

# MINERAL RESOURCES, INC.

<b>Location</b>	Windsor	<b>Slot</b>	Slot #55
<b>Field</b>	Wattenberg	<b>Well</b>	GP-Dairy #4-20-19
<b>Installation</b>	Mineral Resources MRI	<b>Wellbore</b>	GP-Dairy #4-20-19 (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	650.00	0.00	0.00	650.00	0.00	0.00	0.00	-0.00
End of Build	2389.70	34.79	196.77	2284.73	-490.43	-147.76	2.00	323.71
End of Hold	7458.84	34.79	196.77	6447.54	-3260.05	-982.19	0.00	2151.81
Target SG97	8610.38	90.00	270.15	7017.67	-3637.55	-1790.72	7.00	3043.21
Target SG99	10791.56	90.00	270.15	7017.67	-3631.84	-3971.88	0.00	5057.17
T.D. & Target SG98	15587.34	90.00	270.15	7017.67	-3619.29	-8767.66	0.00	9485.31

Surface 0.00 N 0.00 E

SG98

SG99

SG97

<- 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, 650.00 MD, 650.00 TVD, -0.00 VS

9 5/8in Surface Casing

End of Build - 34.79 Inc, 2389.70 MD, 2284.73 TVD, 323.71 VS

End of Hold - 34.79 Inc, 7458.84 MD, 6447.54 TVD, 2151.81 VS

7.0in Intermediate Casing

SG97

SG99

SG98

4 1/2in Production Liner

S/C Kick off Point - 90.00 Inc, 8610.38 MD, 7017.67 TVD, 3043.21 VS

T.D. & End of Hold - 7017.67 TVD, 3619.29 S 8767.66 W

S/C Kick off Point - 90.00 Inc, 10791.56 MD, 7017.67 TVD, 5057.17 VS

Created by admin

Date plotted 4-Apr-2014

Plot reference is GP-Dairy #4-20-19 (PWB).  
Ref wellpath is MRI-Dairy #4-19-20 (PWP#1).  
Coordinates are in feet reference Slot #55.  
True Vertical Depths are reference Rig Datum.  
Measured Depths are reference Rig Datum.  
Rig Datum: Planned Datum #1  
Rig Datum to Mean Sea Level: 4672.67 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 247.57 with reference 0.00 N, 0.00 E from Slot #55



INTEGRATED PETROLEUM TECHNOLOGIES, INC  
SYSDRILL  
Well Design Combined Report  
Wellbore: GP-Dairy #4-20-19 (PWB)

Wellhead Details							
Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
Slot #55	1385950.7120	3227711.2240	40.38995510	-104.68250539	544.45S	375.34W	0.67

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	1385950.71	3227711.22
650.00	0.00	0.000	650.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
2389.70	34.79	196.770	2284.73	490.43S	147.76W	2.00	323.71	1385460.31	3227563.47
7458.84	34.79	196.770	6447.54	3260.05S	982.19W	==>	2151.81	1382690.80	3226729.08
8610.38	90.00	270.150	7017.67	3637.55S	1790.72W	7.00	3043.21	1382313.32	3225920.58
10791.56	90.00	270.150	7017.67	3631.84S	3971.88W	==>	5057.17	1382319.03	3223739.51
15587.34	90.00	270.150	7017.67	3619.29S	8767.66W	==>	9485.31	1382331.57	3218943.94

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	1385950.71	3227711.22
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
650.00	0.00	0.000	650.00	0.00N	0.00E	==>	0.00	1385950.71	3227711.22
750.00	2.00	196.770	749.98	1.67S	0.50W	2.00	1.10	1385949.04	3227710.72
850.00	4.00	196.770	849.84	6.68S	2.01W	2.00	4.41	1385944.03	3227709.21
950.00	6.00	196.770	949.45	15.03S	4.53W	2.00	9.92	1385935.69	3227706.70
1050.00	8.00	196.770	1048.70	26.69S	8.04W	2.00	17.62	1385924.02	3227703.18
1150.00	10.00	196.770	1147.47	41.67S	12.56W	2.00	27.51	1385909.04	3227698.67
1250.00	12.00	196.770	1245.62	59.94S	18.06W	2.00	39.56	1385890.77	3227693.17
1350.00	14.00	196.770	1343.06	81.48S	24.55W	2.00	53.78	1385869.24	3227686.68
1450.00	16.00	196.770	1439.64	106.26S	32.01W	2.00	70.14	1385844.46	3227679.21
1550.00	18.00	196.770	1535.27	134.25S	40.45W	2.00	88.61	1385816.47	3227670.78
1650.00	20.00	196.770	1629.82	165.42S	49.84W	2.00	109.19	1385785.30	3227661.39
1750.00	22.00	196.770	1723.17	199.73S	60.18W	2.00	131.84	1385750.99	3227651.05
1850.00	24.00	196.770	1815.21	237.14S	71.45W	2.00	156.53	1385713.58	3227639.78
1950.00	26.00	196.770	1905.84	277.61S	83.64W	2.00	183.24	1385673.12	3227627.59
2050.00	28.00	196.770	1994.94	321.07S	96.73W	2.00	211.93	1385629.65	3227614.49
2150.00	30.00	196.770	2082.39	367.49S	110.72W	2.00	242.57	1385583.24	3227600.51
2250.00	32.00	196.770	2168.11	416.80S	125.58W	2.00	275.11	1385533.93	3227585.65
2350.00	34.00	196.770	2251.97	468.95S	141.29W	2.00	309.53	1385481.78	3227569.94
2389.70	34.79	196.770	2284.73	490.43S	147.76W	2.00	323.71	1385460.31	3227563.47
2400.00	34.79	196.770	2293.19	496.05S	149.45W	==>	327.42	1385454.68	3227561.78
2500.00	34.79	196.770	2375.31	550.69S	165.91W	==>	363.48	1385400.05	3227545.32
2600.00	34.79	196.770	2457.43	605.33S	182.37W	==>	399.55	1385345.41	3227528.86
2700.00	34.79	196.770	2539.55	659.96S	198.83W	==>	435.61	1385290.78	3227512.40
2800.00	34.79	196.770	2621.67	714.60S	215.30W	==>	471.67	1385236.14	3227495.94
2900.00	34.79	196.770	2703.79	769.24S	231.76W	==>	507.74	1385181.51	3227479.48
3000.00	34.79	196.770	2785.91	823.87S	248.22W	==>	543.80	1385126.87	3227463.02
3100.00	34.79	196.770	2868.03	878.51S	264.68W	==>	579.86	1385072.24	3227446.56
3200.00	34.79	196.770	2950.15	933.15S	281.14W	==>	615.93	1385017.60	3227430.10
3300.00	34.79	196.770	3032.27	987.78S	297.60W	==>	651.99	1384962.97	3227413.64

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 4672.7ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 247.570 degrees  
Bottom hole distance is 9485.31 Feet on azimuth 247.57 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 #4-20-19 (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	34.79	196.770	3114.39	1042.42S	314.06W	==>	688.05	1384908.33	3227397.18
3500.00	34.79	196.770	3196.52	1097.06S	330.52W	==>	724.12	1384853.70	3227380.72
3600.00	34.79	196.770	3278.64	1151.70S	346.98W	==>	760.18	1384799.07	3227364.26
3700.00	34.79	196.770	3360.76	1206.33S	363.44W	==>	796.24	1384744.43	3227347.79
3800.00	34.79	196.770	3442.88	1260.97S	379.91W	==>	832.31	1384689.80	3227331.33
3900.00	34.79	196.770	3525.00	1315.61S	396.37W	==>	868.37	1384635.16	3227314.87
4000.00	34.79	196.770	3607.12	1370.24S	412.83W	==>	904.43	1384580.53	3227298.41
4100.00	34.79	196.770	3689.24	1424.88S	429.29W	==>	940.50	1384525.89	3227281.95
4200.00	34.79	196.770	3771.36	1479.52S	445.75W	==>	976.56	1384471.26	3227265.49
4300.00	34.79	196.770	3853.48	1534.15S	462.21W	==>	1012.63	1384416.62	3227249.03
4400.00	34.79	196.770	3935.60	1588.79S	478.67W	==>	1048.69	1384361.99	3227232.57
4500.00	34.79	196.770	4017.72	1643.43S	495.13W	==>	1084.75	1384307.35	3227216.11
4600.00	34.79	196.770	4099.84	1698.07S	511.59W	==>	1120.82	1384252.72	3227199.65
4700.00	34.79	196.770	4181.97	1752.70S	528.06W	==>	1156.88	1384198.08	3227183.19
4800.00	34.79	196.770	4264.09	1807.34S	544.52W	==>	1192.94	1384143.45	3227166.73
4900.00	34.79	196.770	4346.21	1861.98S	560.98W	==>	1229.01	1384088.81	3227150.27
5000.00	34.79	196.770	4428.33	1916.61S	577.44W	==>	1265.07	1384034.18	3227133.81
5100.00	34.79	196.770	4510.45	1971.25S	593.90W	==>	1301.13	1383979.55	3227117.35
5200.00	34.79	196.770	4592.57	2025.89S	610.36W	==>	1337.20	1383924.91	3227100.89
5300.00	34.79	196.770	4674.69	2080.52S	626.82W	==>	1373.26	1383870.28	3227084.43
5400.00	34.79	196.770	4756.81	2135.16S	643.28W	==>	1409.32	1383815.64	3227067.97
5500.00	34.79	196.770	4838.93	2189.80S	659.74W	==>	1445.39	1383761.01	3227051.51
5600.00	34.79	196.770	4921.05	2244.43S	676.20W	==>	1481.45	1383706.37	3227035.05
5700.00	34.79	196.770	5003.17	2299.07S	692.67W	==>	1517.51	1383651.74	3227018.59
5800.00	34.79	196.770	5085.30	2353.71S	709.13W	==>	1553.58	1383597.10	3227002.13
5900.00	34.79	196.770	5167.42	2408.35S	725.59W	==>	1589.64	1383542.47	3226985.67
6000.00	34.79	196.770	5249.54	2462.98S	742.05W	==>	1625.70	1383487.83	3226969.21
6100.00	34.79	196.770	5331.66	2517.62S	758.51W	==>	1661.77	1383433.20	3226952.75
6200.00	34.79	196.770	5413.78	2572.26S	774.97W	==>	1697.83	1383378.56	3226936.29
6300.00	34.79	196.770	5495.90	2626.89S	791.43W	==>	1733.89	1383323.93	3226919.82
6400.00	34.79	196.770	5578.02	2681.53S	807.89W	==>	1769.96	1383269.29	3226903.36
6500.00	34.79	196.770	5660.14	2736.17S	824.35W	==>	1806.02	1383214.66	3226886.90
6600.00	34.79	196.770	5742.26	2790.80S	840.82W	==>	1842.08	1383160.03	3226870.44
6700.00	34.79	196.770	5824.38	2845.44S	857.28W	==>	1878.15	1383105.39	3226853.98
6800.00	34.79	196.770	5906.50	2900.08S	873.74W	==>	1914.21	1383050.76	3226837.52
6900.00	34.79	196.770	5988.62	2954.72S	890.20W	==>	1950.27	1382996.12	3226821.06
7000.00	34.79	196.770	6070.75	3009.35S	906.66W	==>	1986.34	1382941.49	3226804.60
7100.00	34.79	196.770	6152.87	3063.99S	923.12W	==>	2022.40	1382886.85	3226788.14
7200.00	34.79	196.770	6234.99	3118.63S	939.58W	==>	2058.46	1382832.22	3226771.68
7300.00	34.79	196.770	6317.11	3173.26S	956.04W	==>	2094.53	1382777.58	3226755.22
7400.00	34.79	196.770	6399.23	3227.90S	972.50W	==>	2130.59	1382722.95	3226738.76
7458.84	34.79	196.770	6447.54	3260.05S	982.19W	==>	2151.81	1382690.80	3226729.08
7500.00	35.58	201.580	6481.19	3282.43S	989.98W	7.00	2167.55	1382668.42	3226721.28
7600.00	38.21	212.400	6561.25	3335.66S	1017.29W	7.00	2213.10	1382615.19	3226693.98
7700.00	41.72	221.840	6637.95	3386.63S	1056.11W	7.00	2268.43	1382564.22	3226655.16
7800.00	45.90	229.970	6710.15	3434.58S	1105.86W	7.00	2332.72	1382516.28	3226605.41
7900.00	50.57	236.960	6776.78	3478.79S	1165.80W	7.00	2404.99	1382472.07	3226545.47
8000.00	55.61	243.040	6836.85	3518.60S	1235.04W	7.00	2484.19	1382432.26	3226476.23
8100.00	60.92	248.420	6889.46	3553.43S	1312.55W	7.00	2569.12	1382397.43	3226398.73
8200.00	66.42	253.250	6933.82	3582.74S	1397.17W	7.00	2658.52	1382368.12	3226314.11
8300.00	72.05	257.700	6969.27	3606.11S	1487.64W	7.00	2751.06	1382344.75	3226223.65
8400.00	77.78	261.860	6995.29	3623.19S	1582.61W	7.00	2845.36	1382327.68	3226128.68
8500.00	83.57	265.850	7011.48	3633.72S	1680.66W	7.00	2940.01	1382317.15	3226030.64
8600.00	89.39	269.750	7017.62	3637.54S	1780.34W	7.00	3033.61	1382313.33	3225930.96
8610.38	90.00	270.150	7017.67	3637.55S	1790.72W	7.00	3043.21	1382313.32	3225920.58
8700.00	90.00	270.150	7017.67	3637.31S	1880.33W	==>	3125.95	1382313.55	3225830.97
8800.00	90.00	270.150	7017.67	3637.05S	1980.33W	==>	3218.29	1382313.81	3225730.97
8900.00	90.00	270.150	7017.67	3636.79S	2080.33W	==>	3310.62	1382314.08	3225630.98
9000.00	90.00	270.150	7017.67	3636.53S	2180.33W	==>	3402.95	1382314.34	3225530.98
9100.00	90.00	270.150	7017.67	3636.27S	2280.33W	==>	3495.29	1382314.60	3225430.99
9200.00	90.00	270.150	7017.67	3636.00S	2380.33W	==>	3587.62	1382314.86	3225330.99
9300.00	90.00	270.150	7017.67	3635.74S	2480.33W	==>	3679.96	1382315.12	3225231.00

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Vertical Section is from 0.00N 0.00E on azimuth 247.570 degrees  
Bottom hole distance is 9485.31 Feet on azimuth 247.57 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 #4-20-19 (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	7017.67	3635.48S	2580.33W	==>	3772.29	1382315.38	3225131.00
9500.00	90.00	270.150	7017.67	3635.22S	2680.33W	==>	3864.62	1382315.65	3225031.00
9600.00	90.00	270.150	7017.67	3634.96S	2780.33W	==>	3956.96	1382315.91	3224931.01
9700.00	90.00	270.150	7017.67	3634.70S	2880.33W	==>	4049.29	1382316.17	3224831.01
9800.00	90.00	270.150	7017.67	3634.43S	2980.33W	==>	4141.63	1382316.43	3224731.02
9900.00	90.00	270.150	7017.67	3634.17S	3080.33W	==>	4233.96	1382316.69	3224631.02
10000.00	90.00	270.150	7017.67	3633.91S	3180.33W	==>	4326.29	1382316.95	3224531.03
10100.00	90.00	270.150	7017.67	3633.65S	3280.33W	==>	4418.63	1382317.22	3224431.03
10200.00	90.00	270.150	7017.67	3633.39S	3380.33W	==>	4510.96	1382317.48	3224331.04
10300.00	90.00	270.150	7017.67	3633.13S	3480.33W	==>	4603.30	1382317.74	3224231.04
10400.00	90.00	270.150	7017.67	3632.86S	3580.33W	==>	4695.63	1382318.00	3224131.05
10500.00	90.00	270.150	7017.67	3632.60S	3680.33W	==>	4787.96	1382318.26	3224031.05
10600.00	90.00	270.150	7017.67	3632.34S	3780.33W	==>	4880.30	1382318.52	3223931.06
10700.00	90.00	270.150	7017.67	3632.08S	3880.33W	==>	4972.63	1382318.79	3223831.06
10791.56	90.00	270.150	7017.67	3631.84S	3971.88W	==>	5057.17	1382319.03	3223739.51
10800.00	90.00	270.150	7017.67	3631.82S	3980.33W	==>	5064.97	1382319.05	3223731.06
10900.00	90.00	270.150	7017.67	3631.56S	4080.33W	==>	5157.30	1382319.31	3223631.07
11000.00	90.00	270.150	7017.67	3631.29S	4180.33W	==>	5249.63	1382319.57	3223531.07
11100.00	90.00	270.150	7017.67	3631.03S	4280.33W	==>	5341.97	1382319.83	3223431.08
11200.00	90.00	270.150	7017.67	3630.77S	4380.33W	==>	5434.30	1382320.09	3223331.08
11300.00	90.00	270.150	7017.67	3630.51S	4480.33W	==>	5526.63	1382320.36	3223231.09
11400.00	90.00	270.150	7017.67	3630.25S	4580.33W	==>	5618.97	1382320.62	3223131.09
11500.00	90.00	270.150	7017.67	3629.99S	4680.33W	==>	5711.30	1382320.88	3223031.10
11600.00	90.00	270.150	7017.67	3629.73S	4780.32W	==>	5803.64	1382321.14	3222931.10
11700.00	90.00	270.150	7017.67	3629.46S	4880.32W	==>	5895.97	1382321.40	3222831.11
11800.00	90.00	270.150	7017.67	3629.20S	4980.32W	==>	5988.30	1382321.66	3222731.11
11900.00	90.00	270.150	7017.67	3628.94S	5080.32W	==>	6080.64	1382321.93	3222631.11
12000.00	90.00	270.150	7017.67	3628.68S	5180.32W	==>	6172.97	1382322.19	3222531.12
12100.00	90.00	270.150	7017.67	3628.42S	5280.32W	==>	6265.31	1382322.45	3222431.12
12200.00	90.00	270.150	7017.67	3628.16S	5380.32W	==>	6357.64	1382322.71	3222331.13
12300.00	90.00	270.150	7017.67	3627.89S	5480.32W	==>	6449.97	1382322.97	3222231.13
12400.00	90.00	270.150	7017.67	3627.63S	5580.32W	==>	6542.31	1382323.23	3222131.14
12500.00	90.00	270.150	7017.67	3627.37S	5680.32W	==>	6634.64	1382323.49	3222031.14
12600.00	90.00	270.150	7017.67	3627.11S	5780.32W	==>	6726.98	1382323.76	3221931.15
12700.00	90.00	270.150	7017.67	3626.85S	5880.32W	==>	6819.31	1382324.02	3221831.15
12800.00	90.00	270.150	7017.67	3626.59S	5980.32W	==>	6911.64	1382324.28	3221731.16
12900.00	90.00	270.150	7017.67	3626.32S	6080.32W	==>	7003.98	1382324.54	3221631.16
13000.00	90.00	270.150	7017.67	3626.06S	6180.32W	==>	7096.31	1382324.80	3221531.16
13100.00	90.00	270.150	7017.67	3625.80S	6280.32W	==>	7188.65	1382325.06	3221431.17
13200.00	90.00	270.150	7017.67	3625.54S	6380.32W	==>	7280.98	1382325.33	3221331.17
13300.00	90.00	270.150	7017.67	3625.28S	6480.32W	==>	7373.31	1382325.59	3221231.18
13400.00	90.00	270.150	7017.67	3625.02S	6580.32W	==>	7465.65	1382325.85	3221131.18
13500.00	90.00	270.150	7017.67	3624.75S	6680.32W	==>	7557.98	1382326.11	3221031.19
13600.00	90.00	270.150	7017.67	3624.49S	6780.32W	==>	7650.32	1382326.37	3220931.19
13700.00	90.00	270.150	7017.67	3624.23S	6880.32W	==>	7742.65	1382326.63	3220831.20
13800.00	90.00	270.150	7017.67	3623.97S	6980.32W	==>	7834.98	1382326.90	3220731.20
13900.00	90.00	270.150	7017.67	3623.71S	7080.32W	==>	7927.32	1382327.16	3220631.21
14000.00	90.00	270.150	7017.67	3623.45S	7180.32W	==>	8019.65	1382327.42	3220531.21
14100.00	90.00	270.150	7017.67	3623.18S	7280.32W	==>	8111.98	1382327.68	3220431.21
14200.00	90.00	270.150	7017.67	3622.92S	7380.32W	==>	8204.32	1382327.94	3220331.22
14300.00	90.00	270.150	7017.67	3622.66S	7480.32W	==>	8296.65	1382328.20	3220231.22
14400.00	90.00	270.150	7017.67	3622.40S	7580.32W	==>	8388.99	1382328.47	3220131.23
14500.00	90.00	270.150	7017.67	3622.14S	7680.32W	==>	8481.32	1382328.73	3220031.23
14600.00	90.00	270.150	7017.67	3621.88S	7780.31W	==>	8573.65	1382328.99	3219931.24
14700.00	90.00	270.150	7017.67	3621.61S	7880.31W	==>	8665.99	1382329.25	3219831.24
14800.00	90.00	270.150	7017.67	3621.35S	7980.31W	==>	8758.32	1382329.51	3219731.25
14900.00	90.00	270.150	7017.67	3621.09S	8080.31W	==>	8850.66	1382329.77	3219631.25
15000.00	90.00	270.150	7017.67	3620.83S	8180.31W	==>	8942.99	1382330.04	3219531.26
15100.00	90.00	270.150	7017.67	3620.57S	8280.31W	==>	9035.32	1382330.30	3219431.26
15200.00	90.00	270.150	7017.67	3620.31S	8380.31W	==>	9127.66	1382330.56	3219331.27
15300.00	90.00	270.150	7017.67	3620.04S	8480.31W	==>	9219.99	1382330.82	3219231.27

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Vertical Section is from 0.00N 0.00E on azimuth 247.570 degrees  
Bottom hole distance is 9485.31 Feet on azimuth 247.57 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by Integrated Petroleum Technologies, Inc.  
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INTEGRATED PETROLEUM TECHNOLOGIES, INC  
SYSDRILL  
Well Design Combined Report  
Wellbore: GP-Dairy #4-20-19 (PWB)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft] ==>	Vertical Section[ft]	Northing	Easting
15400.00	90.00	270.150	7017.67	3619.78S	8580.31W		9312.33	1382331.08	3219131.27
15500.00	90.00	270.150	7017.67	3619.52S	8680.31W	==>	9404.66	1382331.34	3219031.28
15587.34	90.00	270.150	7017.67	3619.29S	8767.66W	==>	9485.31	1382331.57	3218943.94

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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	999.13	20.45S	6.16W
8 3/4	1000.00	999.13	20.45S	6.16W	8610.00	7017.67	3637.55S	1790.34W
6 1/8	8610.00	7017.67	3637.55S	1790.34W	15587.34	7017.67	3619.29S	8767.66W

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	999.13	20.45S	6.16W
7.0in Intermediate Casing	0.00	0.00	0.00N	0.00E	8610.00	7017.67	3637.55S	1790.34W
4 1/2in Production Liner	8410.00	6997.35	3624.54S	1592.30W	15587.34	7017.67	3619.29S	8767.66W

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
SG97	3637.55S	1790.72W	7017.67	40.38001592	-104.68905295	1382313.32	3225920.58	17-Mar-2014
SG98	3619.29S	8767.66W	7017.67	40.38023846	-104.711409385	1382331.57	3218943.94	17-Mar-2014
SG99	3631.84S	3971.88W	7017.67	40.38008608	-104.69688134	1382319.03	3223739.51	17-Mar-2014

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
64507	Planned	15587.34	7017.67	WdW Rate Gyro	Standard	

Notes

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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 #4-20-19 (PWB)	23-Sep-2013	4-Apr-2014

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

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #55	1385950.7120	3227711.2240	40.38995510	-104.68250539	544.45S	375.34W

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 #5-19-20	GP-Dairy #5-19-20 (PWB)	Slot #56	Mineral Resources MRI	12.00	600.00	15551.18	10.01	600.00	2.52	15587.34
GP-Dairy #3-20-19	GP-Dairy #3-20-19 (PWB)	Slot #54	Mineral Resources MRI	12.00	650.00	15587.34	10.04	656.17	2.47	15587.34
GP-Dairy #2-20-19	GP-Dairy #2-20-19 (PWB)	Slot #53	Mineral Resources MRI	24.00	650.00	10801.15	22.04	656.17	4.20	15587.34
GP-Library #1-19-20	GP-Library #1-19-20 (PWB)	Slot #57	Mineral Resources MRI	24.00	549.97	15578.09	22.20	549.97	4.17	15587.34
GP-Dairy #1-20-19	GP-Dairy #1-20-19 (PWB)	Slot #52	Mineral Resources MRI	36.00	650.00	10791.56	34.04	656.17	6.42	15587.34
GP-Double Clutch #3-20-19	GP-Double Clutch #3-20-19 (PWB)	Slot #51	Mineral Resources MRI	48.00	650.00	10791.56	46.04	656.17	8.41	15587.34
GP-Double Clutch #2-19-19	GP-Double Clutch #2-19-19 (PWB)	Slot #50	Mineral Resources MRI	60.00	650.00	650.00	58.04	656.17	28.96	787.40
GP-Double Clutch #1-19-19	GP-Double Clutch #1-19-19 (PWB)	Slot #49	Mineral Resources MRI	66.67	644.11	644.11	64.66	650.00	31.24	771.00
GP-JEvans #5-19-19	GP-JEvans #5-19-19	Slot #48	Mineral Resources	79.79	590.55	590.55	77.87	600.00	37.50	754.59

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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	96.00	650.00	650.00	94.04	656.17	44.60	885.83
GP-JEvans #3-19-19	GP-JEvans #3-19-19 (PWB)	Slot #46	Mineral Resources MRI	107.66	672.57	672.57	105.66	672.57	48.64	885.83
GP-JEvans #2-19-19	GP-JEvans #2-19-19 (PWB)	Slot #45	Mineral Resources MRI	119.45	606.96	606.96	117.53	623.36	54.03	902.23
GP-JEvans #1-19-19	GP-JEvans #1-19-19 (PWB)	Slot #44	Mineral Resources MRI	132.01	650.00	650.00	130.04	656.17	60.36	885.83
GP-Hillside #3-19-19	GP-Hillside #3-19-19 (PWB)	Slot #43	Mineral Resources MRI	144.01	650.00	650.00	142.04	656.17	65.61	885.83
GP-Hillside #2-19-19	GP-Hillside #2-19-19 (PWB)	Slot #42	Mineral Resources MRI	156.01	500.00	500.00	154.27	541.34	71.81	902.23
GP-Hillside #1-18-18	GP-Hillside #1-18-18 (PWB)	Slot #41	Mineral Resources MRI	168.01	650.00	650.00	166.04	656.17	75.73	885.83
GP-Jackson #5-18-18	GP-Jackson #5-18-18 (PWB)	Slot #40	Mineral Resources MRI	181.01	650.00	650.00	179.04	656.17	81.28	885.83
GP-Jackson #4-18-18	GP-Jackson #4-18-18 (PWB)	Slot #39	Mineral Resources MRI	193.01	650.00	650.00	191.04	656.17	86.41	885.83
GP-Jackson #3-18-18	GP-Jackson #3-18-18 (PWB)	Slot #38	Mineral Resources MRI	205.01	650.00	650.00	203.04	656.17	91.54	885.83
GP-Jackson #2-18-18	GP-Jackson #2-18-18 (PWB)	Slot #37	Mineral Resources MRI	217.01	650.00	650.00	215.04	656.17	96.76	885.83
GP-Jackson #1-18-18	GP-Jackson #1-18-18 (PWB)	Slot #36	Mineral Resources MRI	229.01	650.00	650.00	227.05	656.17	103.01	902.23
GP-Alles #3-18-18	GP-Alles #3-18-18 (PWB)	Slot #35	Mineral Resources MRI	241.01	524.93	524.93	239.25	524.93	111.73	918.64
GP-Alles #2-18-18	GP-Alles #2-18-18 (PWB)	Slot #34	Mineral Resources MRI	253.01	459.32	459.32	251.34	475.72	119.84	918.64
Commerce Center 4 #20-2H5	Commerce Center 4 #20-2H5 (AWB)	Commerce Center 4 #20-2H5	MRI Offsets	258.59	1738.85	1738.85	252.79	1750.00	41.54	1935.70
Commerce Center 2 #20-7H5	Commerce Center 2 #20-7H5 (AWB)	Commerce Center 2 #20-7H5	MRI Offsets	304.57	4109.70	4109.70	281.38	4117.45	13.00	4166.67
CDOT-2 #D7	CDOT-2 #D7 (AWB)	CDOT-2 #D7	Mineral Resources MRI	314.59	541.34	541.34	311.58	574.15	62.80	1952.10
CDOT-3 #D2	CDOT-3 #D2 (AWB)	CDOT-3 #D2	Mineral Resources MRI	327.84	656.17	656.17	324.44	672.57	71.55	1443.57

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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	341.36	902.23	902.23	336.77	918.64	26.51	4166.67
Ehrlich Motors #D8	Ehrlich Motors #D8 (AWB)	Ehrlich Motors #D8	Mineral Resources MRI	343.02	560.66	560.66	341.53	650.00	62.07	3313.65
Sleep Inn #E5	Sleep Inn #E5 (AWB)	Sleep Inn #E5	Mineral Resources MRI	356.38	0.00	0.00	355.27	49.21	100.62	2312.99
Tri Point #E3	Tri Point #E3 (AWB)	Tri Point #E3	Mineral Resources MRI	373.84	780.71	780.71	369.85	787.40	33.62	3300.00
CDOT-1 #E2	CDOT-1 #E2 (AWB)	CDOT-1 #E2	Mineral Resources MRI	401.03	705.38	705.38	396.83	738.19	44.18	2389.70
University Square #D6	University Square #D6 (AWB)	University Square #D6	Mineral Resources MRI	439.06	16.40	656.17	437.11	656.17	69.23	2837.93
Garden City #D5	Garden City #D5 (AWB)	Garden City #D5	Mineral Resources MRI	457.86	11.67	650.00	456.06	246.06	100.71	2608.27
University 5 Spot #D4	University 5 Spot #D4 (AWB)	University 5 Spot #D4	Mineral Resources MRI	509.31	219.00	219.00	507.78	219.00	79.65	2477.03
Wheeler #D3	Wheeler #D3 (AWB)	Wheeler #D3	Mineral Resources MRI	516.18	156.98	156.98	514.75	180.45	88.47	2214.57
Driftwood #D1	Driftwood #D1 (AWB)	Driftwood #D1	Mineral Resources MRI	522.45	0.00	0.00	521.28	49.21	111.73	2165.35
Classic Lanes #C9	Classic Lanes #C9 (AWB)	Classic Lanes #C9	Mineral Resources MRI	525.91	0.00	0.00	524.74	49.21	94.69	2148.95
District Six #C6	District Six #C6 (AWB)	District Six #C6	Mineral Resources MRI	534.93	200.00	200.00	533.42	200.00	162.27	984.25
Volk #C7	Volk #C7 (AWB)	Volk #C7	Mineral Resources MRI	535.61	0.00	0.00	534.52	32.81	128.70	1673.23
Union Pacific #C5	Union Pacific #C5 (AWB)	Union Pacific #C5	Mineral Resources MRI	542.21	136.67	136.67	540.73	164.04	193.09	984.25
HWY 85-3 #C4	HWY 85-3 #C4 (AWB)	HWY 85-3 #C4	Mineral Resources MRI	552.63	117.00	117.00	551.36	147.64	220.02	1492.78
Countryside Center #C3	Countryside Center #C3 (AWB)	Countryside Center #C3	Mineral Resources MRI	556.63	0.67	0.67	555.61	32.81	180.88	984.25
Millers Green House #A10	Millers Green House #A10 (AWB)	Millers Green House #A10	Mineral Resources MRI	632.29	2.67	2.67	630.63	180.45	97.91	2723.10
Riverview #A9	Riverview #A9 (AWB)	Riverview #A9	Mineral Resources MRI	636.90	500.66	500.66	634.02	500.66	110.55	2641.08
HWY 34-2	HWY 34-2	HWY 34-2	Mineral Resources	648.78	1.67	1.67	647.22	131.23	145.47	2542.65

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#A8	#A8 (AWB)	#A8	MRI							
HWY 34-1 #A7	HWY 34-1 #A7 (AWB)	HWY 34-1 #A7	Mineral Resources MRI	659.53	1.67	1.67	657.73	200.00	174.20	2700.00
BMC #B8	BMC #B8 (AWB)	BMC #B8	Mineral Resources MRI	661.29	0.67	0.67	659.64	131.23	106.79	2066.93
Greeley Industrial South #B9	Greeley Industrial South #B9 (AWB)	Greeley Industrial South #B9	Mineral Resources MRI	676.02	600.67	600.67	673.86	600.67	168.44	2493.44
Sam Pak #A6	Sam Pak #A6 (AWB)	Sam Pak #A6	Mineral Resources MRI	690.68	4.67	4.67	689.05	300.00	189.72	2296.59
Shupe 5 Spot #B10	Shupe 5 Spot #B10 (AWB)	Shupe 5 Spot #B10	Mineral Resources MRI	692.48	650.00	650.00	690.24	656.17	237.18	2411.42
Bus Barn #A5	Bus Barn #A5 (AWB)	Bus Barn #A5	Mineral Resources MRI	701.55	4.67	4.67	699.45	311.68	162.00	1607.61
Highway 85-2 #B-11	Highway 85-2 #B-11 (AWB)	Highway 85-2 #B-11	Mineral Resources MRI	707.75	278.87	278.87	705.73	311.68	202.73	2116.14
Smith 5 Spot #A4	Smith 5 Spot #A4 (AWB)	Smith 5 Spot #A4	Mineral Resources MRI	717.39	3.67	3.67	715.72	147.64	215.74	984.25
Highway 85-1 #B12	Highway 85-1 #B12 (AWB)	Highway 85-1 #B12	Mineral Resources MRI	724.52	650.00	650.00	722.28	656.17	256.75	1984.91
Parkview South #A3	Parkview South #A3 (AWB)	Parkview South #A3	Mineral Resources MRI	733.78	4.67	4.67	732.32	147.64	256.48	2066.93
Delta Park #A2	Delta Park #A2 (AWB)	Delta Park #A2	Mineral Resources MRI	746.16	200.00	200.00	744.49	213.25	188.39	1689.63
Clark #A1	Clark #A1 (AWB)	Clark #A1	Mineral Resources MRI	763.52	4.67	4.67	761.74	246.06	123.75	2214.57
Commerce Center 3 #20-1H5	Commerce Center 3 #20-1H5 (AWB)	Commerce Center 3 #20-1H5	MRI Offsets	775.62	672.57	672.57	772.46	672.57	154.65	3200.00