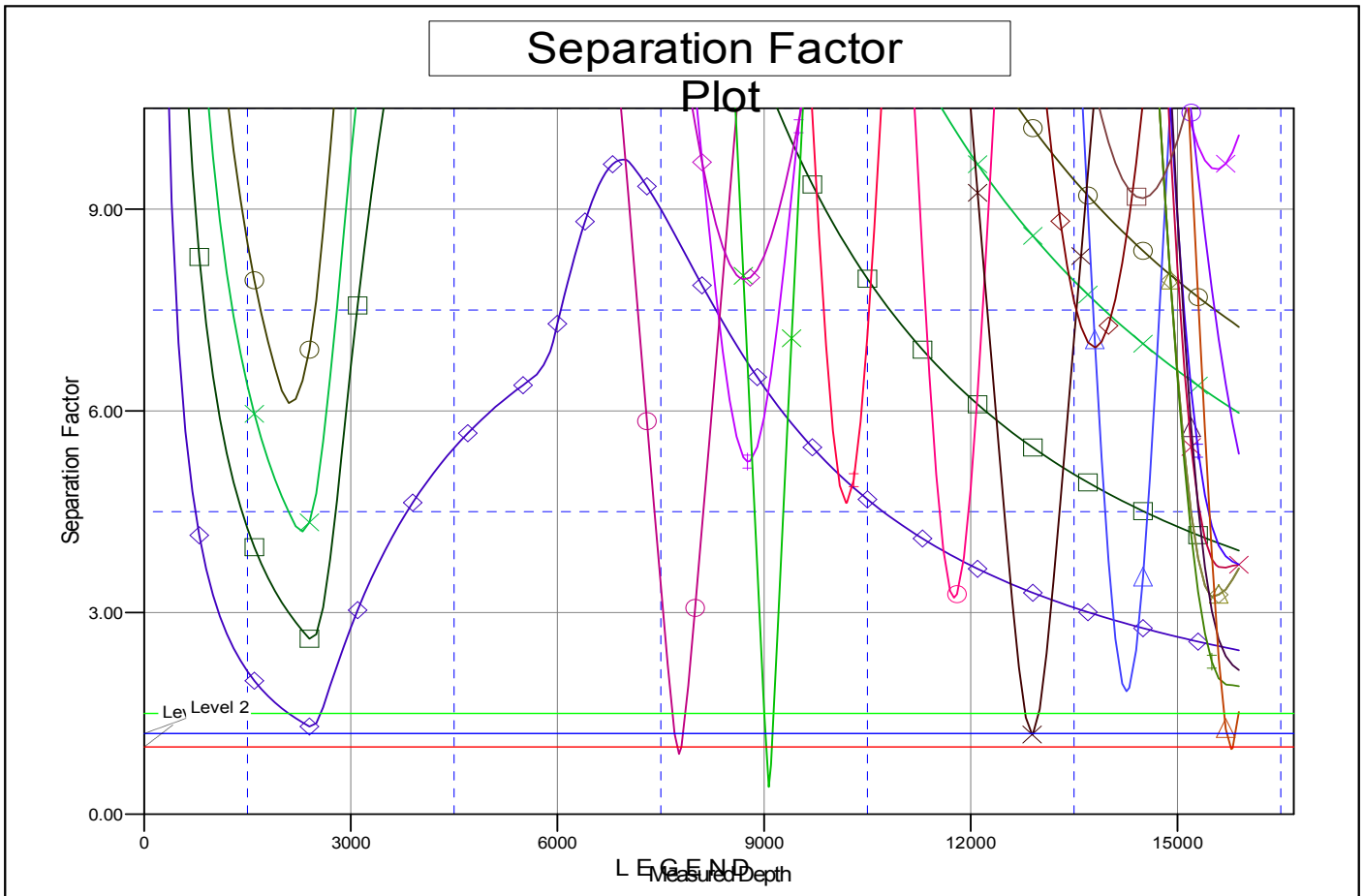


Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well SLW Ranch State B14-658
Project:	Wells Ranch	**TVD Reference:**	WELL @ 4619.0ft
Reference Site:	BB Section 18	**MD Reference:**	WELL @ 4619.0ft
Site Error:	0.0 ft	**North Reference:**	Grid
Reference Well:	SLW Ranch State B14-658	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Original Drilling	**Database:**	EDMP
Reference Design:	Plan 1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4619.0ft	Coordinates are relative to: SLW Ranch State B14-658
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.5000000	Grid Convergence at Surface is: 0.65°



inal Drilling, Plan 1 V0	Miller Deppe 1, Original Drilling, Original Drilling - As Drilled V0	Holman B15-66HN, Original Drilling
inal Drilling, Plan 1 V0	Miller Deppe 11-13, Original Drilling, Original Drilling - As Drilled V0	Holman B15-66HN, Original Drillin
inal Drilling, Plan 1 V0	Miller Deppe 12-13, Original Drilling, Original Drilling - As Drilled V0	Holman PM B14-08, Original Drilli
inal Drilling, Plan 1 V0	Miller Deppe 22-13, Original Drilling, Original Drilling - As Drilled V0	KCB #27-14, Original Well, Origina
re #1 - As Drilled V0	Nakagawa PM B13-10, Wellbore #1, Wellbore #1 - As Drilled V0	KCB 17-14, Original Drilling, Origi
re #1 - As Drilled V0	Nakagawa PMB13-09, Original Drilling, Original Drilling - As Drilled V0	KCB 27-14, Original Drilling, Origi
ginal Drilling - As Drilled V0	Nakagawa PMB13-16, Original Drilling, Original Drilling - As Drilled V0	Seylor 02-14, Original Drilling, Orig
ginal Drilling - As Drilled V0	Cockroft B15-69-1HNM, Original Drilling, APD - Rev 0 V0	Trebor B14-03, Wellbore #1, Wellbo
ginal Drilling - As Drilled V0	Cockroft B15-69-1HNM, Original Drilling, Original Drilling - As Drilled V0	Trebor B14-04, Original Drilling, O
ginal Drilling - APD - Rev 0 V0	Holman 14-01, Original Drilling, Original Drilling - As Drilled V0	Trebor B14-05, Wellbore #1, Wellbo
ginal Drilling - As Drilled V0	Holman B15-65HNM, Original Drilling, Aaron Pre Drill V0	Trebor B14-06, Wellbore #1, Wellbo