

MINERAL RESOURCES, INC.

Location	Windsor	Slot	Slot #53
Field	Wattenberg	Well	GP-Dairy #2-20-19
Installation	Mineral Resources MRI	Wellbore	GP-Dairy #2-20-19 (PWB)

East (feet) ->

Scale 1 cm = 800 ft

-11200 -9600 -8000 -6400 -4800 -3200 -1600 0 1600

WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
KOP	750.00	0.00	0.00	750.00	0.00	0.00	0.00	-0.00
End of Build	2261.80	30.24	200.28	2192.60	-365.57	-135.09	2.00	245.57
End of Hold	7159.45	30.24	200.28	6423.97	-2678.95	-989.95	0.00	1799.60
Target SG91	8302.59	90.00	270.15	7017.56	-3001.67	-1796.92	7.00	2667.51
Target SG93	10485.16	90.00	270.15	7017.56	-2995.96	-3979.48	0.00	4732.06
T.D. & Target SG92	15280.60	90.00	270.15	7017.56	-2983.42	-8774.90	0.00	9268.21

Surface 0.00 N 0.00 E

SG92 SG93 SG91

<- North(feet)

Scale 1 cm = 800 ft

Scale 1 cm = 400 ft

<- True Vertical Depth (feet)

Tie on - 0.00 Inc, 0.00 MD, 0.00 TVD, -0.00 VS

3DS Kick off Point - 0.00 Inc, 750.00 MD, 750.00 TVD, -0.00 VS
9 5/8in Surface Casing

End of Build - 30.24 Inc, 2261.80 MD, 2192.60 TVD, 245.57 VS

End of Hold - 30.24 Inc, 7159.45 MD, 6423.97 TVD, 1799.60 VS

7.0in Intermediate Casing

S/C Kick off Point - 90.00 Inc, 10485.16 MD, 7017.56 TVD, 4732.06 VS

4 1/2in Production Liner

SG91

SG93

SG92

S/C Kick off Point - 90.00 Inc, 8302.59 MD, 7017.56 TVD, 2667.51 VS

T.D. & End of Hold - 7017.56 TVD, 2983.42 S 8774.90 W

Created by admin
Date plotted 4-Apr-2014
Plot reference is GP-Dairy #2-20-19 (PWB).
Ref wellpath is MRI-Dairy #2-19-19 (PWP#1).
Coordinates are in feet reference Slot #53.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Planned Datum #1
Rig Datum to Mean Sea Level: 4672.56 ft.
Plot North is aligned to GRID North.

-800 -0 800 1600 2400 3200 4000 4800 5600 6400 7200 8000 8800 9600 10400

Scale 1 cm = 400 ft

Vertical Section (feet) ->

Azimuth 251.22 with reference 0.00 N, 0.00 E from Slot #53



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: GP-Dairy #2-20-19 (PWB)

Wellhead Details							
Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
Slot #53	1385974.7100	3227710.9460	40.39002098	-104.68250560	520.45S	375.61W	0.56

Declination			
Date	Source	Time	
22-Jan-2013	IGRF Model [1900.0-2015.0]	09:44	
18-Sep-2013	IGRF Model [1900.0-2015.0]	10:23	

Site Details				
Name	Northing	Easting	Coord System Name	North Alignment
Mineral Resources MRI	1386495.1419	3228086.5450	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Summary Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	1385974.71	3227710.95
750.00	0.00	0.000	750.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
2261.80	30.24	200.280	2192.60	365.57S	135.09W	2.00	245.57	1385609.16	3227575.86
7159.45	30.24	200.280	6423.97	2678.95S	989.95W	==>	1799.60	1383295.88	3226721.04
8302.59	90.00	270.150	7017.56	3001.67S	1796.92W	7.00	2667.51	1382973.16	3225914.10
10485.16	90.00	270.150	7017.56	2995.96S	3979.48W	==>	4732.06	1382978.87	3223731.64
15280.60	90.00	270.150	7017.56	2983.42S	8774.90W	==>	9268.21	1382991.42	3218936.41

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	1385974.71	3227710.95
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
750.00	0.00	0.000	750.00	0.00N	0.00E	==>	0.00	1385974.71	3227710.95
850.00	2.00	200.280	849.98	1.64S	0.60W	2.00	1.10	1385973.07	3227710.34
950.00	4.00	200.280	949.84	6.55S	2.42W	2.00	4.40	1385968.16	3227708.53
1050.00	6.00	200.280	1049.45	14.72S	5.44W	2.00	9.89	1385959.99	3227705.51
1150.00	8.00	200.280	1148.70	26.15S	9.66W	2.00	17.57	1385948.56	3227701.28
1250.00	10.00	200.280	1247.47	40.82S	15.09W	2.00	27.42	1385933.89	3227695.86
1350.00	12.00	200.280	1345.62	58.72S	21.70W	2.00	39.45	1385915.99	3227689.25
1450.00	14.00	200.280	1443.06	79.82S	29.50W	2.00	53.62	1385894.89	3227681.45
1550.00	16.00	200.280	1539.64	104.10S	38.47W	2.00	69.93	1385870.62	3227672.48
1650.00	18.00	200.280	1635.27	131.52S	48.60W	2.00	88.35	1385843.20	3227662.35
1750.00	20.00	200.280	1729.82	162.06S	59.88W	2.00	108.86	1385812.66	3227651.06
1850.00	22.00	200.280	1823.17	195.67S	72.31W	2.00	131.44	1385779.05	3227638.64
1950.00	24.00	200.280	1915.21	232.32S	85.85W	2.00	156.06	1385742.40	3227625.10
2050.00	26.00	200.280	2005.84	271.96S	100.50W	2.00	182.69	1385702.76	3227610.45
2150.00	28.00	200.280	2094.94	314.54S	116.23W	2.00	211.30	1385660.18	3227594.72
2250.00	30.00	200.280	2182.39	360.02S	133.04W	2.00	241.84	1385614.71	3227577.92
2261.80	30.24	200.280	2192.60	365.57S	135.09W	2.00	245.57	1385609.16	3227575.86
2300.00	30.24	200.280	2225.60	383.61S	141.76W	==>	257.69	1385591.11	3227569.20
2400.00	30.24	200.280	2312.00	430.85S	159.21W	==>	289.42	1385543.88	3227551.74
2500.00	30.24	200.280	2398.40	478.08S	176.66W	==>	321.15	1385496.65	3227534.29
2600.00	30.24	200.280	2484.79	525.32S	194.12W	==>	352.88	1385449.42	3227516.84
2700.00	30.24	200.280	2571.19	572.55S	211.57W	==>	384.62	1385402.18	3227499.38
2800.00	30.24	200.280	2657.58	619.78S	229.03W	==>	416.35	1385354.95	3227481.93
2900.00	30.24	200.280	2743.98	667.02S	246.48W	==>	448.08	1385307.72	3227464.47
3000.00	30.24	200.280	2830.38	714.25S	263.94W	==>	479.81	1385260.49	3227447.02
3100.00	30.24	200.280	2916.77	761.49S	281.39W	==>	511.54	1385213.25	3227429.57
3200.00	30.24	200.280	3003.17	808.72S	298.85W	==>	543.27	1385166.02	3227412.11
3300.00	30.24	200.280	3089.56	855.96S	316.30W	==>	575.00	1385118.79	3227394.66

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 4672.6ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 251.220 degrees
Bottom hole distance is 9268.21 Feet on azimuth 251.22 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 4-Apr-2014



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: GP-Dairy #2-20-19 (PWB)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
3400.00	30.24	200.280	3175.96	903.19S	333.75W	==>	606.73	1385071.56	3227377.21
3500.00	30.24	200.280	3262.36	950.43S	351.21W	==>	638.46	1385024.32	3227359.75
3600.00	30.24	200.280	3348.75	997.66S	368.66W	==>	670.19	1384977.09	3227342.30
3700.00	30.24	200.280	3435.15	1044.89S	386.12W	==>	701.92	1384929.86	3227324.84
3800.00	30.24	200.280	3521.54	1092.13S	403.57W	==>	733.65	1384882.63	3227307.39
3900.00	30.24	200.280	3607.94	1139.36S	421.03W	==>	765.38	1384835.40	3227289.94
4000.00	30.24	200.280	3694.34	1186.60S	438.48W	==>	797.11	1384788.16	3227272.48
4100.00	30.24	200.280	3780.73	1233.83S	455.94W	==>	828.84	1384740.93	3227255.03
4200.00	30.24	200.280	3867.13	1281.07S	473.39W	==>	860.57	1384693.70	3227237.58
4300.00	30.24	200.280	3953.52	1328.30S	490.84W	==>	892.30	1384646.47	3227220.12
4400.00	30.24	200.280	4039.92	1375.54S	508.30W	==>	924.03	1384599.23	3227202.67
4500.00	30.24	200.280	4126.31	1422.77S	525.75W	==>	955.76	1384552.00	3227185.21
4600.00	30.24	200.280	4212.71	1470.00S	543.21W	==>	987.49	1384504.77	3227167.76
4700.00	30.24	200.280	4299.11	1517.24S	560.66W	==>	1019.22	1384457.54	3227150.31
4800.00	30.24	200.280	4385.50	1564.47S	578.12W	==>	1050.95	1384410.30	3227132.85
4900.00	30.24	200.280	4471.90	1611.71S	595.57W	==>	1082.68	1384363.07	3227115.40
5000.00	30.24	200.280	4558.29	1658.94S	613.03W	==>	1114.41	1384315.84	3227097.95
5100.00	30.24	200.280	4644.69	1706.18S	630.48W	==>	1146.14	1384268.61	3227080.49
5200.00	30.24	200.280	4731.09	1753.41S	647.93W	==>	1177.87	1384221.37	3227063.04
5300.00	30.24	200.280	4817.48	1800.64S	665.39W	==>	1209.60	1384174.14	3227045.58
5400.00	30.24	200.280	4903.88	1847.88S	682.84W	==>	1241.33	1384126.91	3227028.13
5500.00	30.24	200.280	4990.27	1895.11S	700.30W	==>	1273.06	1384079.68	3227010.68
5600.00	30.24	200.280	5076.67	1942.35S	717.75W	==>	1304.79	1384032.44	3226993.22
5700.00	30.24	200.280	5163.07	1989.58S	735.21W	==>	1336.52	1383985.21	3226975.77
5800.00	30.24	200.280	5249.46	2036.82S	752.66W	==>	1368.25	1383937.98	3226958.32
5900.00	30.24	200.280	5335.86	2084.05S	770.12W	==>	1399.98	1383890.75	3226940.86
6000.00	30.24	200.280	5422.25	2131.29S	787.57W	==>	1431.71	1383843.51	3226923.41
6100.00	30.24	200.280	5508.65	2178.52S	805.02W	==>	1463.44	1383796.28	3226905.96
6200.00	30.24	200.280	5595.05	2225.75S	822.48W	==>	1495.17	1383749.05	3226888.50
6300.00	30.24	200.280	5681.44	2272.99S	839.93W	==>	1526.90	1383701.82	3226871.05
6400.00	30.24	200.280	5767.84	2320.22S	857.39W	==>	1558.63	1383654.58	3226853.59
6500.00	30.24	200.280	5854.23	2367.46S	874.84W	==>	1590.36	1383607.35	3226836.14
6600.00	30.24	200.280	5940.63	2414.69S	892.30W	==>	1622.09	1383560.12	3226818.69
6700.00	30.24	200.280	6027.02	2461.93S	909.75W	==>	1653.82	1383512.89	3226801.23
6800.00	30.24	200.280	6113.42	2509.16S	927.21W	==>	1685.55	1383465.66	3226783.78
6900.00	30.24	200.280	6199.82	2556.40S	944.66W	==>	1717.28	1383418.42	3226766.33
7000.00	30.24	200.280	6286.21	2603.63S	962.11W	==>	1749.01	1383371.19	3226748.87
7100.00	30.24	200.280	6372.61	2650.86S	979.57W	==>	1780.74	1383323.96	3226731.42
7159.45	30.24	200.280	6423.97	2678.95S	989.95W	==>	1799.60	1383295.88	3226721.04
7200.00	31.20	205.510	6458.84	2698.00S	998.01W	7.00	1813.37	1383276.82	3226712.98
7300.00	34.38	217.050	6542.97	2743.97S	1026.21W	7.00	1854.87	1383230.85	3226684.78
7400.00	38.48	226.630	6623.48	2787.93S	1065.88W	7.00	1906.58	1383186.90	3226645.11
7500.00	43.21	234.520	6699.16	2829.21S	1116.44W	7.00	1967.74	1383145.62	3226594.55
7600.00	48.40	241.080	6768.88	2867.21S	1177.13W	7.00	2037.42	1383107.62	3226533.87
7700.00	53.91	246.640	6831.61	2901.35S	1247.04W	7.00	2114.60	1383073.48	3226463.96
7800.00	59.64	251.450	6886.40	2931.13S	1325.13W	7.00	2198.13	1383043.70	3226385.87
7900.00	65.53	255.730	6932.44	2956.11S	1410.24W	7.00	2286.75	1383018.73	3226300.76
8000.00	71.52	259.610	6969.05	2975.90S	1501.10W	7.00	2379.14	1382998.93	3226209.91
8100.00	77.59	263.230	6995.68	2990.22S	1596.36W	7.00	2473.94	1382984.61	3226114.66
8200.00	83.70	266.690	7011.93	2998.86S	1694.59W	7.00	2569.72	1382975.98	3226016.43
8300.00	89.84	270.060	7017.56	3001.68S	1794.33W	7.00	2665.06	1382973.16	3225916.70
8302.59	90.00	270.150	7017.56	3001.67S	1796.92W	7.00	2667.51	1382973.16	3225914.10
8400.00	90.00	270.150	7017.56	3001.42S	1894.32W	==>	2759.65	1382973.42	3225816.70
8500.00	90.00	270.150	7017.56	3001.16S	1994.32W	==>	2854.24	1382973.68	3225716.71
8600.00	90.00	270.150	7017.56	3000.90S	2094.32W	==>	2948.83	1382973.94	3225616.71
8700.00	90.00	270.150	7017.56	3000.63S	2194.32W	==>	3043.43	1382974.20	3225516.71
8800.00	90.00	270.150	7017.56	3000.37S	2294.32W	==>	3138.02	1382974.46	3225416.72
8900.00	90.00	270.150	7017.56	3000.11S	2394.32W	==>	3232.61	1382974.72	3225316.72
9000.00	90.00	270.150	7017.56	2999.85S	2494.32W	==>	3327.21	1382974.99	3225216.73
9100.00	90.00	270.150	7017.56	2999.59S	2594.32W	==>	3421.80	1382975.25	3225116.73
9200.00	90.00	270.150	7017.56	2999.33S	2694.32W	==>	3516.39	1382975.51	3225016.74
9300.00	90.00	270.150	7017.56	2999.07S	2794.32W	==>	3610.98	1382975.77	3224916.74

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Well Design Combined Report
Wellbore: GP-Dairy #2-20-19 (PWB)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
9400.00	90.00	270.150	7017.56	2998.80S	2894.32W	==>	3705.58	1382976.03	3224816.75
9500.00	90.00	270.150	7017.56	2998.54S	2994.32W	==>	3800.17	1382976.29	3224716.75
9600.00	90.00	270.150	7017.56	2998.28S	3094.32W	==>	3894.76	1382976.56	3224616.76
9700.00	90.00	270.150	7017.56	2998.02S	3194.32W	==>	3989.36	1382976.82	3224516.76
9800.00	90.00	270.150	7017.56	2997.76S	3294.32W	==>	4083.95	1382977.08	3224416.77
9900.00	90.00	270.150	7017.56	2997.50S	3394.32W	==>	4178.54	1382977.34	3224316.77
10000.00	90.00	270.150	7017.56	2997.23S	3494.32W	==>	4273.14	1382977.60	3224216.77
10100.00	90.00	270.150	7017.56	2996.97S	3594.32W	==>	4367.73	1382977.86	3224116.78
10200.00	90.00	270.150	7017.56	2996.71S	3694.32W	==>	4462.32	1382978.13	3224016.78
10300.00	90.00	270.150	7017.56	2996.45S	3794.32W	==>	4556.91	1382978.39	3223916.79
10400.00	90.00	270.150	7017.56	2996.19S	3894.32W	==>	4651.51	1382978.65	3223816.79
10485.16	90.00	270.150	7017.56	2995.96S	3979.48W	==>	4732.06	1382978.87	3223731.64
10500.00	90.00	270.150	7017.56	2995.93S	3994.32W	==>	4746.10	1382978.91	3223716.80
10600.00	90.00	270.150	7017.56	2995.66S	4094.32W	==>	4840.69	1382979.17	3223616.80
10700.00	90.00	270.150	7017.56	2995.40S	4194.32W	==>	4935.29	1382979.43	3223516.81
10800.00	90.00	270.150	7017.56	2995.14S	4294.32W	==>	5029.88	1382979.70	3223416.81
10900.00	90.00	270.150	7017.56	2994.88S	4394.32W	==>	5124.47	1382979.96	3223316.82
11000.00	90.00	270.150	7017.56	2994.62S	4494.32W	==>	5219.06	1382980.22	3223216.82
11100.00	90.00	270.150	7017.56	2994.36S	4594.32W	==>	5313.66	1382980.48	3223116.82
11200.00	90.00	270.150	7017.56	2994.09S	4694.32W	==>	5408.25	1382980.74	3223016.83
11300.00	90.00	270.150	7017.56	2993.83S	4794.31W	==>	5502.84	1382981.00	3222916.83
11400.00	90.00	270.150	7017.56	2993.57S	4894.31W	==>	5597.44	1382981.27	3222816.84
11500.00	90.00	270.150	7017.56	2993.31S	4994.31W	==>	5692.03	1382981.53	3222716.84
11600.00	90.00	270.150	7017.56	2993.05S	5094.31W	==>	5786.62	1382981.79	3222616.85
11700.00	90.00	270.150	7017.56	2992.79S	5194.31W	==>	5881.21	1382982.05	3222516.85
11800.00	90.00	270.150	7017.56	2992.52S	5294.31W	==>	5975.81	1382982.31	3222416.86
11900.00	90.00	270.150	7017.56	2992.26S	5394.31W	==>	6070.40	1382982.57	3222316.86
12000.00	90.00	270.150	7017.56	2992.00S	5494.31W	==>	6164.99	1382982.84	3222216.87
12100.00	90.00	270.150	7017.56	2991.74S	5594.31W	==>	6259.59	1382983.10	3222116.87
12200.00	90.00	270.150	7017.56	2991.48S	5694.31W	==>	6354.18	1382983.36	3222016.87
12300.00	90.00	270.150	7017.56	2991.22S	5794.31W	==>	6448.77	1382983.62	3221916.88
12400.00	90.00	270.150	7017.56	2990.95S	5894.31W	==>	6543.36	1382983.88	3221816.88
12500.00	90.00	270.150	7017.56	2990.69S	5994.31W	==>	6637.96	1382984.14	3221716.89
12600.00	90.00	270.150	7017.56	2990.43S	6094.31W	==>	6732.55	1382984.41	3221616.89
12700.00	90.00	270.150	7017.56	2990.17S	6194.31W	==>	6827.14	1382984.67	3221516.90
12800.00	90.00	270.150	7017.56	2989.91S	6294.31W	==>	6921.74	1382984.93	3221416.90
12900.00	90.00	270.150	7017.56	2989.65S	6394.31W	==>	7016.33	1382985.19	3221316.91
13000.00	90.00	270.150	7017.56	2989.38S	6494.31W	==>	7110.92	1382985.45	3221216.91
13100.00	90.00	270.150	7017.56	2989.12S	6594.31W	==>	7205.51	1382985.71	3221116.92
13200.00	90.00	270.150	7017.56	2988.86S	6694.31W	==>	7300.11	1382985.98	3221016.92
13300.00	90.00	270.150	7017.56	2988.60S	6794.31W	==>	7394.70	1382986.24	3220916.92
13400.00	90.00	270.150	7017.56	2988.34S	6894.31W	==>	7489.29	1382986.50	3220816.93
13500.00	90.00	270.150	7017.56	2988.08S	6994.31W	==>	7583.89	1382986.76	3220716.93
13600.00	90.00	270.150	7017.56	2987.81S	7094.31W	==>	7678.48	1382987.02	3220616.94
13700.00	90.00	270.150	7017.56	2987.55S	7194.31W	==>	7773.07	1382987.28	3220516.94
13800.00	90.00	270.150	7017.56	2987.29S	7294.31W	==>	7867.67	1382987.55	3220416.95
13900.00	90.00	270.150	7017.56	2987.03S	7394.31W	==>	7962.26	1382987.81	3220316.95
14000.00	90.00	270.150	7017.56	2986.77S	7494.31W	==>	8056.85	1382988.07	3220216.96
14100.00	90.00	270.150	7017.56	2986.51S	7594.31W	==>	8151.44	1382988.33	3220116.96
14200.00	90.00	270.150	7017.56	2986.24S	7694.30W	==>	8246.04	1382988.59	3220016.97
14300.00	90.00	270.150	7017.56	2985.98S	7794.30W	==>	8340.63	1382988.85	3219916.97
14400.00	90.00	270.150	7017.56	2985.72S	7894.30W	==>	8435.22	1382989.11	3219816.97
14500.00	90.00	270.150	7017.56	2985.46S	7994.30W	==>	8529.82	1382989.38	3219716.98
14600.00	90.00	270.150	7017.56	2985.20S	8094.30W	==>	8624.41	1382989.64	3219616.98
14700.00	90.00	270.150	7017.56	2984.94S	8194.30W	==>	8719.00	1382989.90	3219516.99
14800.00	90.00	270.150	7017.56	2984.67S	8294.30W	==>	8813.59	1382990.16	3219416.99
14900.00	90.00	270.150	7017.56	2984.41S	8394.30W	==>	8908.19	1382990.42	3219317.00
15000.00	90.00	270.150	7017.56	2984.15S	8494.30W	==>	9002.78	1382990.68	3219217.00
15100.00	90.00	270.150	7017.56	2983.89S	8594.30W	==>	9097.37	1382990.95	3219117.01
15200.00	90.00	270.150	7017.56	2983.63S	8694.30W	==>	9191.97	1382991.21	3219017.01
15280.60	90.00	270.150	7017.56	2983.42S	8774.90W	==>	9268.21	1382991.42	3218936.41

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Vertical Section is from 0.00N 0.00E on azimuth 251.220 degrees
Bottom hole distance is 9268.21 Feet on azimuth 251.22 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 4-Apr-2014



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: GP-Dairy #2-20-19 (PWB)

Hole Sections								
Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]
12 1/4	0.00	0.00	0.00N	0.00E	1000.00	999.68	10.23S	3.78W
8 3/4	1000.00	999.68	10.23S	3.78W	8302.00	7017.56	3001.68S	1796.33W
6 1/8	8302.00	7017.56	3001.68S	1796.33W	15280.60	7017.56	2983.42S	8774.90W

Casings								
Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]
9 5/8in Surface Casing	0.00	0.00	0.00N	0.00E	1000.00	999.68	10.23S	3.78W
7.0in Intermediate Casing	0.00	0.00	0.00N	0.00E	8302.00	7017.56	3001.68S	1796.33W
4 1/2in Production Liner	8102.00	6996.11	2990.45S	1598.30W	15280.60	7017.56	2983.42S	8774.90W

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
SG91	3001.67S	1796.92W	7017.56	40.38182730	-104.68905454	1382973.16	3225914.10	17-Mar-2014
SG92	2983.42S	8774.90W	7017.56	40.38204987	-104.711409987	1382991.42	3218936.41	17-Mar-2014
SG93	2995.96S	3979.48W	7017.56	40.38189749	-104.69688814	1382978.87	3223731.64	17-Mar-2014

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
64455	Planned	15280.60	7017.56	WdW Rate Gyro	Standard	

Notes

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Closest Approach + Clearance Factor Summary Report
Wellbore: GP-Dairy #2-20-19 (PWB)

Ellipse separations are reported ONLY if BOTH wells have uncertainty data
Only Depth and Magnetic Reference Field error terms are correlated across tie points
Proximities beyond 1500.00ft with expansion rate of 0.00ft/1000ft are not reported
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	Created	Last Revised
GP-Dairy #2-20-19 (PWB)	23-Sep-2013	4-Apr-2014

Well		
Name	Government ID	Last Revised
GP-Dairy #2-20-19		4-Apr-2014

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #53	1385974.7100	3227710.9460	40.39002098	-104.68250560	520.45S	375.61W

Installation				
Name	Easting	Northing	Coord System Name	North Alignment
Mineral Resources MRI	3228086.5450	1386495.1419	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Field				
Name	Easting	Northing	Coord System Name	North Alignment
Wattenberg	3211772.6087	1400656.3763	CO83-NF on NORTH AMERICAN DATUM 1983 datum	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]
GP-Dairy #3-19-20	GP-Dairy #3-19-20 (PWB)	Slot #54	Mineral Resources MRI	12.00	700.00	10491.27	9.96	700.00	2.52	15280.60
GP-Dairy #1-20-19	GP-Dairy #1-20-19 (PWB)	Slot #52	Mineral Resources MRI	12.00	750.00	10489.96	9.88	754.59	2.48	15280.60
GP-Dairy #4-19-20	GP-Dairy #4-19-20 (PWB)	Slot #55	Mineral Resources MRI	24.00	649.89	10485.16	22.04	649.89	4.18	15280.60
GP-Double Clutch #3-20-19	GP-Double Clutch #3-20-19 (PWB)	Slot #51	Mineral Resources MRI	24.00	750.00	15280.60	21.88	754.59	4.20	15280.60
GP-Dairy #5-19-20	GP-Dairy #5-19-20 (PWB)	Slot #56	Mineral Resources MRI	36.00	600.00	10485.16	34.01	600.00	6.43	15280.60
GP-Double Clutch #2-19-19	GP-Double Clutch #2-19-19 (PWB)	Slot #50	Mineral Resources MRI	36.00	750.00	15280.60	33.88	754.59	6.22	15280.60
GP-Double Clutch #1-19-19	GP-Double Clutch #1-19-19 (PWB)	Slot #49	Mineral Resources MRI	44.45	574.15	15280.60	42.58	574.15	8.42	15280.60
GP-Library #1-19-20	GP-Library #1-19-20 (PWB)	Slot #57	Mineral Resources MRI	48.00	549.86	10485.16	46.20	549.86	8.35	15280.60
GP-JEvans #5-19-19	GP-JEvans #5-19-19	Slot #48	Mineral Resources	56.99	526.45	526.45	55.19	541.34	28.96	672.57

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: GP-Dairy #2-20-19 (PWB)

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]
	(PWB)		MRI							
GP-JEvans 4-19-19	GP-JEvans 4-19-19 (PWB)	Slot #47	Mineral Resources MRI	72.00	754.59	754.59	69.87	754.59	31.70	885.83
GP-JEvans #3-19-19	GP-JEvans #3-19-19 (PWB)	Slot #46	Mineral Resources MRI	83.02	771.00	771.00	80.86	771.00	36.21	885.83
GP-JEvans #2-19-19	GP-JEvans #2-19-19 (PWB)	Slot #45	Mineral Resources MRI	95.56	579.50	579.50	93.69	606.96	43.28	885.83
GP-JEvans #1-19-19	GP-JEvans #1-19-19 (PWB)	Slot #44	Mineral Resources MRI	108.01	750.00	750.00	105.88	754.59	47.44	885.83
GP-Hillside #3-19-19	GP-Hillside #3-19-19 (PWB)	Slot #43	Mineral Resources MRI	120.01	705.38	705.38	117.92	754.59	52.74	885.83
GP-Hillside #2-19-19	GP-Hillside #2-19-19 (PWB)	Slot #42	Mineral Resources MRI	132.01	500.00	500.00	130.27	541.34	59.32	902.23
GP-Hillside #1-18-18	GP-Hillside #1-18-18 (PWB)	Slot #41	Mineral Resources MRI	144.01	750.00	750.00	141.88	754.59	62.81	885.83
GP-Jackson #5-18-18	GP-Jackson #5-18-18 (PWB)	Slot #40	Mineral Resources MRI	157.01	750.00	750.00	154.88	754.59	68.36	885.83
GP-Jackson #4-18-18	GP-Jackson #4-18-18 (PWB)	Slot #39	Mineral Resources MRI	169.01	750.00	750.00	166.88	754.59	73.49	885.83
GP-Jackson #3-18-18	GP-Jackson #3-18-18 (PWB)	Slot #38	Mineral Resources MRI	181.01	750.00	750.00	178.88	754.59	78.63	885.83
Commerce Center 2 #20-7H5	Commerce Center 2 #20-7H5 (AWB)	Commerce Center 2 #20-7H5	MRI Offsets	187.58	4410.12	4410.12	163.45	4412.73	7.73	4445.54
GP-Jackson #2-18-18	GP-Jackson #2-18-18 (PWB)	Slot #37	Mineral Resources MRI	193.01	750.00	750.00	190.88	754.59	83.84	885.83
GP-Jackson #1-18-18	GP-Jackson #1-18-18 (PWB)	Slot #36	Mineral Resources MRI	205.01	698.54	698.54	202.97	700.00	89.99	902.23
GP-Alles #3-18-18	GP-Alles #3-18-18 (PWB)	Slot #35	Mineral Resources MRI	217.01	524.93	524.93	215.25	524.93	98.97	902.23
GP-Alles #2-18-18	GP-Alles #2-18-18 (PWB)	Slot #34	Mineral Resources MRI	229.01	473.88	473.88	227.34	475.72	106.87	918.64
Commerce Center 4 #20-2H5	Commerce Center 4 #20-2H5 (AWB)	Commerce Center 4 #20-2H5	MRI Offsets	234.48	1926.20	1926.20	228.18	1935.70	35.42	2083.33
CDOT-2 #D7	CDOT-2 #D7 (AWB)	CDOT-2 #D7	Mineral Resources MRI	290.60	541.34	541.34	287.60	574.15	57.53	2706.69
CDOT-3 #D2	CDOT-3 #D2 (AWB)	CDOT-3 #D2	Mineral Resources MRI	303.62	754.59	754.59	299.88	771.00	63.28	1459.97

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Wellbore: GP-Dairy #2-20-19 (PWB)

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]
Sunnyview #E4	Sunnyview #E4 (AWB)	Sunnyview #E4	Mineral Resources MRI	310.79	951.44	951.44	305.67	984.25	24.62	4625.98
Ehrlich Motors #D8	Ehrlich Motors #D8 (AWB)	Ehrlich Motors #D8	Mineral Resources MRI	319.09	560.55	560.55	317.59	639.76	54.85	3576.12
Sleep Inn #E5	Sleep Inn #E5 (AWB)	Sleep Inn #E5	Mineral Resources MRI	332.48	0.00	0.00	331.37	49.21	95.25	2261.80
Tri Point #E3	Tri Point #E3 (AWB)	Tri Point #E3	Mineral Resources MRI	346.70	826.90	826.90	342.32	836.61	29.97	4300.00
CDOT-1 #E2	CDOT-1 #E2 (AWB)	CDOT-1 #E2	Mineral Resources MRI	375.38	790.40	790.40	370.55	820.21	39.12	4035.43
University Square #D6	University Square #D6 (AWB)	University Square #D6	Mineral Resources MRI	415.29	16.40	750.00	412.86	754.59	63.58	2919.95
Garden City #D5	Garden City #D5 (AWB)	Garden City #D5	Mineral Resources MRI	434.10	11.56	702.06	432.31	246.06	88.25	3248.03
University 5 Spot #D4	University 5 Spot #D4 (AWB)	University 5 Spot #D4	Mineral Resources MRI	486.12	218.89	218.89	484.59	229.66	74.62	2542.65
Wheeler #D3	Wheeler #D3 (AWB)	Wheeler #D3	Mineral Resources MRI	493.12	156.87	156.87	491.67	196.85	83.91	2230.97
Driftwood #D1	Driftwood #D1 (AWB)	Driftwood #D1	Mineral Resources MRI	499.68	0.00	318.48	498.51	49.21	103.45	2214.57
Classic Lanes #C9	Classic Lanes #C9 (AWB)	Classic Lanes #C9	Mineral Resources MRI	503.13	0.00	0.00	501.95	65.62	89.01	2263.78
District Six #C6	District Six #C6 (AWB)	District Six #C6	Mineral Resources MRI	512.38	200.00	200.00	510.87	200.00	153.30	967.85
Volk #C7	Volk #C7 (AWB)	Volk #C7	Mineral Resources MRI	513.09	0.00	0.00	511.99	32.81	119.97	1689.63
Union Pacific #C5	Union Pacific #C5 (AWB)	Union Pacific #C5	Mineral Resources MRI	519.97	136.56	136.56	518.49	180.45	181.45	1377.95
HWY 85-3 #C4	HWY 85-3 #C4 (AWB)	HWY 85-3 #C4	Mineral Resources MRI	530.68	116.89	116.89	529.41	147.64	205.76	1459.97
Countryside Center #C3	Countryside Center #C3 (AWB)	Countryside Center #C3	Mineral Resources MRI	534.83	0.56	0.56	533.81	32.81	172.50	967.85
Millers Green House #A10	Millers Green House #A10 (AWB)	Millers Green House #A10	Mineral Resources MRI	619.46	2.56	2.56	617.79	229.66	95.58	2821.52
Riverview #A9	Riverview #A9 (AWB)	Riverview #A9	Mineral Resources MRI	623.69	500.55	500.55	620.80	500.55	111.29	2706.69
HWY 34-2	HWY 34-2	HWY 34-2	Mineral Resources	635.18	1.56	1.56	633.62	131.23	144.49	2608.27

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Clearance Summary										
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#A8	#A8 (AWB)	#A8	MRI							
BMC #B8	BMC #B8 (AWB)	BMC #B8	Mineral Resources MRI	641.84	0.56	0.56	640.19	131.23	97.59	2837.93
HWY 34-1 #A7	HWY 34-1 #A7 (AWB)	HWY 34-1 #A7	Mineral Resources MRI	645.48	1.56	1.56	643.68	200.00	172.27	2821.52
Greeley Industrial South #B9	Greeley Industrial South #B9 (AWB)	Greeley Industrial South #B9	Mineral Resources MRI	657.01	600.56	600.56	654.85	600.56	150.69	2608.27
Shupe 5 Spot #B10	Shupe 5 Spot #B10 (AWB)	Shupe 5 Spot #B10	Mineral Resources MRI	673.80	750.00	750.00	671.43	754.59	217.24	2739.50
Sam Pak #A6	Sam Pak #A6 (AWB)	Sam Pak #A6	Mineral Resources MRI	676.89	4.56	4.56	675.23	300.00	189.49	2345.80
Bus Barn #A5	Bus Barn #A5 (AWB)	Bus Barn #A5	Mineral Resources MRI	687.21	4.56	4.56	685.14	311.68	157.91	1591.21
Highway 85-2 #B-11	Highway 85-2 #B-11 (AWB)	Highway 85-2 #B-11	Mineral Resources MRI	689.49	278.87	278.87	687.47	311.68	188.28	2083.33
Smith 5 Spot #A4	Smith 5 Spot #A4 (AWB)	Smith 5 Spot #A4	Mineral Resources MRI	702.51	3.56	3.56	700.83	147.64	209.46	984.25
Highway 85-1 #B12	Highway 85-1 #B12 (AWB)	Highway 85-1 #B12	Mineral Resources MRI	706.70	750.00	750.00	704.32	754.59	247.64	1919.29
Parkview South #A3	Parkview South #A3 (AWB)	Parkview South #A3	Mineral Resources MRI	718.38	4.56	4.56	716.92	147.64	252.64	2017.72
Delta Park #A2	Delta Park #A2 (AWB)	Delta Park #A2	Mineral Resources MRI	730.31	200.00	200.00	728.64	213.25	181.23	1656.82
Clark #A1	Clark #A1 (AWB)	Clark #A1	Mineral Resources MRI	747.21	4.56	4.56	745.44	246.06	118.41	2214.57
Commerce Center 3 #20-1H5	Commerce Center 3 #20-1H5 (AWB)	Commerce Center 3 #20-1H5	MRI Offsets	767.68	771.00	771.00	764.33	771.00	142.93	3592.52