

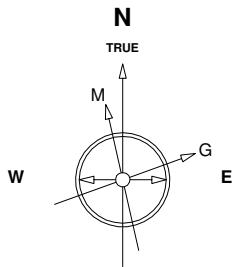
Great Western Operating Company, LLC

Location Colorado
Field Wattenburg
Installation Raindance

Slot Slot W-07 - Raindance FD 20-242HN
Well Raindance FD 20-242HN
Wellbore Raindance FD 20-242HN (PWB)

Created by admin
Date plotted 17-Nov-2016

Plot reference is Raindance FD 20-242HN (PWB).
Ref wellpath is Raindance FD 20-242HN (PWP#1).
Coordinates are in Feet reference Slot W-07 - Raindance FD 20-242HN.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Planned Datum #1
Rig Datum to Mean Sea Level: 4809.00 ft.
Plot North is aligned to TRUE North.

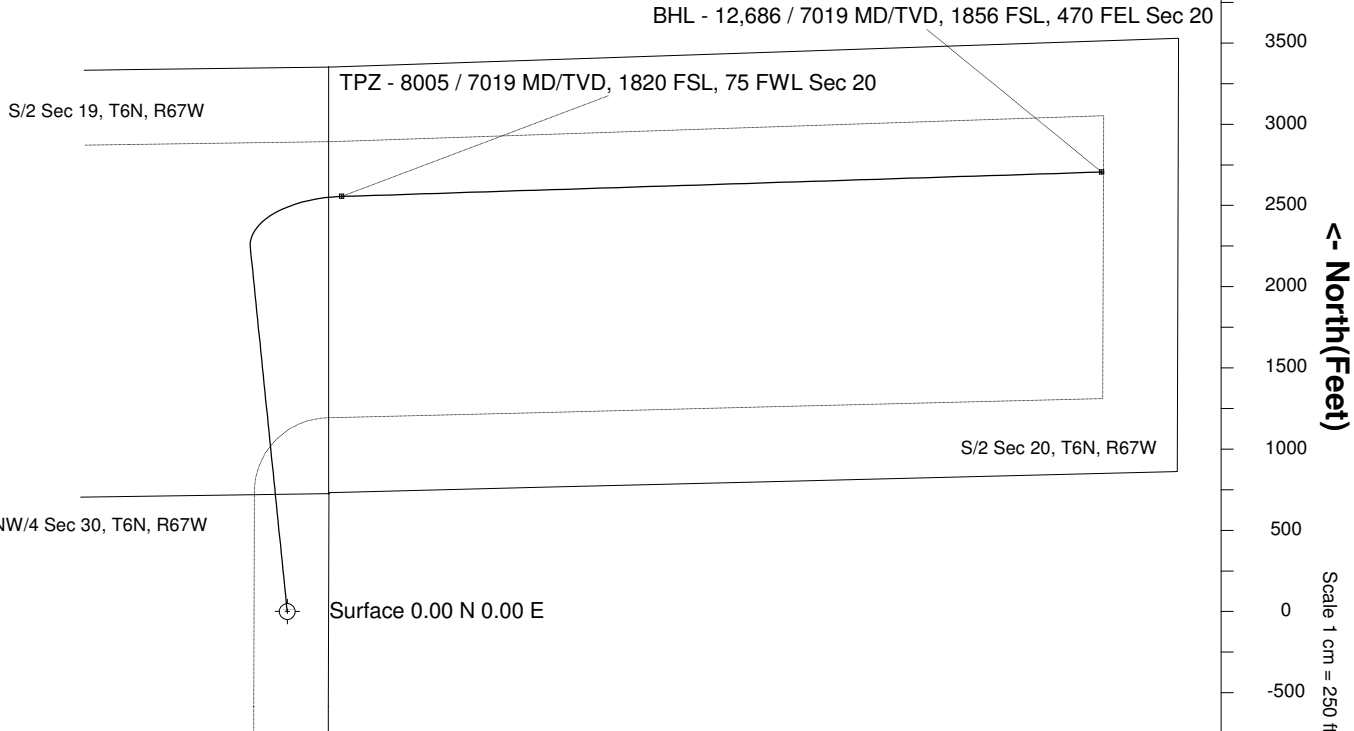
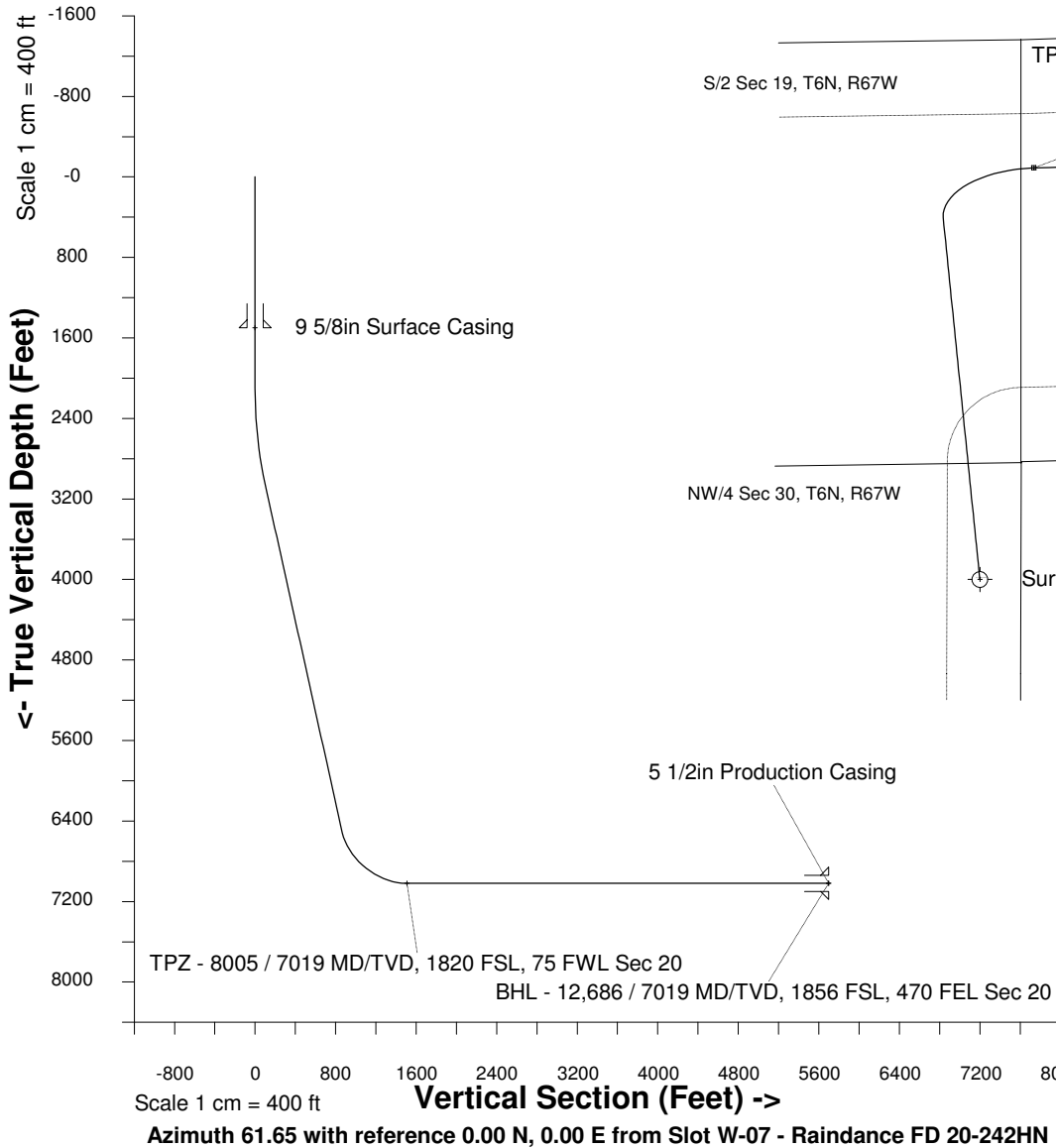


14-Nov-2016
IGRF Model [1900.0-2020.0] Dip: -29.88 deg Field: 32206.0 nT
Lat: S0 0 0.0000 Long: E3 0 0.0000 Elev: 4789.00 ft
Magnetic North is 4.17 deg West of TRUE North
To correct azimuth from Magnetic to TRUE subtract 4.17 deg

Scale 1 cm = 250 ft

East (Feet) ->

-1000 -500 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500



WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	0.00	0.00	0.00	0.00	S 0.00	W 0.00		0.00
KOP	2091.00	0.00	354.21	2091.00	S 0.00	W 0.00	0.00	0.00
End of Build	3090.84	30.00	354.21	3045.79	N 254.49	W 25.81	9.84	98.13
End of Hold	7085.44	30.00	354.21	6505.38	N 2241.32	W 227.28	0.00	864.28
Target TPZ - ...Sec 20	8005.18	90.00	88.16	7019.00	N 2555.32	E 335.55	32.81	1508.71
T.D. & Target BHL... 20	12686.34	90.00	88.16	7019.00	N 2705.56	E 5014.29	0.00	5697.65

SYSDRILL
Closest Approach Summary Report
Wellbore: Raindance FD 20-242HN (PWB)
Wellpath: Raindance FD 20-242HN (PWP#1)

Ellipse separations are reported ONLY if BOTH wells have uncertainty data
Only Depth and Magnetic Reference Field error terms are correlated across tie points
Scan limit is calculated on CENTRE to CENTRE distance

Summary data uses Closest Approach clearance calculation for all minima
Hole size/Casings ARE included
Hole size/Casings are NOT subtracted from Centre-Centre distance
Confidence limit of 95.00% / 2.80 SD.

Wellbore		
Name	Raindance FD 20-242HN (PWB)	
Created	15-Nov-2016	
Last Revised	15-Nov-2016	

Well		
Name	Raindance FD 20-242HN	
Government ID		
Last Revised	15-Nov-2016	

Slot		
Name	Slot W-07 - Raindance FD 20-242HN	
Grid Northing	1412020.605	
Grid Easting	3159331.877	
Latitude	N40 27 46.7496	
Longitude	W104 55 38.5608	
North	25561841.270	
East	-18483141.990	

Installation		
Name	Raindance	
Easting	41136929.757	
Northing	12284170.646	
Map Name	<unknown>	
North Alignment	True	

Field		
Name	Wattenburg	
Easting	41136929.757	
Northing	12284170.646	
Map Name	<unknown>	
North Alignment	Grid	

Clearance Summary

Offset WellName	Offset Wellbore	Offset Slot	Offset Structure	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
Raindance FD 20-242HNC	Raindance FD 20-242HNC (PWB)	Slot W-06 - Raindance FD 20-242HNC	Raindance	9.910	1732.000	8070.870	6.530	1500.000	2.930	1500.000
Raindance FD 20-282HNC	Raindance FD 20-282HNC (PWB)	Slot W-08 - Raindance FD 20-282HNC	Raindance	9.910	2091.000	7021.000	5.960	2091.000	2.500	2099.740
Raindance FC 23-289HNC	Raindance FC 23-289HNC (PWB)	Slot E-07 - Raindance FC 23-289HNC	Raindance	17.550	2091.000	7380.940	13.590	2100.000	4.420	2116.140
Raindance FD 20-282HC	Raindance FD 20-282HC (PWB)	Slot W-09 - Raindance FD 20-282HC	Raindance	19.500	2091.000	7135.830	15.550	2091.000	4.400	12664.040
Raindance FC 23-272HC	Raindance FC 23-272HC (PWB)	Slot E-06 - Raindance FC 23-272HC	Raindance	19.700	1970.000	8169.940	15.940	1970.000	2.830	8136.480
Raindance FC 23-289HN	Raindance FC 23-289HN (PWB)	Slot E-08 - Raindance FC 23-289HN	Raindance	19.770	2091.000	7526.430	15.820	2100.000	4.990	2116.140
Raindance FD 20-239HC	Raindance FD 20-239HC (PWB)	Slot W-05 - Raindance FD 20-239HC	Raindance	20.820	1750.000	7234.250	17.420	1750.000	3.630	12686.340
Raindance FC 23-312HN	Raindance FC 23-312HN (PWB)	Slot E-09 - Raindance FC 23-312HN	Raindance	25.890	2091.000	7294.130	21.940	2091.000	6.530	2116.140
Raindance FC 23-249HN	Raindance FC 23-249HN (PWB)	Slot E-05 - Raindance FC 23-249HN	Raindance	26.800	1635.000	7904.800	23.420	1500.000	6.250	8070.870
Raindance FD 20-319HNC	Raindance FD 20-319HNC (PWB)	Slot W-10 - Raindance FD 20-319HNC	Raindance	29.400	2091.000	6791.340	25.450	2091.000	7.400	2116.140
Raindance FD 20-239HN	Raindance FD 20-239HN (PWB)	Slot W-04 - Raindance FD 20-239HN	Raindance	30.420	1490.000	7219.750	27.060	1492.780	3.800	12686.340
Raindance FC 23-312HC	Raindance FC 23-312HC (PWB)	Slot E-10 - Raindance FC 23-312HC	Raindance	33.850	2091.000	7414.700	29.900	2091.000	8.520	2116.140
Raindance FC 23-232HN	Raindance FC 23-232HN (PWB)	Slot E-04 - Raindance FC 23-232HN	Raindance	34.960	1516.000	8204.070	31.580	1500.000	7.330	8398.950
Raindance FD 20-319HN	Raindance FD 20-319HN (PWB)	Slot W-11 - Raindance FD 20-319HN	Raindance	39.300	2091.000	6910.600	35.350	2091.000	8.240	12664.040
Raindance FD 20-202HN	Raindance FD 20-202HN (PWB)	Slot W-03 - Raindance FD 20-202HN	Raindance	40.320	959.000	7283.460	37.810	959.000	7.530	12686.340
Raindance FC 23-329HNC	Raindance FC 23-329HNC (PWB)	Slot E-11 - Raindance FC 23-329HNC	Raindance	43.390	2091.000	7000.090	39.440	2091.000	10.910	2132.550
Raindance FC 23-232HNC	Raindance FC 23-232HNC (PWB)	Slot E-03 - Raindance FC 23-232HNC	Raindance	44.000	1248.000	7916.850	41.020	1248.000	13.830	8480.970
Raindance FD 20-322HN	Raindance FD 20-322HN (PWB)	Slot W-12 - Raindance FD 20-322HN	Raindance	50.120	2091.000	6742.130	46.170	2091.000	11.380	12647.640
Raindance FD 20-202HNC	Raindance FD 20-202HNC (PWB)	Slot W-02 - Raindance FD 20-202HNC	Raindance	50.220	600.000	7283.460	48.290	600.000	9.000	12686.340
Raindance FC 23-352HN	Raindance FC 23-352HN (PWB)	Slot E-12 - Raindance FC 23-352HN	Raindance	52.510	2091.000	7123.800	48.560	2091.000	13.180	2132.550
Raindance FC 23-209HC	Raindance FC 23-209HC (PWB)	Slot E-02 - Raindance FC 23-209HC	Raindance	53.340	985.000	8419.550	50.790	985.000	13.920	8759.840
Raindance FD 20-359HC	Raindance FD 20-359HC (PWB)	Slot W-13 - Raindance FD 20-359HC	Raindance	59.820	2091.000	6842.780	55.870	2091.000	12.460	12647.640
Raindance FC 23-369HN	Raindance FC 23-369HN (PWB)	Slot W-11 - Raindance FC 23-369HN	Raindance	61.870	2091.000	6922.690	57.920	2091.000	15.510	2132.550
Raindance FC 23-209HN	Raindance FC 23-209HN (PWB)	Slot E-01 - Raindance FC 23-209HN	Raindance	62.350	645.000	8378.210	60.340	645.000	18.970	8891.080
Raindance FD 20-362HNC	Raindance FD 20-362HNC (PWB)	Slot W-14 - Raindance FD 20-362HNC	Raindance	69.620	2091.000	6508.410	65.670	2091.000	14.930	12647.640
Raindance FC 23-369HC	Raindance FC 23-369HC (PWB)	Slot E-14 - Raindance FC 23-369HC	Raindance	71.380	2091.000	7308.510	67.660	2091.000	18.930	2148.950
Raindance FD 20-362HN	Raindance FD 20-362HN (PWB)	Slot W-15 - Raindance FC 20-362HN	Raindance	79.520	2091.000	6643.700	75.570	2091.000	15.090	12647.640
Raindance FC 23-392HNC	Raindance FC 23-392HNC (PWB)	Slot E-15 - Raindance FC 23-392HNC	Raindance	80.850	2091.000	6627.300	76.900	2091.000	20.200	2148.950
Raindance FD 20-399HC	Raindance FD 20-399HC (PWB)	Slot W-16 - Raindance FC 20-399HC	Raindance	89.420	2091.000	2091.000	85.470	2091.000	19.080	12647.640
Raindance FC 26-009HN	Raindance FC 26-009HN (PWB)	Slot E-16 - Raindance FC 26-009HN	Raindance	91.570	2091.000	6758.530	87.620	2091.000	22.840	2165.350
GWOGCO - H-Y 20-23	GWOGCO - H-Y 20-23 (AWB)	ZZ-GWOGCO - H-Y 20-23	Raindance	91.730	9886.950	9886.950	56.680	9908.140	2.310	9940.940
Raindance FC 26-169HN	Raindance FC 26-169HN (PWB)	Slot W-17 - Raindance FC 26-169HN	Raindance	99.690	2091.000	2091.000	95.740	2091.000	24.810	2181.760
Raindance FC 26-032HN	Raindance FC 26-032HN (PWB)	Slot E-17 - Raindance FC 26-032HN	Raindance	101.270	2091.000	6601.580	97.320	2091.000	25.220	2165.350
Raindance FC 26-169HNC	Raindance FC 26-169HNC (PWB)	Slot W-18 - Raindance FC 26-169HNC	Raindance	109.600	2091.000	2091.000	105.650	2091.000	27.220	2181.760
Raindance FC 26-032HC	Raindance FC 26-032HC (PWB)	Slot E-18 - Raindance FC 26-032HC	Raindance	111.000	2091.000	6719.240	107.050	2091.000	27.590	2181.760
Raindance FC 26-192HC	Raindance FC 26-192HC (PWB)	Slot W-19 - Raindance FC 26-192HC	Raindance	119.500	2091.000	2091.000	115.550	2091.000	29.640	2198.160
Raindance FC 26-049HN	Raindance FC 26-049HN (PWB)	Slot E-19 - Raindance FC 26-049HN	Raindance	120.560	2091.000	6434.240	116.610	2091.000	29.930	2181.760
Raindance FC 26-209HN	Raindance FC 26-209HN (PWB)	Slot W-20 - Raindance FC 26-209HN	Raindance	129.400	2091.000	2091.000	125.450	2091.000	32.040	2198.160
Raindance FC 26-072HNC	Raindance FC 26-072HNC (PWB)	Slot E-20 - Raindance FC 26-072HNC	Raindance	130.340	2091.000	2091.000	126.390	2091.000	32.300	2198.160
Raindance FC 26-232HN	Raindance FC 26-232HN (PWB)	Slot W-21 - Raindance FC 26-232HN	Raindance	139.000	2091.000	2091.000	135.050	2091.000	34.360	2214.570
Raindance FC 26-089HC	Raindance FC 26-089HC (PWB)	Slot E-21 - Raindance FC 26-089HC	Raindance	141.190	2091.000	8628.610	137.230	2091.000	34.930	2214.570
Raindance FC 26-232HNC	Raindance FC 26-232HNC (PWB)	Slot W-22 - Raindance FC 26-232HNC	Raindance	148.900	2091.000	2091.000	144.950	2091.000	36.740	2214.570
Raindance FC 26-089HN	Raindance FC 26-089HN (PWB)	Slot E-22 - Raindance FC 26-089HN	Raindance	150.920	2091.000	8500.240	146.970	2091.000	37.270	2214.570
Raindance FC 26-249HC	Raindance FC 26-249HC (PWB)	Slot W-23 - Raindance FC 26-249HC	Raindance	159.820	2091.000	2091.000	155.870	2091.000	39.360	2230.970
Raindance FC 26-112HN	Raindance FC 26-112HN (PWB)	Slot E-23 - Raindance FC 26-112HN	Raindance	160.580	2091.000	8702.800	156.630	2091.000	39.600	2230.970
Raindance FC 26-272HN	Raindance FC 26-272HN (PWB)	Slot W-24 - Raindance FC 26-272HN	Raindance	169.720	2052.000	2052.000	165.830	2052.000	42.740	2148.950
Raindance FC 26-112HNC	Raindance FC 26-112HNC (PWB)	Slot E-24 - Raindance FC 26-112HNC	Raindance	170.730	2091.000	8700.000	166.380	2091.000	41.930	2230.970
Raindance FC 26-289HN	Raindance FC 26-289HN (PWB)	Slot W-25 - Raindance FC 26-289HN	Raindance	179.310	1679.000	1679.000	175.940	1500.000	52.260	1870.080
Raindance FC 26-129HC	Raindance FC 26-129HC (PWB)	Slot E-25 - Raindance FC 26-129HC	Raindance	180.150	2091.000	8471.110	176.200	2091.000	44.280	2230.970
Raindance FC 26-289HNC	Raindance FC 26-289HNC (PWB)	Slot W-26 - Raindance FC 26-289HNC	Raindance	189.220	1319.000	1319.000	186.130	1319.000	58.310	1500.000
Raindance FC 26-152HN	Raindance FC 26-152HN (PWB)	Slot E-26 - Raindance FC 26-152HN	Raindance	189.990	2091.000	8510.090	186.040	2091.000	46.620	2247.380
Raindance FC 26-312HC	Raindance FC 26-312HC (PWB)	Slot W-27 - Raindance FC 26-312HC	Raindance	199.120	1184.000	1184.000	196.250	1184.000	65.280	1410.760
Raindance FC 26-352HNC	Raindance FC 26-352HNC (PWB)	Slot E-27 - Raindance FC 26-352HNC	Raindance	200.640	900.000	900.000	198.230	900.000	76.610	1148.290
Raindance FC 26-312HN	Raindance FC 26-312HN (PWB)	Slot W-28 - Raindance FC 26-312HN	Raindance	210.040	838.000	838.000	207.720	838.000	82.610	1148.290
Raindance FC 26-369HC	Raindance FC 26-369HC (PWB)	Slot E-28 - Raindance FC 26-369HC	Raindance	210.480	800.000	800.000	208.230	800.000	84.840	1082.680

Offset WellName	Offset Wellbore	Offset Slot	Offset Structure	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
Raindance FC 26-329HN	Raindance FC 26-329HN (PWB)	Slot W-29 - Raindance FC 26-329HN	Raindance	219.630	600.000	600.000	217.700	600.000	99.330	967.850
Raindance FC 26-369HN	Raindance FC 26-369HN (PWB)	Slot E-29 - Raindance FC 26-369HN	Raindance	220.330	700.000	700.000	218.240	700.000	93.910	1033.460
Raindance FC 26-392HN	Raindance FC 26-392HN (PWB)	Slot W-30 - Raindance FC 26-392HN	Raindance	229.540	600.000	600.000	227.610	600.000	103.380	967.850
Raindance FC 26-392HNX	Raindance FC 26-392HNX (PWB)	Slot E-30 - Raindance FC 26-392HNX	Raindance	230.180	600.000	600.000	228.250	600.000	103.910	967.850
GWOGCO - H-Y 20-23-18	GWOGCO - H-Y 20-23-18 (AWB)	ZZ-GWOGCO - H-Y 20-23-18	Raindance	504.280	10531.500	10531.500	465.230	10500.000	11.470	10334.650
GWOGCO - H-Y 20-53	GWOGCO - H-Y 20-53 (AWB)	ZZ-GWOGCO - H-Y 20-53	Raindance	510.850	9264.010	9264.010	484.290	9251.970	17.830	9000.000
GWOGCO - H-Y 20-54	GWOGCO - H-Y 20-54 (AWB)	ZZ-GWOGCO - H-Y 20-54	Raindance	526.370	11774.430	11774.430	467.420	11745.410	8.400	11630.580
GWOGCO - Raindance FD 19-21HN	GWOGCO - Raindance FD 19-21HN (AWB)	ZZ-GWOGCO - Raindance FD 19-21HN	Raindance	686.220	7316.270	7316.270	611.820	7332.680	8.980	7414.700
GWOGCO - H-Y 20-34	GWOGCO - H-Y 20-34 (AWB)	ZZ-GWOGCO - H-Y 20-34	Raindance	1169.640	11151.230	11151.230	1122.030	11138.450	23.410	10875.980
GWOGCO - H-Y 29-21-4	GWOGCO - H-Y 29-21-4 (AWB)	ZZ-GWOGCO - H-Y 29-21-4	Raindance	1789.270	4708.010	9186.350	1772.560	4708.010	72.900	9153.540
GWOGCO - H-Y 29-21-3	GWOGCO - H-Y 29-21-3 (AWB)	ZZ-GWOGCO - H-Y 29-21-3	Raindance	1827.060	10503.000	10503.000	1790.200	10498.690	48.610	10236.220
GWOGCO - H-Y 29-31-2	GWOGCO - H-Y 29-31-2 (AWB)	ZZ-GWOGCO - H-Y 29-31-2	Raindance	1834.740	11837.740	11837.740	1776.140	11827.430	31.010	11646.980
GWOGCO - H-Y 29-52	GWOGCO - H-Y 29-52 (AWB)	ZZ-GWOGCO - H-Y 29-52	Raindance	1887.890	2742.410	9095.030	1880.800	2755.910	126.550	9268.370
Extraction - Kodak 03	Extraction - Kodak 03 (AWB)	ZZ-Extraction - Kodak 03	Raindance	1892.190	6668.690	10012.310	1809.410	8382.550	17.690	8464.570
GWOGCO - H-Y 29-21	GWOGCO - H-Y 29-21 (AWB)	ZZ-GWOGCO - H-Y 29-21	Raindance	2177.500	25.000	9763.440				
GWOGCO - H-Y 29-31-8	GWOGCO - H-Y 29-31-8 (AWB)	ZZ-GWOGCO - H-Y 29-31-8	Raindance	2183.560	82.020	10417.300	2182.470	82.020	88.070	10859.580
GWOGCO - H-Y 29-31	GWOGCO - H-Y 29-31 (AWB)	ZZ-GWOGCO - H-Y 29-31	Raindance	2197.520	25.000	11140.150	2196.520	25.000	53.330	11122.050
GWOGCO - H-Y 29-51	GWOGCO - H-Y 29-51 (AWB)	ZZ-GWOGCO - H-Y 29-51	Raindance	2199.650	25.000	11737.300	2198.610	65.620	56.410	12057.090
Extraction - Kodak 06	Extraction - Kodak 06 (AWB)	ZZ-Extraction - Kodak 06	Raindance	2612.500	6135.170	12123.290	2525.220	6184.380	26.680	8448.160
KMG - ONYX 13-29	KMG - ONYX 13-29 (AWB)	ZZ-KMG - ONYX 13-29	Raindance	2727.720	2091.000	8366.140	2722.890	2091.000	224.860	11450.130
Walter - THAYER 1-30	Walter - THAYER 1-30 (AWB)	ZZ-Walter - THAYER 1-30	Raindance	2831.570	3268.860	3268.860	2822.760	3330.050	142.350	7135.830
Extraction - Kodak 09	Extraction - Kodak 09 (AWB)	ZZ-Extraction - Kodak 09	Raindance	2954.560	5921.920	8277.590	2864.840	5971.130	30.670	8382.550
Extraction - Kodak 10	Extraction - Kodak 10 (AWB)	ZZ-Extraction - Kodak 10	Raindance	3561.030	5585.080	8301.280	3470.110	5626.640	36.520	6561.680
Walter - THAYER 2-30	Walter - THAYER 2-30 (AWB)	ZZ-Walter - THAYER 2-30	Raindance	3705.480	2091.000	2091.000	3699.830	2100.000	281.330	7200.000
Extraction - Kodak 13	Extraction - Kodak 13 (AWB)	ZZ-Extraction - Kodak 13	Raindance	3828.410	5405.630	10434.010	3737.000	5462.600	39.020	6463.250
Extraction - RAINDANCE 7	Extraction - RAINDANCE 7 (AWB)	ZZ-Extraction - RAINDANCE 7	Raindance	4259.510	0.000	9227.410	4257.920	1213.910	75.680	12686.340
Extraction - RAINDANCE 8	Extraction - RAINDANCE 8 (PWB)	ZZ-Extraction - RAINDANCE 8	Raindance	4264.390	2078.000	2078.000	4260.330	2083.330	78.010	12686.340
Extraction - RAINDANCE 1-1-32	Extraction - RAINDANCE 1-1-32 (PWB)	ZZ-Extraction - RAINDANCE 1-1-32	Raindance	4267.150	1826.000	1826.000	4263.490	1837.270	252.170	12686.340
Extraction - RAINDANCE 9	Extraction - RAINDANCE 9 (PWB)	ZZ-Extraction - RAINDANCE 9	Raindance	4273.450	2091.000	2091.000	4269.360	2091.000	79.710	12686.340
Extraction - RAINDANCE 2	Extraction - RAINDANCE 2 (PWB)	ZZ-Extraction - RAINDANCE 2	Raindance	4274.930	1828.000	1828.000	4271.270	1837.270	81.910	12686.340
Extraction - RAINDANCE 3	Extraction - RAINDANCE 3 (PWB)	ZZ-Extraction - RAINDANCE 3	Raindance	4279.220	1509.190	1509.190	4275.710	1500.000	84.130	12686.340
Extraction - RAINDANCE 4	Extraction - RAINDANCE 4 (PWB)	ZZ-Extraction - RAINDANCE 4	Raindance	4283.460	1828.000	1828.000	4279.790	1837.270	85.140	12686.340
Extraction - RAINDANCE 5	Extraction - RAINDANCE 5 (PWB)	ZZ-Extraction - RAINDANCE 5	Raindance	4287.740	1828.000	1828.000	4284.070	1837.270	88.530	12686.340
Extraction - RAINDANCE 6	Extraction - RAINDANCE 6 (PWB)	ZZ-Extraction - RAINDANCE 6	Raindance	4295.840	787.400	787.400	4293.470	787.400	90.630	12686.340
UNKNOWN - KENNETH THAYER 1	UNKNOWN - KENNETH THAYER 1 (AWB)	ZZ-UNKNOWN - KENNETH THAYER 1	Raindance	5594.780	2091.000	2091.000	5588.910	2100.000	354.130	7200.000
UNI OIL - MACLOUGHAN 25-1	UNI OIL - MACLOUGHAN 25-1 (AWB)	ZZ-UNI OIL - MACLOUGHAN 25-1	Raindance	8230.570	2091.000	2091.000	8224.930	2100.000	352.050	7400.000
Ranchers - Retta J 1	Ranchers - Retta J 1 (AWB)	ZZ-Ranchers - Retta J 1	Raindance	10132.410	0.000	0.000	10131.410	0.000	558.340	11253.280

All data is in Feet unless otherwise stated

Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 4800.0ft above Mean Sea Level)

Vertical Section is from 0.00N 0.00E on azimuth 61.650 degrees

Prepared by Great Western Operating Company

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