

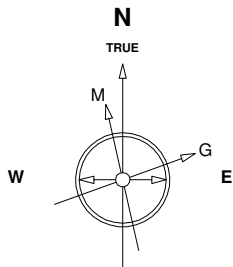
# Great Western Operating Company, LLC

**Location** Colorado  
**Field** Wattenburg  
**Installation** Raindance

**Slot** Slot W-12 - Raindance FD 20-322HN  
**Well** Raindance FD 20-322HN  
**Wellbore** Raindance FD 20-322HN (PWB)

Created by admin  
Date plotted 17-Nov-2016

Plot reference is Raindance FD 20-322HN (PWB).  
Ref wellpath is Raindance FD 20-322HN (PWP#1).  
Coordinates are in Feet reference Slot W-12 - Raindance FD 20-322HN.  
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.

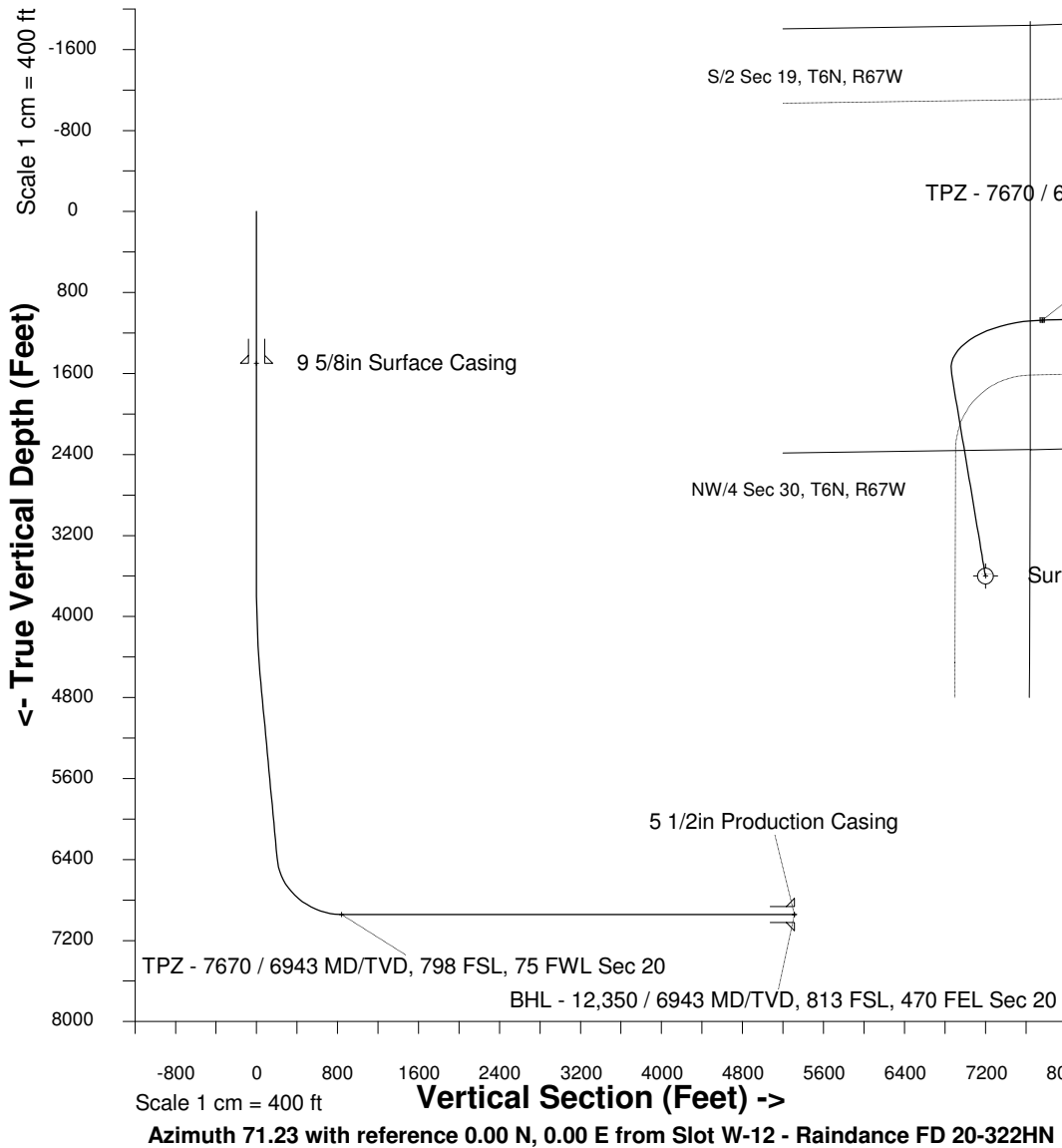


14-Nov-2016  
IGRF Model [1900.0-2020.0] Dip: -29.88 deg Field: 32206.0 nT  
Lat: S0 0 0.0000 Long: E3 0 0.0000 Elev: 4789.00 ft  
Magnetic North is 4.17 deg West of TRUE North  
To correct azimuth from Magnetic to TRUE subtract 4.17 deg

Scale 1 cm = 250 ft

East (Feet) ->

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



<- North(Feet)

Scale 1 cm = 250 ft

## 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	3687.00	0.00	350.51	3687.00	S 0.00	W 0.00	0.00	0.00
End of Build	4686.94	30.00	350.51	4641.88	N 252.34	W 42.19	9.84	41.26
End of Hold	6730.23	30.00	350.51	6411.45	N 1259.94	W 210.67	0.00	206.00
Target TPZ - ...Sec 20	7669.62	90.00	88.41	6943.00	N 1579.68	E 352.26	32.81	841.88
T.D. & Target BHL... 20	12349.82	90.00	88.41	6943.00	N 1709.88	E 5030.64	0.00	5313.29

## SYSDRILL

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 20-322HN (PWB)
Created	15-Nov-2016
Last Revised	15-Nov-2016

## Well

Name	Raindance FD 20-322HN
Government ID	
Last Revised	15-Nov-2016

## Slot

Name	Slot W-12 - Raindance FD 20-322HN
Grid Northing	1411973.857
Grid Easting	3159313.813
Latitude	N40 27 46.2888
Longitude	W104 55 38.7984
North	25561842.130
East	-18483182.000

## 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 20-359HC	Raindance FD 20-359HC (PWB)	Slot W-13 - Raindance FD 20-359HC	Raindance	9.700	3687.000	12346.210	3.180	3690.940	1.490	3690.940
Raindance FD 20-319HN	Raindance FD 20-319HN (PWB)	Slot W-11 - Raindance FD 20-319HN	Raindance	10.820	3313.000	6881.970	4.910	3313.650	1.830	3313.000
Raindance FC 23-352HN	Raindance FC 23-352HN (PWB)	Slot E-12 - Raindance FC 23-352HN	Raindance	17.160	3461.290	7644.360	11.000	3477.690	2.780	3500.000
Raindance FC 23-369HN	Raindance FC 23-369HN (PWB)	Slot E-13 - Raindance FC 23-369HN	Raindance	19.310	3687.000	7192.060	12.790	3690.940	2.960	3700.000
Raindance FD 20-362HNX	Raindance FD 20-362HNX (PWB)	Slot W-14 - Raindance FD 20-362HNX	Raindance	19.500	3687.000	6648.050	12.980	3690.940	2.990	3700.000
Raindance FC 23-329HNC	Raindance FC 23-329HNC (PWB)	Slot E-11 - Raindance FC 23-329HNC	Raindance	20.300	3137.000	7317.400	14.670	3137.000	3.600	3166.010
Raindance FD 20-319HNC	Raindance FD 20-319HNC (PWB)	Slot W-10 - Raindance FD 20-319HNC	Raindance	20.720	2957.000	6856.960	15.370	2957.000	3.870	2969.160
Raindance FC 23-369HC	Raindance FC 23-369HC (PWB)	Slot E-14 - Raindance FC 23-369HC	Raindance	25.450	3687.000	7356.750	19.160	3690.940	4.040	3700.000
Raindance FC 23-312HC	Raindance FC 23-312HC (PWB)	Slot E-10 - Raindance FC 23-312HC	Raindance	26.560	3076.000	8023.510	21.020	3076.000	4.790	3100.000
Raindance FD 20-362HN	Raindance FD 20-362HN (PWB)	Slot W-15 - Raindance FD 20-362HN	Raindance	29.400	3687.000	6746.000	22.880	3690.940	3.930	12335.960
Raindance FD 20-282HC	Raindance FD 20-282HC (PWB)	Slot W-09 - Raindance FD 20-282HC	Raindance	30.620	2820.000	6955.380	25.500	2820.000	5.960	2837.930
Raindance FC 23-392HNC	Raindance FC 23-392HNC (PWB)	Slot E-15 - Raindance FC 23-392HNC	Raindance	33.570	3687.000	6865.760	27.050	3690.940	5.140	3700.000
Raindance FC 23-312HN	Raindance FC 23-312HN (PWB)	Slot E-09 - Raindance FC 23-312HN	Raindance	34.960	2750.000	7941.550	29.950	2750.000	6.950	2772.310
Raindance FD 20-399HC	Raindance FD 20-399HC (PWB)	Slot W-16 - Raindance FD 20-399HC	Raindance	39.300	3687.000	3687.000	32.780	3690.940	6.010	3707.350
Raindance FD 20-282HN	Raindance FD 20-282HN (PWB)	Slot W-08 - Raindance FD 20-282HN	Raindance	40.220	2471.000	6942.980	35.660	2471.000	8.250	12349.820
Raindance FC 26-009HN	Raindance FC 26-009HN (PWB)	Slot E-16 - Raindance FC 26-009HN	Raindance	41.160	3740.160	6995.230	34.550	3740.160	6.220	3756.560
Raindance FC 23-289HN	Raindance FC 23-289HN (PWB)	Slot E-08 - Raindance FC 23-289HN	Raindance	44.000	2419.000	8070.870	39.520	2419.000	9.770	2444.230
Raindance FC 26-169HN	Raindance FC 26-169HN (PWB)	Slot W-17 - Raindance FC 26-169HN	Raindance	49.580	3687.000	3687.000	43.050	3690.940	7.580	3707.350
Raindance FD 20-242HN	Raindance FD 20-242HN (PWB)	Slot W-07 - Raindance FD 20-242HN	Raindance	50.120	2091.000	6891.020	46.170	2091.000	11.350	12349.820
Raindance FC 26-032HN	Raindance FC 26-032HN (PWB)	Slot W-22 - Raindance FC 26-032HN	Raindance	50.250	3740.160	6840.840	43.640	3740.160	7.590	3756.560
Raindance FC 23-289HNC	Raindance FC 23-289HNC (PWB)	Slot E-07 - Raindance FC 23-289HNC	Raindance	53.340	2076.000	8011.210	49.410	2076.000	13.470	2132.550
Raindance FC 26-169HNC	Raindance FC 26-169HNC (PWB)	Slot W-18 - Raindance FC 26-169HNC	Raindance	59.480	3687.000	3687.000	52.960	3690.940	9.090	3723.750
Raindance FD 20-242HNC	Raindance FD 20-242HNC (PWB)	Slot W-06 - Raindance FD 20-242HNC	Raindance	60.020	1732.000	6971.780	56.640	1500.000	12.450	12349.820
Raindance FC 26-032HC	Raindance FC 26-032HC (PWB)	Slot E-18 - Raindance FC 26-032HC	Raindance	61.900	3687.000	6956.390	55.380	3690.940	9.460	3723.750
Raindance FC 23-272HC	Raindance FC 23-272HC (PWB)	Slot E-06 - Raindance FC 23-272HC	Raindance	62.350	1970.000	8110.320	58.590	1970.000	16.420	2034.120
Raindance FC 26-192HC	Raindance FC 26-192HC (PWB)	Slot W-19 - Raindance FC 26-192HC	Raindance	69.380	3611.000	3611.000	62.980	3611.000	10.790	3641.730
Raindance FD 20-239HC	Raindance FD 20-239HC (PWB)	Slot W-05 - Raindance FC 26-239HC	Raindance	70.940	1750.000	7021.000	67.540	1750.000	14.760	12349.820
Raindance FC 26-049HN	Raindance FC 26-049HN (PWB)	Slot E-19 - Raindance FC 26-049HN	Raindance	71.310	3687.000	6677.850	64.790	3690.940	10.890	3723.750
Raindance FC 23-249HN	Raindance FC 23-249HN (PWB)	Slot E-05 - Raindance FC 23-249HN	Raindance	72.880	1635.000	8120.080	69.500	1500.000	21.570	1500.000
Raindance FC 26-209HN	Raindance FC 26-209HN (PWB)	Slot W-20 - Raindance FC 26-209HN	Raindance	79.280	3260.000	3260.000	73.450	3260.000	13.510	3300.000
Raindance FC 26-072HNC	Raindance FC 26-072HNC (PWB)	Slot E-20 - Raindance FC 26-072HNC	Raindance	79.860	3707.350	6452.070	73.300	3707.350	12.130	3740.160
Raindance FD 20-239HN	Raindance FD 20-239HN (PWB)	Slot W-04 - Raindance FD 20-239HN	Raindance	80.540	1490.000	7006.100	77.180	1492.780	14.960	12349.820
Raindance FC 23-232HN	Raindance FC 23-232HN (PWB)	Slot E-04 - Raindance FC 23-232HN	Raindance	82.450	1516.000	8113.750	79.070	1500.000	24.400	1500.000
Raindance FC 26-232HN	Raindance FC 26-232HN (PWB)	Slot W-21 - Raindance FC 26-232HN	Raindance	88.880	2889.000	2889.000	83.640	2889.000	16.830	2936.350
Raindance FD 20-202HN	Raindance FD 20-202HN (PWB)	Slot W-03 - Raindance FD 20-202HN	Raindance	90.440	959.000	7037.400	87.930	959.000	18.900	12349.820
Raindance FC 26-089HC	Raindance FC 26-089HC (PWB)	Slot E-21 - Raindance FC 26-089HC	Raindance	91.620	3687.000	8350.860	85.100	3690.940	13.980	3740.160
Raindance FC 23-232HNC	Raindance FC 23-232HNC (PWB)	Slot E-03 - Raindance FC 23-232HNC	Raindance	92.220	1248.000	8121.280	89.240	1248.000	30.240	1345.140
Raindance FC 26-232HNC	Raindance FC 26-232HNC (PWB)	Slot W-22 - Raindance FC 26-232HNC	Raindance	98.780	2530.000	2530.000	94.120	2530.000	20.950	2600.000
Raindance FD 20-202HNC	Raindance FD 20-202HNC (PWB)	Slot W-02 - Raindance FD 20-202HNC	Raindance	100.340	600.000	7037.400	98.410	600.000	19.960	12349.820
Raindance FC 26-089HN	Raindance FC 26-089HN (PWB)	Slot E-22 - Raindance FC 26-089HN	Raindance	101.250	3690.940	8234.910	94.720	3690.940	15.430	3740.160
Raindance FC 23-209HC	Raindance FC 23-209HC (PWB)	Slot E-02 - Raindance FC 23-209HC	Raindance	102.010	985.000	8084.190	99.460	985.000	38.530	1100.000
Raindance FC 26-249HC	Raindance FC 26-249HC (PWB)	Slot W-23 - Raindance FC 26-249HC	Raindance	109.700	2400.000	2400.000	105.250	2400.000	24.310	2500.000
Raindance FC 26-112HN	Raindance FC 26-112HN (PWB)	Slot E-23 - Raindance FC 26-112HN	Raindance	110.880	3646.000	8405.530	104.400	3674.540	16.930	3723.750
Raindance FC 23-209HN	Raindance FC 23-209HN (PWB)	Slot E-01 - Raindance FC 23-209HN	Raindance	111.400	645.000	8103.900	109.400	645.000	42.520	9235.560
Raindance FC 26-272HN	Raindance FC 26-272HN (PWB)	Slot W-24 - Raindance FC 26-272HN	Raindance	119.600	2052.000	2052.000	115.710	2052.000	30.120	2165.350
Raindance FC 26-112HNC	Raindance FC 26-112HNC (PWB)	Slot E-24 - Raindance FC 26-112HNC	Raindance	120.560	3402.000	8366.920	114.490	3428.480	19.180	3641.730
Raindance FC 26-289HN	Raindance FC 26-289HN (PWB)	Slot W-25 - Raindance FC 26-289HN	Raindance	129.200	1679.000	1679.000	125.820	1500.000	38.090	1804.460
Raindance FC 26-129HC	Raindance FC 26-129HC (PWB)	Slot E-25 - Raindance FC 26-129HC	Raindance	130.340	3559.710	8288.820	124.000	3576.120	20.130	3707.350
GWOGCO - H-Y 20-34	GWOGCO - H-Y 20-34 (AWB)	ZZ-GWOGCO - H-Y 20-34	Raindance	135.760	10849.980	10849.980	87.370	10826.770	2.730	10810.370
Raindance FC 26-289HNC	Raindance FC 26-289HNC (PWB)	Slot W-26 - Raindance FC 26-289HNC	Raindance	139.100	1319.000	1319.000	136.010	1319.000	43.350	1476.380
Raindance FC 26-152HN	Raindance FC 26-152HN (PWB)	Slot E-26 - Raindance FC 26-152HN	Raindance	140.130	3313.650	8333.490	134.210	3313.650	23.040	3500.000
Raindance FC 26-312HC	Raindance FC 26-312HC (PWB)	Slot W-27 - Raindance FC 26-312HC	Raindance	149.000	1181.100	1181.100	146.140	1181.100	49.550	1377.950
Raindance FC 26-352HNC	Raindance FC 26-352HNC (PWB)	Slot E-27 - Raindance FC 26-352HNC	Raindance	150.770	900.000	900.000	148.360	900.000	58.720	1100.000
Raindance FC 26-312HN	Raindance FC 26-312HN (PWB)	Slot W-28 - Raindance FC 26-312HN	Raindance	159.920	838.000	838.000	157.610	838.000	64.170	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 26-369HC	Raindance FC 26-369HC (PWB)	Slot E-28 - Raindance FC 26-369HC	Raindance	160.580	800.000	800.000	158.330	800.000	66.130	1049.870
Raindance FC 26-329HN	Raindance FC 26-329HN (PWB)	Slot W-29 - Raindance FC 26-329HN	Raindance	169.510	600.000	600.000	167.590	600.000	78.810	885.830
Raindance FC 26-369HN	Raindance FC 26-369HN (PWB)	Slot E-29 - Raindance FC 26-369HN	Raindance	170.400	700.000	700.000	168.310	700.000	74.330	951.440
Raindance FC 26-392HN	Raindance FC 26-392HN (PWB)	Slot W-30 - Raindance FC 26-392HN	Raindance	179.420	600.000	600.000	177.490	600.000	83.030	885.830
Raindance FC 26-392HNX	Raindance FC 26-392HNX (PWB)	Slot E-30 - Raindance FC 26-392HNX	Raindance	180.230	600.000	600.000	178.300	600.000	83.600	885.830
GWOGCO - H-Y 20-54	GWOGCO - H-Y 20-54 (AWB)	ZZ-GWOGCO - H-Y 20-54	Raindance	512.730	11471.890	11471.890	453.970	11500.000	8.190	11614.170
GWOGCO - H-Y 20-53	GWOGCO - H-Y 20-53 (AWB)	ZZ-GWOGCO - H-Y 20-53	Raindance	516.290	8960.660	8960.660	490.220	8973.100	18.020	9235.560
GWOGCO - H-Y 20-23-18	GWOGCO - H-Y 20-23-18 (AWB)	ZZ-GWOGCO - H-Y 20-23-18	Raindance	528.330	10227.100	10227.100	489.640	10252.620	12.020	10433.070
GWOGCO - Raindance FD 19-21HN	GWOGCO - Raindance FD 19-21HN (AWB)	ZZ-GWOGCO - Raindance FD 19-21HN	Raindance	714.290	7034.420	7034.420	655.900	7053.810	11.810	7152.230
GWOGCO - H-Y 29-21-3	GWOGCO - H-Y 29-21-3 (AWB)	ZZ-GWOGCO - H-Y 29-21-3	Raindance	795.430	10206.260	10206.260	758.830	10200.000	21.260	10072.180
GWOGCO - H-Y 29-31-2	GWOGCO - H-Y 29-31-2 (AWB)	ZZ-GWOGCO - H-Y 29-31-2	Raindance	795.430	11538.640	11538.640	736.960	11532.150	13.460	11450.130
GWOGCO - H-Y 29-21-4	GWOGCO - H-Y 29-21-4 (AWB)	ZZ-GWOGCO - H-Y 29-21-4	Raindance	802.260	8886.410	8886.410	777.670	8886.410	32.590	8858.270
Extraction - Kodak 03	Extraction - Kodak 03 (AWB)	ZZ-Extraction - Kodak 03	Raindance	895.590	8075.510	9762.700	788.180	8087.270	8.330	8120.080
GWOGCO - H-Y 20-23	GWOGCO - H-Y 20-23 (AWB)	ZZ-GWOGCO - H-Y 20-23	Raindance	1123.080	9581.460	9581.460	1092.040	9612.860	28.220	10219.820
GWOGCO - H-Y 29-31	GWOGCO - H-Y 29-31 (AWB)	ZZ-GWOGCO - H-Y 29-31	Raindance	1461.980	10844.750	10844.750	1415.390	10844.750	31.370	10826.770
GWOGCO - H-Y 29-52	GWOGCO - H-Y 29-52 (AWB)	ZZ-GWOGCO - H-Y 29-52	Raindance	1720.440	4117.450	8803.290	1709.910	4133.860	87.480	8923.880
Extraction - Kodak 06	Extraction - Kodak 06 (AWB)	ZZ-Extraction - Kodak 06	Raindance	1861.630	6348.430	11862.800	1757.120	8054.460	17.340	8120.080
GWOGCO - H-Y 29-31-8	GWOGCO - H-Y 29-31-8 (AWB)	ZZ-GWOGCO - H-Y 29-31-8	Raindance	2146.500	10125.080	10125.080	2111.250	10137.800	59.980	10416.670
Extraction - Kodak 09	Extraction - Kodak 09 (AWB)	ZZ-Extraction - Kodak 09	Raindance	2170.710	6137.060	7988.850	2085.970	6184.380	21.390	8038.060
GWOGCO - H-Y 29-21	GWOGCO - H-Y 29-21 (AWB)	ZZ-GWOGCO - H-Y 29-21	Raindance	2195.930	25.000	9469.210				
GWOGCO - H-Y 29-51	GWOGCO - H-Y 29-51 (AWB)	ZZ-GWOGCO - H-Y 29-51	Raindance	2198.650	11445.930	11445.930	2141.890	11450.130	38.420	11646.980
KMG - ONYX 13-29	KMG - ONYX 13-29 (AWB)	ZZ-KMG - ONYX 13-29	Raindance	2689.440	3687.000	8080.220	2682.490	3690.940	184.860	10547.900
Extraction - Kodak 10	Extraction - Kodak 10 (AWB)	ZZ-Extraction - Kodak 10	Raindance	2757.090	5802.120	10121.390	2668.890	5856.300	27.980	8054.460
Walter - THAYER 1-30	Walter - THAYER 1-30 (AWB)	ZZ-Walter - THAYER 1-30	Raindance	2777.590	5315.020	5315.020	2765.130	5364.170	152.070	6922.570
Extraction - Kodak 13	Extraction - Kodak 13 (AWB)	ZZ-Extraction - Kodak 13	Raindance	3016.870	5626.640	10200.000	2927.480	5675.850	31.060	8070.870
Walter - THAYER 2-30	Walter - THAYER 2-30 (AWB)	ZZ-Walter - THAYER 2-30	Raindance	3659.920	3690.940	3690.940	3651.930	3690.940	281.840	6900.000
Extraction - RAINDANCE 7	Extraction - RAINDANCE 7 (AWB)	ZZ-Extraction - RAINDANCE 7	Raindance	4212.180	0.000	11200.000	4210.580	1213.910	66.640	12349.820
Extraction - RAINDANCE 8	Extraction - RAINDANCE 8 (PWB)	ZZ-Extraction - RAINDANCE 8	Raindance	4217.000	2078.000	2078.000	4212.930	2083.330	66.840	12349.820
Extraction - RAINDANCE 1-1-32	Extraction - RAINDANCE 1-1-32 (PWB)	ZZ-Extraction - RAINDANCE 1-1-32	Raindance	4219.950	1826.000	1826.000	4216.290	1837.270	217.190	12349.820
Extraction - RAINDANCE 9	Extraction - RAINDANCE 9 (PWB)	ZZ-Extraction - RAINDANCE 9	Raindance	4226.000	2230.970	2230.970	4221.690	2230.970	68.510	12349.820
Extraction - RAINDANCE 2	Extraction - RAINDANCE 2 (PWB)	ZZ-Extraction - RAINDANCE 2	Raindance	4227.680	1828.000	1828.000	4224.010	1837.270	70.890	12349.820
Extraction - RAINDANCE 3	Extraction - RAINDANCE 3 (PWB)	ZZ-Extraction - RAINDANCE 3	Raindance	4231.910	1509.190	1509.190	4228.390	1500.000	73.010	12349.820
Extraction - RAINDANCE 4	Extraction - RAINDANCE 4 (PWB)	ZZ-Extraction - RAINDANCE 4	Raindance	4236.090	1828.000	1828.000	4232.430	1837.270	74.170	12349.820
Extraction - RAINDANCE 5	Extraction - RAINDANCE 5 (PWB)	ZZ-Extraction - RAINDANCE 5	Raindance	4240.310	1828.000	1828.000	4236.650	1837.270	77.590	12349.820
Extraction - RAINDANCE 6	Extraction - RAINDANCE 6 (PWB)	ZZ-Extraction - RAINDANCE 6	Raindance	4248.350	787.400	787.400	4245.980	787.400	79.600	12349.820
UNKNOWN - KENNETH THAYER 1	UNKNOWN - KENNETH THAYER 1 (AWB)	ZZ-UNKNOWN - KENNETH THAYER 1	Raindance	5548.960	3690.940	3690.940	5540.810	3690.940	384.030	6900.000
UNI OIL - MACLOUGHAN 25-1	UNI OIL - MACLOUGHAN 25-1 (AWB)	ZZ-UNI OIL - MACLOUGHAN 25-1	Raindance	8198.390	3690.940	3690.940	8190.420	3707.350	442.100	7100.000
Ranchers - Retta J 1	Ranchers - Retta J 1 (AWB)	ZZ-Ranchers - Retta J 1	Raindance	10134.480	0.000	0.000	10133.480	0.000	677.800	12349.820

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 4809.0ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 71.230 degrees  
Prepared by Great Western Operating Company  
Date Printed: