

SYSDRILL  
Closest Approach - Clearance Factor Report  
Wellbore: Ocho LD 17-369HN (PWB)  
Wellpath: Ocho LD 17-369HN (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.

<b>Wellbore</b>	
Name	Ocho LD 17-369HN (PWB)
Created	1-Sep-2016
Last Revised	1-Sep-2016
<b>Well</b>	
Name	Ocho LD 17-369HN
Government ID	
Last Revised	1-Sep-2016
<b>Slot</b>	
Name	Slot E14 - Ocho LD 17-369HN
Grid Northing	1237624.285
Grid Easting	3164297.981
Latitude	N99 59 3.0192
Longitude	W104 54 49.2300
North	-195.260
East	100.320
<b>Installation</b>	
Name	Ocho
Easting	3164196.374
Northing	1237818.868
Map Name	<unknown>
North Alignment	True
<b>Field</b>	
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 Front[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
Ocho LD 17-369HC	Ocho LD 17-369HC (PWB)	Slot E15 - Ocho LD 17-369HC	Ocho		14.230	5124.500	17834.440	5.400	5124.500	1.610
Ocho LD 17-368HN	Ocho LD 17-368HN (PWB)	Slot E13 - Ocho LD 17-368HN	Ocho		15.300	5000.500	13140.170	6.670	5000.500	1.770
Ocho LD 17-367HC	Ocho LD 17-367HC (PWB)	Slot E12 - Ocho LD 17-367HC	Ocho		30.600	4655.640	17831.360	22.190	4672.050	3.630
Ocho LD 17-367HN	Ocho LD 17-367HN (PWB)	Slot E11 - Ocho LD 17-367HN	Ocho		45.540	4501.000	17831.360	37.710	4501.000	3.980
Ocho LD 17-365HN	Ocho LD 17-365HN (PWB)	Slot E10 - Ocho LD 17-365HN	Ocho		60.840	4440.000	17827.240	53.100	4440.000	5.730
Ocho LD 17-364HC	Ocho LD 17-364HC (PWB)	Slot E09 - Ocho LD 17-364HC	Ocho		76.140	3987.000	10030.710	69.130	4000.000	7.660
Ocho LD 17-364HN	Ocho LD 17-364HN (PWB)	Slot E08 - Ocho LD 17-364HN	Ocho		89.980	3571.000	3571.000	83.650	3571.000	7.960
Ocho LD 17-372HN	Ocho LD 17-372HN (PWB)	Slot W14 - Ocho LD 17-372HN	Ocho		99.760	5124.500	17834.440	90.920	5134.510	3.940
Ocho LD 17-370HN	Ocho LD 17-370HN (PWB)	Slot W15 - Ocho LD 17-370HN	Ocho		100.870	5124.500	17834.440	92.040	5134.510	2.390
Ocho LD 17-372HC	Ocho LD 17-372HC (PWB)	Slot W13 - Ocho LD 17-372HC	Ocho		100.930	5124.500	17834.440	92.090	5134.510	5.010
Ocho LD 17-373HN	Ocho LD 17-373HN (PWB)	Slot W12 - Ocho LD 17-373HN	Ocho		104.350	5124.500	17834.440	95.510	5134.510	6.280
Ocho LD 17-363HN	Ocho LD 17-363HN (PWB)	Slot E07 - Ocho LD 17-363HN	Ocho		105.280	3225.000	3225.000	99.510	3231.630	9.670
Ocho LD 17-374HC	Ocho LD 17-374HC (PWB)	Slot W11 - Ocho LD 17-374HC	Ocho		109.660	5124.500	5124.500	100.810	5150.920	8.200
Ocho LD 17-374HN	Ocho LD 17-374HN (PWB)	Slot W10 - Ocho LD 17-374HN	Ocho		116.280	5134.510	5134.510	107.380	5200.130	8.540
Ocho LD 17-362HC	Ocho LD 17-362HC (PWB)	Slot E06 - Ocho LD 17-362HC	Ocho		120.580	3083.990	17022.990	115.010	3100.390	10.990
Ocho LD 17-375HN	Ocho LD 17-375HN (PWB)	Slot W09 - Ocho LD 17-375HN	Ocho		124.830	5085.300	5085.300	116.050	5100.000	10.240
Ocho LD 17-377HC	Ocho LD 17-377HC (PWB)	Slot W08 - Ocho LD 17-377HC	Ocho		134.340	4946.500	4946.500	125.800	4946.500	12.070
Ocho LD 17-362HN	Ocho LD 17-362HN (PWB)	Slot E05 - Ocho LD 17-362HN	Ocho		135.510	2616.000	2616.000	130.720	2624.670	11.600
Ocho LD 17-377HN	Ocho LD 17-377HN (PWB)	Slot W07 - Ocho LD 17-377HN	Ocho		145.420	4580.000	4580.000	137.470	4580.000	12.490
Ocho LD 17-361HN	Ocho LD 17-361HN (PWB)	Slot E04 - Ocho LD 17-361HN	Ocho		150.810	2167.000	2167.000	146.740	2167.000	13.580
Ocho LD 17-378HN	Ocho LD 17-378HN (PWB)	Slot W06 - Ocho LD 17-378HN	Ocho		156.500	4280.000	4280.000	149.020	4280.000	14.180
Ocho LD 17-379HC	Ocho LD 17-379HC (PWB)	Slot W05 - Ocho LD 17-379HC	Ocho		167.690	4195.000	4195.000	160.350	4200.000	15.340
Ocho LD 17-379HN	Ocho LD 17-379HN (PWB)	Slot W04 - Ocho LD 17-379HN	Ocho		180.220	3706.000	3706.000	173.670	3706.000	16.120
BCHP - STONEHOCKER 21-8	BCHP - STONEHOCKER 21-8 (AWB)	ZZ-BCHP - STONEHOCKER 21-8	Ocho		182.990	4297.900	8319.750	171.070	4300.000	15.130
PDC - STONEHOCKER 32-8	PDC - STONEHOCKER 32-8 (AWB)	ZZ-PDC - STONEHOCKER 32-8	Ocho		213.210	9910.330	9910.330	191.900	9910.330	9.700
SYG - QUEBEC-N INVESTMENT 1	SYG - QUEBEC-N INVESTMENT 1 (AWB)	ZZ-SYG - QUEBEC-N INVESTMENT 1	Ocho		232.690	11040.030	11040.030	202.380	11040.030	7.550
PDC - MCELWAIN 34-17	PDC - MCELWAIN 34-17 (AWB)	ZZ-PDC - MCELWAIN 34-17	Ocho		332.850	17834.440	17834.440	277.750	17834.440	6.040
PDC - MCELWAIN 32-17	PDC - MCELWAIN 32-17 (AWB)	ZZ-PDC - MCELWAIN 32-17	Ocho		336.540	15475.400	15475.400	287.550	15475.400	4.680
BCHP - STONEHOCKER 11-8H	BCHP - STONEHOCKER 11-8H (AWB)	ZZ-BCHP - STONEHOCKER 11-8H	Ocho		684.240	2251.300	8400.000	676.990	2280.180	72.860
KMG - QUEBEC NORTH 34-8	KMG - QUEBEC NORTH 34-8 (AWB)	ZZ-KMG - QUEBEC NORTH 34-8	Ocho		698.150	12086.620	12086.620	658.690	12100.000	17.320
BCHP - STONEHOCKER 22-8H	BCHP - STONEHOCKER 22-8H (AWB)	ZZ-BCHP - STONEHOCKER 22-8H	Ocho		870.330	1319.580	9896.260	867.250	1319.580	49.340
BCHP - STONEHOCKER 12-8H	BCHP - STONEHOCKER 12-8H (AWB)	ZZ-BCHP - STONEHOCKER 12-8H	Ocho		873.450	16.400	9943.270	872.430	49.210	81.750
PDC - MC ELWAIN 4	PDC - MC ELWAIN 4 (AWB)	ZZ-PDC - MC ELWAIN 4	Ocho		907.860	16994.820	16994.820	825.490	17011.150	10.950
MERIT - MCELWAIN 1	MERIT - MCELWAIN 1 (AWB)	ZZ-MERIT - MCELWAIN 1	Ocho		980.200	13730.310	13730.310	926.560	13730.310	16.260
PDC - LEISLE 8-5	PDC - LEISLE 8-5 (AWB)	ZZ-PDC - LEISLE 8-5	Ocho		1070.390	9900.340	9900.340	1055.010	9905.910	60.140
BCHP - STONEHOCKER 8-5	BCHP - STONEHOCKER 8-5 (AWB)	ZZ-BCHP - STONEHOCKER 8-5	Ocho		1162.720	5124.500	8905.270	1152.660	5124.500	11.730
SYG - BROWN 11-8	SYG - BROWN 11-8 (AWB)	ZZ-SYG - BROWN 11-8	Ocho		1163.650	10982.150	10982.150	1129.480	10990.810	33.820
KMG - EDSTROM 24-8 1	KMG - EDSTROM 24-8 1 (AWB)	ZZ-KMG - EDSTROM 24-8 1	Ocho		1358.180	12083.700	12083.700	1318.760	12089.900	34.240
KPK - NORTH QUEBEC 16-8	KPK - NORTH QUEBEC 16-8 (AWB)	ZZ-KPK - NORTH QUEBEC 16-8	Ocho		1584.610	12315.730	12315.730	1542.900	12335.960	35.560
KPK - QUEBEC NORTH 12-8	KPK - QUEBEC NORTH 12-8 (AWB)	ZZ-KPK - QUEBEC NORTH 12-8	Ocho		1594.250	10948.970	10948.970	1564.440	10974.410	48.400
PDC - MCELWAIN 41-17	PDC - MCELWAIN 41-17 (AWB)	ZZ-PDC - MCELWAIN 41-17	Ocho		1611.140	13959.810	13959.810	1607.630	13976.380	145.090
PDC - MCELWAIN 42-17	PDC - MCELWAIN 42-17 (AWB)	ZZ-PDC - MCELWAIN 42-17	Ocho		1688.240	14971.130	14971.130	1623.760	14993.440	25.550
PDC - MCELWAIN 44-17A	PDC - MCELWAIN 44-17A (AWB)	ZZ-PDC - MCELWAIN 44-17A	Ocho		1861.790	17834.440	17834.440	1773.730	17834.440	21.140
PDC - MCELWAIN 11-17	PDC - MCELWAIN 11-17 (AWB)	ZZ-PDC - MCELWAIN 11-17	Ocho		1970.300	14158.450	14158.450	1912.870	14173.230	33.950
PDC - MCELWAIN 12-17	PDC - MCELWAIN 12-17 (AWB)	ZZ-PDC - MCELWAIN 12-17	Ocho		1970.890	14765.720	14765.720	1908.040	14780.180	31.090
PDC - MCELWAIN 2	PDC - MCELWAIN 2 (AWB)	ZZ-PDC - MCELWAIN 2	Ocho		2051.240	17295.240	17295.240	1966.280	17306.430	24.020
STARLIGHT - MARK MCELWAIN 1	STARLIGHT - MARK MCELWAIN 1 (AWB)	ZZ-STARLIGHT - MARK MCELWAIN 1	Ocho		2300.630	13730.310	13730.310	2247.670	13746.720	42.170
KPK - EDSTROM UNIT 1	KPK - EDSTROM UNIT 1 (AWB)	ZZ-KPK - EDSTROM UNIT 1	Ocho		2338.690	11072.830	11072.830	2308.090	11089.240	72.090
KPK - BROWN 13-8	KPK - BROWN 13-8 (AWB)	ZZ-KPK - BROWN 13-8	Ocho		2339.090	12410.370	12410.370	2295.660	12434.380	51.780
ESRCH - MARK MCELWAIN 2	ESRCH - MARK MCELWAIN 2 (AWB)	ZZ-ESRCH - MARK MCELWAIN 2	Ocho		2361.200	16350.710	16350.710	2284.680	16371.390	30.560
PDC - MCELWAIN 13-17	PDC - MCELWAIN 13-17 (AWB)	ZZ-PDC - MCELWAIN 13-17	Ocho		2517.060	15780.840	15780.840	2445.340	15797.240	34.640

<b>Reference Wellbore Survey Tool Program</b>	
Survey Name	Planned
MD[ft]	17834.440
Survey Tool	WtW Rate Gyro
Error Model	Standard

Reference MD[ft]	Reference TVD[ft]	Reference North[ft]	Reference East[ft]	Offset Well	Offset MD[ft]	Offset TVD[ft]	Offset North[ft]	Offset East[ft]	Angle From Highside [deg]	Closest Approach Distance [ft]	Ellipse Separation [ft]	Clearance Factor
0.000	0.000	0.000	0.000	0.000 PDC - MCELWAIN 2	0.000	38.200	-8704.200	-1383.690	-171.000	8813.580	8812.610	
100.000	100.000	0.000	0.000	0.000 PDC - MCELWAIN 2	61.800	100.000	-8704.200	-1383.690	-171.000	8813.490	8811.860	5411.300
200.000	200.000	0.000	0.000	0.000 PDC - MCELWAIN 2	161.800	200.000	-8704.200	-1383.690	-171.000	8813.490	8811.420	4256.520
300.000	300.000	0.000	0.000	0.000 PDC - MCELWAIN 2	261.800	300.000	-8704.200	-1383.690	-171.000	8813.490	8811.090	3659.420
400.000	400.000	0.000	0.000	0.000 PDC - MCELWAIN 2	361.800	400.000	-8704.200	-1383.690	-171.000	8813.490	8810.790	3263.990
500.000	500.000	0.000	0.000	0.000 PDC - MCELWAIN 2	461.800	500.000	-8704.200	-1383.690	-171.000	8813.490	8810.530	2973.190
600.000	600.000	0.000	0.000	0.000 PDC - MCELWAIN 2	561.800	600.000	-8704.200	-1383.690	-171.000	8813.490	8810.280	2746.150
700.000	700.000	0.000	0.000	0.000 PDC - MCELWAIN 2	661.800	700.000	-8704.200	-1383.690	-171.000	8813.490	8810.050	2561.790
800.000	800.000	0.000	0.000	0.000 PDC - MCELWAIN 2	761.800	800.000	-8704.200	-1383.690	-171.000	8813.490	8809.830	2407.830
900.000	900.000	0.000	0.000	0.000 PDC - MCELWAIN 2	861.800	900.000	-8704.200	-1383.690	-171.000	8813.490	8809.620	2276.550
1000.000	1000.000	0.000	0.000	0.000 PDC - MCELWAIN 2	961.800	1000.000	-8704.200	-1383.690	-171.000	8813.490	8809.420	2162.750
1100.000	1100.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1061.800	1100.000	-8704.200	-1383.690	-171.000	8813.490	8809.220	2062.810
1200.000	1200.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1161.800	1200.000	-8704.200	-1383.690	-171.000	8813.490	8809.030	1974.070
1300.000	1300.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1261.800	1300.000	-8704.200	-1383.690	-171.000	8813.490	8808.840	1894.570
1400.000	1400.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1361.800	1400.000	-8704.200	-1383.690	-171.000	8813.490	8808.660	1822.790
1500.000	1500.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1461.800	1500.000	-8704.200	-1383.690	-171.000	8813.490	8808.480	1757.540
1600.000	1600.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1561.800	1600.000	-8704.200	-1383.690	-171.000	8813.490	8808.300	1697.900
1700.000	1700.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1661.800	1700.000	-8704.200	-1383.690	-171.000	8813.490	8808.130	1643.090
1800.000	1800.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1761.800	1800.000	-8704.200	-1383.690	-171.000	8813.490	8808.340	1709.980
1900.000	1900.000	0.000	0.000	0.000 PDC - MCELWAIN 2	1861.800	1900.000	-8704.200	-1383.690	-171.000	8813.490	8808.170	1656.04