

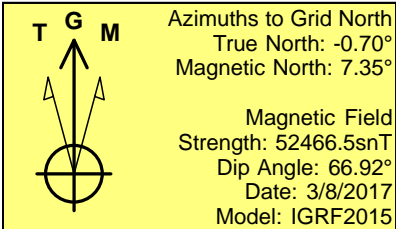
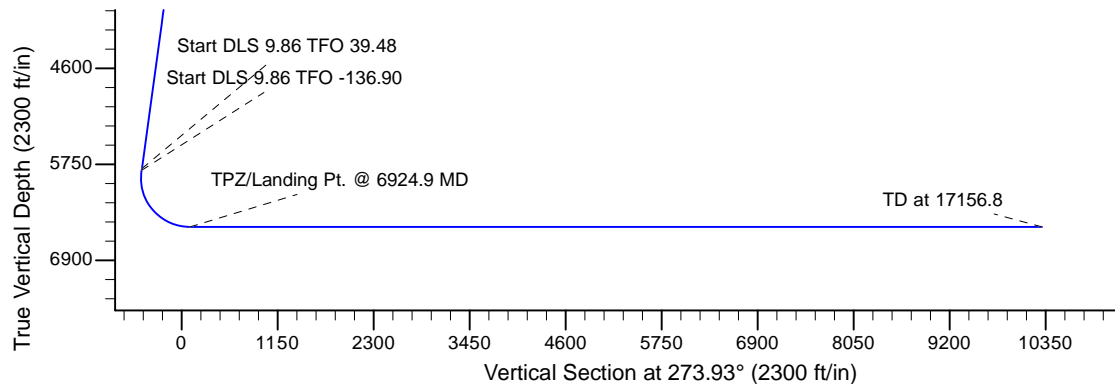
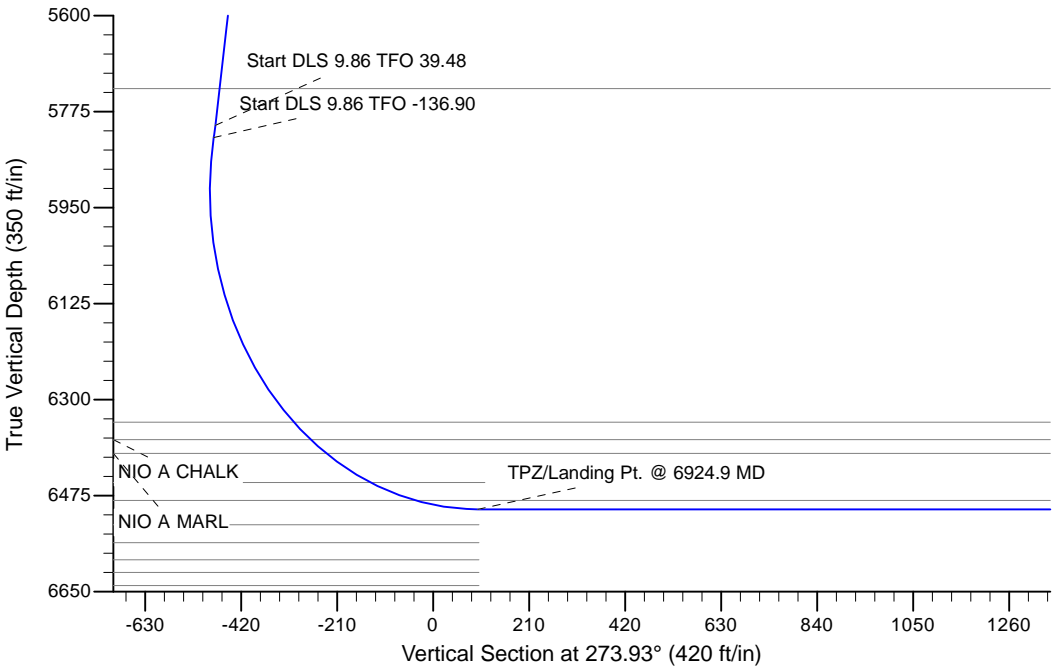
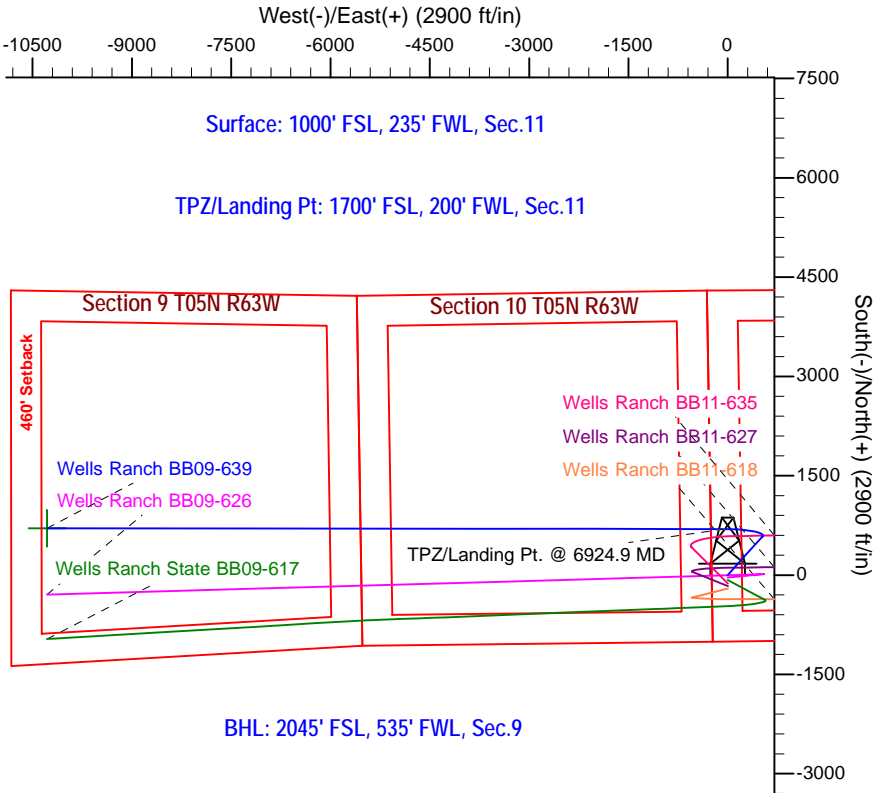
Project: Wells Ranch
Site: BB Section 11-T5N-R63W Weld County, CO
Well: Wells Ranch BB09-639
Wellbore: Original Drilling
Design: APD - Rev 0

Northern Region - DJ Basin

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2625.0	12.50	42.00	2620.1	50.5	45.4	2.00	42.00	-41.9	
4	5882.2	12.50	42.00	5800.0	574.4	517.2	0.00	0.00	-476.6	
5	5905.2	14.33	47.86	5822.5	578.1	521.0	9.86	39.48	-480.1	
6	6924.9	90.00	270.06	6500.0	695.0	-50.0	9.86	-136.90	97.5	
7	17156.8	90.00	270.07	6500.0	706.7	-10281.9	0.00	90.00	10306.2	Wells Ranch BB09-639 BHL 2045'FSL, 535'FWL



WELL DETAILS: Wells Ranch BB09-639				
0.0	13938.300434007	3302799.9294310	Ground Elevation: 4676.0 Latitude: 40.4093700	Longitude: -104.4126100
Plan: APD - Rev 0 (Wells Ranch BB09-639/Original Drilling)				
Created By: Shailey Jewell		Date: 9:14, March 08 2017		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region - DJ Basin

Wells Ranch

BB Section 11

Wells Ranch BB09-639

Original Drilling

APD - Rev 0

Anticollision Summary Report

08 March, 2017

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-639
Project:	Wells Ranch	TVD Reference:	WELL @ 4706.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4706.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-639	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference	APD - Rev 0		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,880.8 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.79 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	3/8/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,156.8	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 09						
70 Ranch 11-09 - Original Drilling - Original Drilling - As D						Out of range
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	15,747.1	6,573.3	1,645.4	1,267.4	4.353	CC
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	15,800.0	6,572.5	1,646.3	1,266.1	4.330	ES
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	15,900.0	6,571.0	1,652.5	1,269.2	4.311	SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D						Out of range
70 Ranch 41-09 - Original Drilling - Original Drilling - As D						Out of range
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	13,057.5	6,502.8	1,012.5	741.1	3.730	CC
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	13,100.0	6,501.8	1,013.4	740.9	3.719	ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,042.1	6,571.2	1,543.7	1,116.2	3.610	CC
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,100.0	6,569.8	1,544.8	1,114.9	3.593	ES
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,156.8	6,568.5	1,548.0	1,116.3	3.586	SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	14,408.4	6,536.6	1,578.6	1,254.5	4.871	CC
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	14,500.0	6,535.7	1,581.2	1,253.5	4.825	ES
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	14,600.0	6,534.8	1,590.1	1,259.7	4.812	SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	13,104.2	6,534.2	1,470.4	1,197.3	5.384	CC
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	13,200.0	6,534.7	1,473.5	1,196.6	5.321	ES
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	13,300.0	6,535.3	1,483.4	1,203.6	5.303	SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	13,071.3	6,500.9	202.0	-69.8	0.743	Level 1, CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	14,394.9	6,515.8	294.2	-29.6	0.909	Level 1, CC
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	14,400.0	6,515.8	294.2	-29.8	0.908	Level 1, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	15,696.9	6,543.1	173.3	-201.3	0.463	Level 1, CC
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	15,700.0	6,543.0	173.3	-201.5	0.462	Level 1, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	14,650.6	6,524.4	1,267.8	934.0	3.798	CC
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	14,700.0	6,524.1	1,268.8	933.7	3.786	ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	12,980.0	6,643.7	207.0	-64.8	0.762	Level 1, CC
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	13,000.0	6,656.9	207.4	-65.9	0.759	Level 1, ES, SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	13,562.8	10,821.0	220.4	-198.3	0.526	Level 1, CC
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	13,600.0	10,821.0	223.5	-213.8	0.511	Level 1, ES, SF
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,054.2	6,528.9	221.7	-206.0	0.518	Level 1, CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,156.8	6,451.0	1,845.3	1,418.5	4.323	CC, ES, SF
National Hog Farm 21-09 - Original Drilling - Original Drilling						Out of range
National Hog Farm 24-09 - Original Drilling - Original Drilling	15,567.5	6,583.5	1,203.1	833.4	3.254	CC
National Hog Farm 24-09 - Original Drilling - Original Drilling	15,600.0	6,584.2	1,203.6	832.9	3.247	ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-639
Project:	Wells Ranch	TVD Reference:	WELL @ 4706.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4706.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-639	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Produccction
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 10						
Wells Ranch 10A - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10B - Original Drilling - Original Drilling - As	10,947.9	6,476.1	569.4	380.5	3.015	CC, ES, SF
Wells Ranch 10C - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10F - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10H - Original Drilling - Original Drilling - As	12,231.9	6,481.7	474.7	235.7	1.987	CC, ES, SF
Wells Ranch 10J - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10K - Original Drilling - Original Drilling - As	10,888.8	6,498.4	739.6	553.0	3.963	CC
Wells Ranch 10K - Original Drilling - Original Drilling - As	10,900.0	6,498.1	739.7	552.5	3.952	ES
Wells Ranch 10K - Original Drilling - Original Drilling - As	11,000.0	6,495.0	747.9	557.6	3.928	SF
Wells Ranch 11-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 12-10 - Original Drilling - Original Drilling - A	11,706.6	6,517.8	1,322.3	1,103.8	6.050	CC
Wells Ranch 12-10 - Original Drilling - Original Drilling - A	11,800.0	6,519.0	1,325.6	1,103.3	5.962	ES
Wells Ranch 12-10 - Original Drilling - Original Drilling - A	11,900.0	6,520.2	1,336.4	1,111.1	5.932	SF
Wells Ranch 13-10 - Original Drilling - Original Drilling - A	11,844.4	6,490.8	49.2	-175.2	0.219	Level 1, CC, ES, SF
Wells Ranch 14-10 - Original Drilling - Original Drilling - A	11,830.9	6,459.2	1,038.4	815.1	4.650	CC, ES
Wells Ranch 14-10 - Original Drilling - Original Drilling - A	11,900.0	6,459.2	1,040.7	815.8	4.626	SF
Wells Ranch 21-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 22-10 - Original Drilling - Original Drilling - A	10,412.7	6,483.1	1,621.4	1,453.3	9.644	CC
Wells Ranch 22-10 - Original Drilling - Original Drilling - A	10,500.0	6,483.5	1,623.7	1,452.0	9.453	ES
Wells Ranch 22-10 - Original Drilling - Original Drilling - A	10,800.0	6,484.8	1,667.0	1,486.2	9.220	SF
Wells Ranch 23-10 - Original Drilling - Original Drilling - A	10,513.0	6,474.1	116.1	-55.9	0.675	Level 1, CC, ES, SF
Wells Ranch 24-10 - Original Drilling - Original Drilling - A	10,295.9	6,457.4	1,125.8	962.1	6.878	CC
Wells Ranch 24-10 - Original Drilling - Original Drilling - A	10,300.0	6,457.4	1,125.8	962.0	6.873	ES
Wells Ranch 24-10 - Original Drilling - Original Drilling - A	10,400.0	6,459.3	1,130.6	964.3	6.801	SF
Wells Ranch 31-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 32-10 - Original Drilling - Original Drilling - A	8,868.3	6,489.6	1,580.3	1,466.5	13.881	CC
Wells Ranch 32-10 - Original Drilling - Original Drilling - A	8,900.0	6,489.3	1,580.7	1,465.5	13.722	ES
Wells Ranch 32-10 - Original Drilling - Original Drilling - A	9,400.0	6,484.3	1,667.4	1,536.2	12.716	SF
Wells Ranch 33-10 - Original Drilling - Original Drilling - A	9,104.5	6,463.6	212.1	94.4	1.802	CC, ES, SF
Wells Ranch 34-10 - Original Drilling - Original Drilling - A	8,830.8	6,478.4	879.7	769.2	7.960	CC, ES
Wells Ranch 34-10 - Original Drilling - Original Drilling - A	8,900.0	6,477.5	882.4	770.2	7.863	SF
Wells Ranch 41-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	7,907.8	6,473.1	1,639.3	1,566.2	22.415	CC
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	8,000.0	6,473.1	1,641.9	1,565.1	21.393	ES
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	8,600.0	6,473.1	1,779.4	1,683.6	18.578	SF
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	7,793.0	6,458.3	259.3	190.2	3.754	CC
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	7,800.0	6,458.3	259.4	189.9	3.733	ES, SF
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	7,808.8	6,457.4	959.2	889.5	13.764	CC, ES
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	8,000.0	6,458.8	978.1	903.9	13.183	SF

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-639
Project:	Wells Ranch	TVD Reference:	WELL @ 4706.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4706.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-639	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 11						
Wells 12-11 - Original Drilling - Original Drilling - As Drille	6,545.8	6,346.4	1,738.0	1,537.9	8.683	CC, ES
Wells 12-11 - Original Drilling - Original Drilling - As Drille	6,800.0	6,450.8	1,764.5	1,559.3	8.597	SF
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	6,500.0	6,299.6	327.8	289.6	8.573	SF
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	6,514.8	6,309.1	327.6	289.4	8.588	CC, ES
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	482.0	436.0	1,000.2	997.9	440.188	CC
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	1,900.0	1,848.0	1,001.3	991.2	98.745	ES
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	7,700.0	6,471.1	1,781.2	1,664.3	15.241	SF
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	6,078.4	5,971.9	1,320.5	1,285.0	37.189	CC, ES
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	6,300.0	6,169.2	1,359.5	1,322.3	36.523	SF
Wells Ranch 24-11 - Original Drilling - Original Drilling - A	5,939.9	5,805.3	1,477.7	1,436.4	35.764	CC, ES
Wells Ranch 24-11 - Original Drilling - Original Drilling - A	6,100.0	5,964.4	1,494.2	1,451.8	35.253	SF
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	2,000.0	2,001.0	40.1	24.3	2.545	CC, ES
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	17,156.8	17,099.6	1,001.1	398.8	1.662	SF
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,000.0	2,001.0	204.0	188.3	12.954	CC, ES
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,400.0	2,397.7	225.3	206.3	11.868	SF
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	2,000.0	2,001.0	167.6	151.8	10.641	CC, ES
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	7,200.0	6,576.1	603.4	538.3	9.270	SF
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	7,057.8	6,784.2	126.7	62.4	1.971	CC
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	7,100.0	6,746.0	127.9	62.4	1.952	ES, SF
Wells Ranch State BB09-617 - Original Drilling - APD - R	2,000.0	2,000.0	76.5	60.8	4.860	CC, ES
Wells Ranch State BB09-617 - Original Drilling - APD - R	17,156.8	17,122.6	1,670.4	1,070.5	2.784	SF
Wells Ranch USX BB11-01 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-02 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-03 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-04 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-06 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-07 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-08 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-09 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-10 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-15 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-16 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-17 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-23 - Original Drilling - Original D						Out of range
BB Section 12						
Wells Ranch 12D - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 33-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 34-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 43-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 44-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch BB12-01 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-02 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-03 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-04 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-05 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-06 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-07 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-08 - Original Drilling - Original Drilling						Out of range