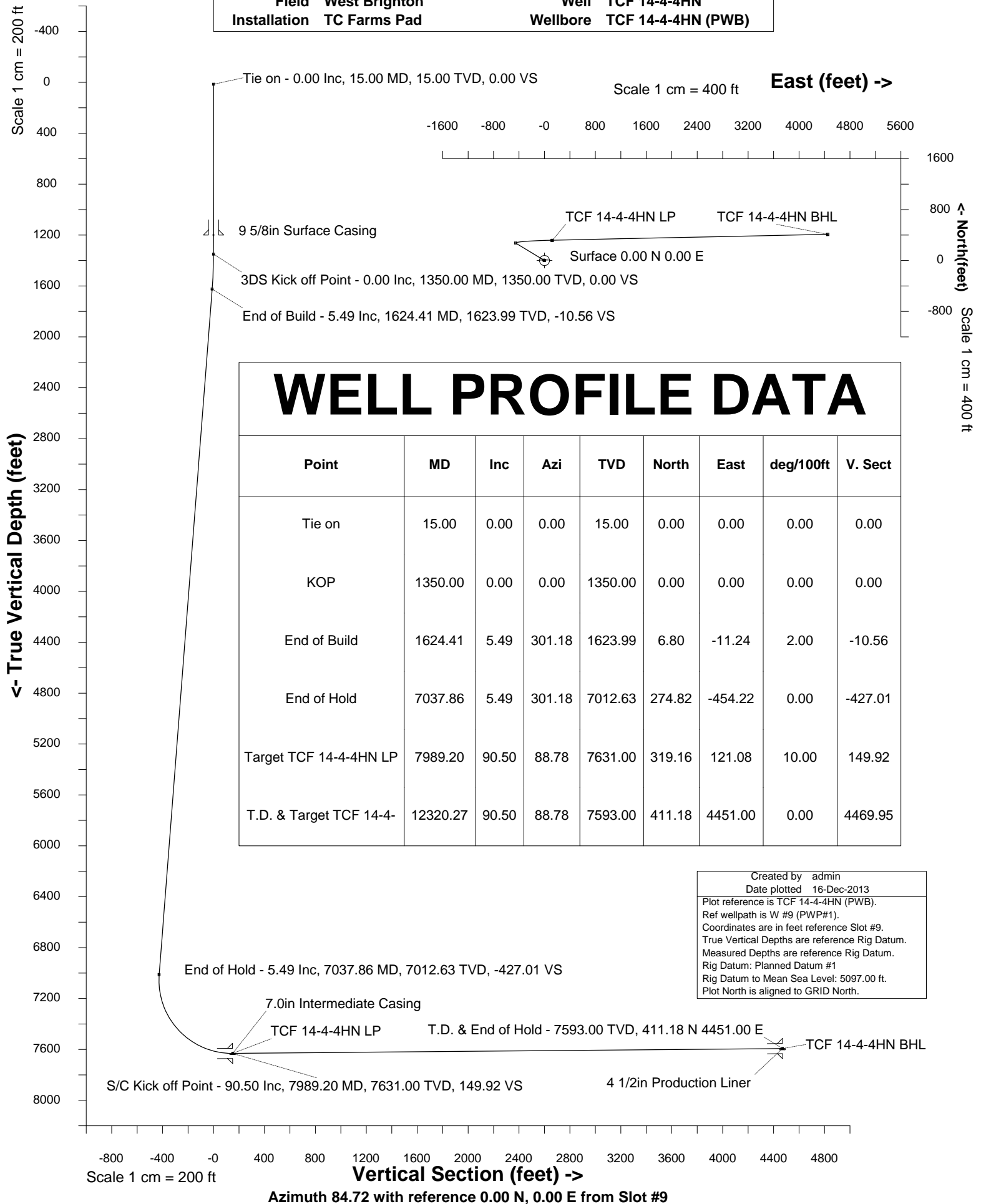


WARD PETROLEUM

Location ADAMS COUNTY, CO Slot Slot #9
Field West Brighton Well TCF 14-4-4HN
Installation TC Farms Pad Wellbore TCF 14-4-4HN (PWB)





INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: TCF 14-4-4HN (PWB)

Wellhead Details							
Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
Slot #9	1231701.3952	3178196.2111	39.96765000	-104.86423000	40.07N	0.29W	-0.00

Declination			
Date	Source	Time	
27-Nov-2013	IGRF Model [1900.0-2015.0]		12:38

Site Details				
Name	Northing	Easting	Coord System Name	North Alignment
TC Farms Pad	1231661.3262	3178196.4983	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
15.00	0.00	0.000	15.00	0.00N	0.00E		0.00	1231701.40	3178196.21
1350.00	0.00	0.000	1350.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1624.41	5.49	301.180	1623.99	6.80N	11.24W	2.00	-10.56	1231708.19	3178184.98
7037.86	5.49	301.180	7012.63	274.82N	454.22W	==>	-427.01	1231976.20	3177742.01
7989.20	90.50	88.780	7631.00	319.16N	121.08E	10.00	149.92	1232020.55	3178317.29
12320.27	90.50	88.780	7593.00	411.18N	4451.00E	==>	4469.95	1232112.56	3182647.06

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	1231701.40	3178196.21
15.00	0.00	0.000	15.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1335.00	0.00	0.000	1335.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1350.00	0.00	0.000	1350.00	0.00N	0.00E	==>	0.00	1231701.40	3178196.21
1435.00	1.70	301.180	1434.99	0.65N	1.08W	2.00	-1.01	1231702.05	3178195.13
1535.00	3.70	301.180	1534.87	3.09N	5.11W	2.00	-4.80	1231704.49	3178191.10
1624.41	5.49	301.180	1623.99	6.80N	11.24W	2.00	-10.56	1231708.19	3178184.98
1700.00	5.49	301.180	1699.23	10.54N	17.42W	==>	-16.38	1231711.94	3178178.79
1800.00	5.49	301.180	1798.78	15.49N	25.60W	==>	-24.07	1231716.89	3178170.61
1900.00	5.49	301.180	1898.32	20.44N	33.79W	==>	-31.76	1231721.84	3178162.42
2000.00	5.49	301.180	1997.86	25.39N	41.97W	==>	-39.46	1231726.79	3178154.24
2100.00	5.49	301.180	2097.40	30.34N	50.15W	==>	-47.15	1231731.74	3178146.06
2200.00	5.49	301.180	2196.94	35.30N	58.34W	==>	-54.84	1231736.69	3178137.88
2300.00	5.49	301.180	2296.48	40.25N	66.52W	==>	-62.53	1231741.64	3178129.69
2400.00	5.49	301.180	2396.03	45.20N	74.70W	==>	-70.23	1231746.59	3178121.51
2500.00	5.49	301.180	2495.57	50.15N	82.88W	==>	-77.92	1231751.54	3178113.33
2600.00	5.49	301.180	2595.11	55.10N	91.07W	==>	-85.61	1231756.49	3178105.15
2700.00	5.49	301.180	2694.65	60.05N	99.25W	==>	-93.31	1231761.44	3178096.96
2800.00	5.49	301.180	2794.19	65.00N	107.43W	==>	-101.00	1231766.39	3178088.78
2900.00	5.49	301.180	2893.73	69.95N	115.62W	==>	-108.69	1231771.34	3178080.60
3000.00	5.49	301.180	2993.27	74.90N	123.80W	==>	-116.38	1231776.30	3178072.42
3100.00	5.49	301.180	3092.82	79.85N	131.98W	==>	-124.08	1231781.25	3178064.23
3200.00	5.49	301.180	3192.36	84.80N	140.17W	==>	-131.77	1231786.20	3178056.05
3300.00	5.49	301.180	3291.90	89.76N	148.35W	==>	-139.46	1231791.15	3178047.87
3400.00	5.49	301.180	3391.44	94.71N	156.53W	==>	-147.16	1231796.10	3178039.68

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5097.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 84.720 degrees
Bottom hole distance is 4469.95 Feet on azimuth 84.72 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 16-Dec-2013



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL

Well Design Combined Report
Wellbore: TCF 14-4-4HN (PWB)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
3500.00	5.49	301.180	3490.98	99.66N	164.71W	==>	-154.85	1231801.05	3178031.50
3600.00	5.49	301.180	3590.52	104.61N	172.90W	==>	-162.54	1231806.00	3178023.32
3700.00	5.49	301.180	3690.07	109.56N	181.08W	==>	-170.23	1231810.95	3178015.14
3800.00	5.49	301.180	3789.61	114.51N	189.26W	==>	-177.93	1231815.90	3178006.95
3900.00	5.49	301.180	3889.15	119.46N	197.45W	==>	-185.62	1231820.85	3177998.77
4000.00	5.49	301.180	3988.69	124.41N	205.63W	==>	-193.31	1231825.80	3177990.59
4100.00	5.49	301.180	4088.23	129.36N	213.81W	==>	-201.01	1231830.75	3177982.41
4200.00	5.49	301.180	4187.77	134.31N	221.99W	==>	-208.70	1231835.71	3177974.22
4300.00	5.49	301.180	4287.32	139.27N	230.18W	==>	-216.39	1231840.66	3177966.04
4400.00	5.49	301.180	4386.86	144.22N	238.36W	==>	-224.08	1231845.61	3177957.86
4500.00	5.49	301.180	4486.40	149.17N	246.54W	==>	-231.78	1231850.56	3177949.68
4600.00	5.49	301.180	4585.94	154.12N	254.73W	==>	-239.47	1231855.51	3177941.49
4700.00	5.49	301.180	4685.48	159.07N	262.91W	==>	-247.16	1231860.46	3177933.31
4800.00	5.49	301.180	4785.02	164.02N	271.09W	==>	-254.86	1231865.41	3177925.13
4900.00	5.49	301.180	4884.56	168.97N	279.28W	==>	-262.55	1231870.36	3177916.94
5000.00	5.49	301.180	4984.11	173.92N	287.46W	==>	-270.24	1231875.31	3177908.76
5100.00	5.49	301.180	5083.65	178.87N	295.64W	==>	-277.93	1231880.26	3177900.58
5200.00	5.49	301.180	5183.19	183.82N	303.82W	==>	-285.63	1231885.21	3177892.40
5300.00	5.49	301.180	5282.73	188.78N	312.01W	==>	-293.32	1231890.16	3177884.21
5400.00	5.49	301.180	5382.27	193.73N	320.19W	==>	-301.01	1231895.11	3177876.03
5500.00	5.49	301.180	5481.81	198.68N	328.37W	==>	-308.70	1231900.07	3177867.85
5600.00	5.49	301.180	5581.36	203.63N	336.56W	==>	-316.40	1231905.02	3177859.67
5700.00	5.49	301.180	5680.90	208.58N	344.74W	==>	-324.09	1231909.97	3177851.48
5800.00	5.49	301.180	5780.44	213.53N	352.92W	==>	-331.78	1231914.92	3177843.30
5900.00	5.49	301.180	5879.98	218.48N	361.10W	==>	-339.48	1231919.87	3177835.12
6000.00	5.49	301.180	5979.52	223.43N	369.29W	==>	-347.17	1231924.82	3177826.94
6100.00	5.49	301.180	6079.06	228.38N	377.47W	==>	-354.86	1231929.77	3177818.75
6200.00	5.49	301.180	6178.61	233.33N	385.65W	==>	-362.55	1231934.72	3177810.57
6300.00	5.49	301.180	6278.15	238.28N	393.84W	==>	-370.25	1231939.67	3177802.39
6400.00	5.49	301.180	6377.69	243.24N	402.02W	==>	-377.94	1231944.62	3177794.21
6500.00	5.49	301.180	6477.23	248.19N	410.20W	==>	-385.63	1231949.57	3177786.02
6600.00	5.49	301.180	6576.77	253.14N	418.39W	==>	-393.33	1231954.52	3177777.84
6700.00	5.49	301.180	6676.31	258.09N	426.57W	==>	-401.02	1231959.48	3177769.66
6800.00	5.49	301.180	6775.86	263.04N	434.75W	==>	-408.71	1231964.43	3177761.47
6900.00	5.49	301.180	6875.40	267.99N	442.93W	==>	-416.40	1231969.38	3177753.29
7000.00	5.49	301.180	6974.94	272.94N	451.12W	==>	-424.10	1231974.33	3177745.11
7037.86	5.49	301.180	7012.63	274.82N	454.22W	==>	-427.01	1231976.20	3177742.01
7100.00	3.35	27.000	7074.63	277.97N	455.94W	10.00	-428.43	1231979.36	3177740.29
7200.00	11.95	74.670	7173.71	283.32N	444.60W	10.00	-416.65	1231984.71	3177751.63
7300.00	21.77	81.350	7269.31	288.87N	416.21W	10.00	-387.87	1231990.25	3177780.02
7400.00	31.71	83.970	7358.50	294.43N	371.63W	10.00	-342.97	1231995.81	3177824.60
7500.00	41.67	85.440	7438.59	299.84N	312.21W	10.00	-283.30	1232001.23	3177884.01
7600.00	51.64	86.420	7507.15	304.95N	239.76W	10.00	-210.69	1232006.33	3177956.46
7700.00	61.62	87.160	7562.08	309.59N	156.47W	10.00	-127.33	1232010.97	3178039.74
7800.00	71.61	87.780	7601.72	313.62N	64.89W	10.00	-35.77	1232015.00	3178131.32
7900.00	81.59	88.320	7624.86	316.92N	32.21E	10.00	61.22	1232018.30	3178228.42
7989.20	90.50	88.780	7631.00	319.16N	121.08E	10.00	149.92	1232020.55	3178317.29
8000.00	90.50	88.780	7630.91	319.39N	131.87E	==>	160.69	1232020.78	3178328.08
8100.00	90.50	88.780	7630.03	321.52N	231.85E	==>	260.44	1232022.90	3178428.05
8200.00	90.50	88.780	7629.15	323.64N	331.82E	==>	360.18	1232025.02	3178528.02
8300.00	90.50	88.780	7628.27	325.76N	431.79E	==>	459.93	1232027.15	3178627.99
8400.00	90.50	88.780	7627.40	327.89N	531.77E	==>	559.67	1232029.27	3178727.96
8500.00	90.50	88.780	7626.52	330.01N	631.74E	==>	659.42	1232031.40	3178827.93
8600.00	90.50	88.780	7625.64	332.14N	731.71E	==>	759.16	1232033.52	3178927.90
8700.00	90.50	88.780	7624.76	334.26N	831.69E	==>	858.91	1232035.65	3179027.87
8800.00	90.50	88.780	7623.89	336.39N	931.66E	==>	958.65	1232037.77	3179127.84
8900.00	90.50	88.780	7623.01	338.51N	1031.63E	==>	1058.40	1232039.90	3179227.81
9000.00	90.50	88.780	7622.13	340.64N	1131.61E	==>	1158.14	1232042.02	3179327.78
9100.00	90.50	88.780	7621.25	342.76N	1231.58E	==>	1257.89	1232044.14	3179427.75
9200.00	90.50	88.780	7620.38	344.89N	1331.56E	==>	1357.64	1232046.27	3179527.72
9300.00	90.50	88.780	7619.50	347.01N	1431.53E	==>	1457.38	1232048.39	3179627.69

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5097.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 84.720 degrees
Bottom hole distance is 4469.95 Feet on azimuth 84.72 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 16-Dec-2013



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SYSDRILL
Well Design Combined Report
Wellbore: TCF 14-4-4HN (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	90.50	88.780	7618.62	349.13N	1531.50E	==>	1557.13	1232050.52	3179727.66
9500.00	90.50	88.780	7617.74	351.26N	1631.48E	==>	1656.87	1232052.64	3179827.63
9600.00	90.50	88.780	7616.87	353.38N	1731.45E	==>	1756.62	1232054.77	3179927.60
9700.00	90.50	88.780	7615.99	355.51N	1831.42E	==>	1856.36	1232056.89	3180027.57
9800.00	90.50	88.780	7615.11	357.63N	1931.40E	==>	1956.11	1232059.02	3180127.54
9900.00	90.50	88.780	7614.24	359.76N	2031.37E	==>	2055.85	1232061.14	3180227.51
10000.00	90.50	88.780	7613.36	361.88N	2131.34E	==>	2155.60	1232063.27	3180327.49
10100.00	90.50	88.780	7612.48	364.01N	2231.32E	==>	2255.34	1232065.39	3180427.46
10200.00	90.50	88.780	7611.60	366.13N	2331.29E	==>	2355.09	1232067.51	3180527.43
10300.00	90.50	88.780	7610.73	368.26N	2431.27E	==>	2454.83	1232069.64	3180627.40
10400.00	90.50	88.780	7609.85	370.38N	2531.24E	==>	2554.58	1232071.76	3180727.37
10500.00	90.50	88.780	7608.97	372.50N	2631.21E	==>	2654.32	1232073.89	3180827.34
10600.00	90.50	88.780	7608.09	374.63N	2731.19E	==>	2754.07	1232076.01	3180927.31
10700.00	90.50	88.780	7607.22	376.75N	2831.16E	==>	2853.81	1232078.14	3181027.28
10800.00	90.50	88.780	7606.34	378.88N	2931.13E	==>	2953.56	1232080.26	3181127.25
10900.00	90.50	88.780	7605.46	381.00N	3031.11E	==>	3053.30	1232082.39	3181227.22
11000.00	90.50	88.780	7604.58	383.13N	3131.08E	==>	3153.05	1232084.51	3181327.19
11100.00	90.50	88.780	7603.71	385.25N	3231.05E	==>	3252.79	1232086.63	3181427.16
11200.00	90.50	88.780	7602.83	387.38N	3331.03E	==>	3352.54	1232088.76	3181527.13
11300.00	90.50	88.780	7601.95	389.50N	3431.00E	==>	3452.28	1232090.88	3181627.10
11400.00	90.50	88.780	7601.07	391.63N	3530.97E	==>	3552.03	1232093.01	3181727.07
11500.00	90.50	88.780	7600.20	393.75N	3630.95E	==>	3651.77	1232095.13	3181827.04
11600.00	90.50	88.780	7599.32	395.88N	3730.92E	==>	3751.52	1232097.26	3181927.01
11700.00	90.50	88.780	7598.44	398.00N	3830.90E	==>	3851.26	1232099.38	3182026.98
11800.00	90.50	88.780	7597.56	400.12N	3930.87E	==>	3951.01	1232101.51	3182126.95
11900.00	90.50	88.780	7596.69	402.25N	4030.84E	==>	4050.75	1232103.63	3182226.92
12000.00	90.50	88.780	7595.81	404.37N	4130.82E	==>	4150.50	1232105.76	3182326.89
12100.00	90.50	88.780	7594.93	406.50N	4230.79E	==>	4250.24	1232107.88	3182426.86
12200.00	90.50	88.780	7594.06	408.62N	4330.76E	==>	4349.99	1232110.00	3182526.83
12300.00	90.50	88.780	7593.18	410.75N	4430.74E	==>	4449.73	1232112.13	3182626.80
12320.27	90.50	88.780	7593.00	411.18N	4451.00E	==>	4469.95	1232112.56	3182647.06

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Vertical Section is from 0.00N 0.00E on azimuth 84.720 degrees
Bottom hole distance is 4469.95 Feet on azimuth 84.72 degrees from Wellhead
Calculation method uses Minimum Curvature method
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Date Printed: 16-Dec-2013



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SYSDRILL
Well Design Combined Report
Wellbore: TCF 14-4-4HN (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]
13 1/2	15.00	15.00	0.00N	0.00E	1200.00	1200.00	0.00N	0.00E
8 3/4	1200.00	1200.00	0.00N	0.00E	7989.00	7631.00	319.16N	120.88E
6 1/8	7989.00	7631.00	319.16N	120.88E	12320.27	7593.00	411.18N	4451.00E

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	15.00	15.00	0.00N	0.00E	1200.00	1200.00	0.00N	0.00E
7.0in Intermediate Casing	15.00	15.00	0.00N	0.00E	7989.00	7631.00	319.16N	120.88E
4 1/2in Production Liner	7100.00	7074.63	277.97N	455.94W	12320.27	7593.00	411.18N	4451.00E

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
TCF 14-4-4HN	411.18N	4451.00E	7593.00	39.96869000	-104.84834000	1232112.56	3182647.06	11-Dec-2013
BHL								
TCF 14-4-4HN LP	314.16N	121.08E	7631.00	39.96851000	-104.86379000	1232015.55	3178317.29	11-Dec-2013

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
142616	Planned	12320.27	7593.00	WdW Rate Gyro	Standard	

Notes

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 5097.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 84.720 degrees
Bottom hole distance is 4469.95 Feet on azimuth 84.72 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 16-Dec-2013



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: TCF 14-4-4HN (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 2500.00ft 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
TCF 14-4-4HN (PWB)	9-Dec-2013	16-Dec-2013

Well		
Name	Government ID	Last Revised
TCF 14-4-4HN		12-Dec-2013

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #9	1231701.3952	3178196.2111	39.96765000	-104.86423000	40.07N	0.29W

Installation				
Name	Easting	Northing	Coord System Name	North Alignment
TC Farms Pad	3178196.4983	1231661.3262	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Field				
Name	Easting	Northing	Coord System Name	North Alignment
West Brighton	3178196.4983	1231661.3262	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]
TCF 14-4-5HC	TCF 14-4-5HC (PWB)	Slot #8	TC Farms Pad	12.28	1261.72	7989.20	9.42	1196.10	4.28	1196.10
TCF 15-2-4HN	TCF 15-2-4HN (PWB)	Slot #3	TC Farms Pad	14.16	1524.19	7470.91	7.19	7470.91	1.51	7470.91
TCF 14-4-3HN	TCF 14-4-3HN (PWB)	Slot #10	TC Farms Pad	15.61	1350.01	1350.01	12.75	1196.10	5.42	12320.27
TCF 15-2-3HC	TCF 15-2-3HC (PWB)	Slot #4	TC Farms Pad	17.21	1350.00	7585.28	14.34	1196.10	6.00	1196.10
TCF 15-2-5HC	TCF 15-2-5HC (PWB)	Slot #2	TC Farms Pad	26.11	1275.00	7555.57	23.24	1196.10	9.11	1196.10
TCF 14-4-6HN	TCF 14-4-6HN (PWB)	Slot #7	TC Farms Pad	27.86	1199.00	12308.06	24.98	1199.00	9.70	1199.00
TCF 15-2-2HN	TCF 15-2-2HN (PWB)	Slot #5	TC Farms Pad	28.89	1300.00	7451.69	26.02	1196.10	10.08	1196.10
TCF 14-4-2HC	TCF 14-4-2HC (PWB)	Slot #11	TC Farms Pad	31.23	1300.00	1300.00	28.36	1196.10	10.89	1196.10
TCF #15-2-6HN	TCF 15-2-6HN (PWB)	Slot #1	TC Farms Pad	40.07	1200.00	7374.44	37.20	1200.00	13.95	1200.00
TCF	TCF	Slot #6	TC Farms	40.43	1200.00	1200.00	37.56	1200.00	14.08	1200.00

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: TCF 14-4-4HN (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]
15-2-1HC	15-2-1HC (PWB)		Pad							
TCF 14-4-1HN	TCF 14-4-1HN (PWB)	Slot #12	TC Farms Pad	46.84	1200.00	1200.00	43.97	1200.00	16.20	12320.27
W Krough-Nauman 1	W Krough-Nauman 1 (AWB)	Krough-Nauman 1	Offsets	240.29	10736.68	10736.68	188.35	10743.35	4.62	10759.75
W Nauman 1-14	W Nauman 1-14 (AWB)	Nauman 1-14	Offsets	253.33	8471.98	8471.98	218.96	8471.98	7.37	8471.98
W RC Nauman 2	W RC Nauman 2 (AWB)	RC Nauman 2	Offsets	455.17	1350.00	8210.97	445.26	1360.14	38.06	4673.79
W Ehler, John 18	W Ehler, John 18 (AWB)	Ehler, John 18	Offsets	830.76	5217.48	5217.48	808.82	5217.48	37.85	5231.54
W RC Nauman 1	W RC Nauman 1 (AWB)	RC Nauman 1	Offsets	1009.17	3968.41	3968.41	990.12	4296.50	46.07	5215.00
W Ehler, John 19	W Ehler, John 19 (AWB)	Ehler, John 19	Offsets	1043.23	5249.44	5249.44	1022.09	5249.44	49.36	5249.44
W RC Nauman 4	W RC Nauman 4 (AWB)	RC Nauman 4	Offsets	1735.02	1350.00	1350.00	1725.08	1360.14	98.34	5182.32
W United Bank of Denver 1	W United Bank of Denver 1 (AWB)	United Bank of Denver 1	Offsets	1865.64	1350.00	1350.00	1855.47	1376.55	94.51	5264.34
W Ehler, John 15	W Ehler, John 15 (AWB)	Ehler, John 15	Offsets	1912.33	1409.36	1409.36	1900.90	2032.72	88.63	5198.73
W RC Nauman 3	W RC Nauman 3 (AWB)	RC Nauman 3	Offsets	1930.15	1350.00	1350.00	1920.21	1376.55	97.97	5198.73
W Nauman 1	W Nauman 1 (AWB)	Nauman 1	Offsets	2007.37	1350.00	9616.10	1997.33	1376.55	99.49	5329.96
W United Bank of Denver 3	W United Bank of Denver 3 (AWB)	United Bank of Denver 3	Offsets	2012.85	1350.00	1350.00	2003.06	1360.14	112.14	5198.73
W Ehler, John 11	W Ehler, John 11 (AWB)	Ehler, John 11	Offsets	2076.51	5316.24	5316.24	2054.63	5316.24	94.76	5411.98
W Ehler, John 10	W Ehler, John 10 (AWB)	Ehler, John 10	Offsets	2147.52	5389.67	5389.67	2126.11	5389.67	100.25	5444.79
W Biow-News tat 1	W Biow-News tat 1 (AWB)	Biow-Newstat 1	Offsets	2206.73	5205.16	5205.16	2184.86	5205.16	100.59	5346.36
W Ehler 10-5P	W Ehler 10-5P (AWB)	Ehler 10-5P	Offsets	2248.41	5316.84	5316.84	2226.86	5316.84	104.19	5428.39
W Adams Aggregate 2	W Adams Aggregate 2 (AWB)	Adams Aggregate 2	Offsets	2448.15	10792.56	10792.56	2423.80	10792.56	96.91	11399.51
W Krogh 2	W Krogh 2 (AWB)	Krogh 2	Offsets	2463.53	12170.51	12170.51	2434.09	12186.92	82.13	12320.27