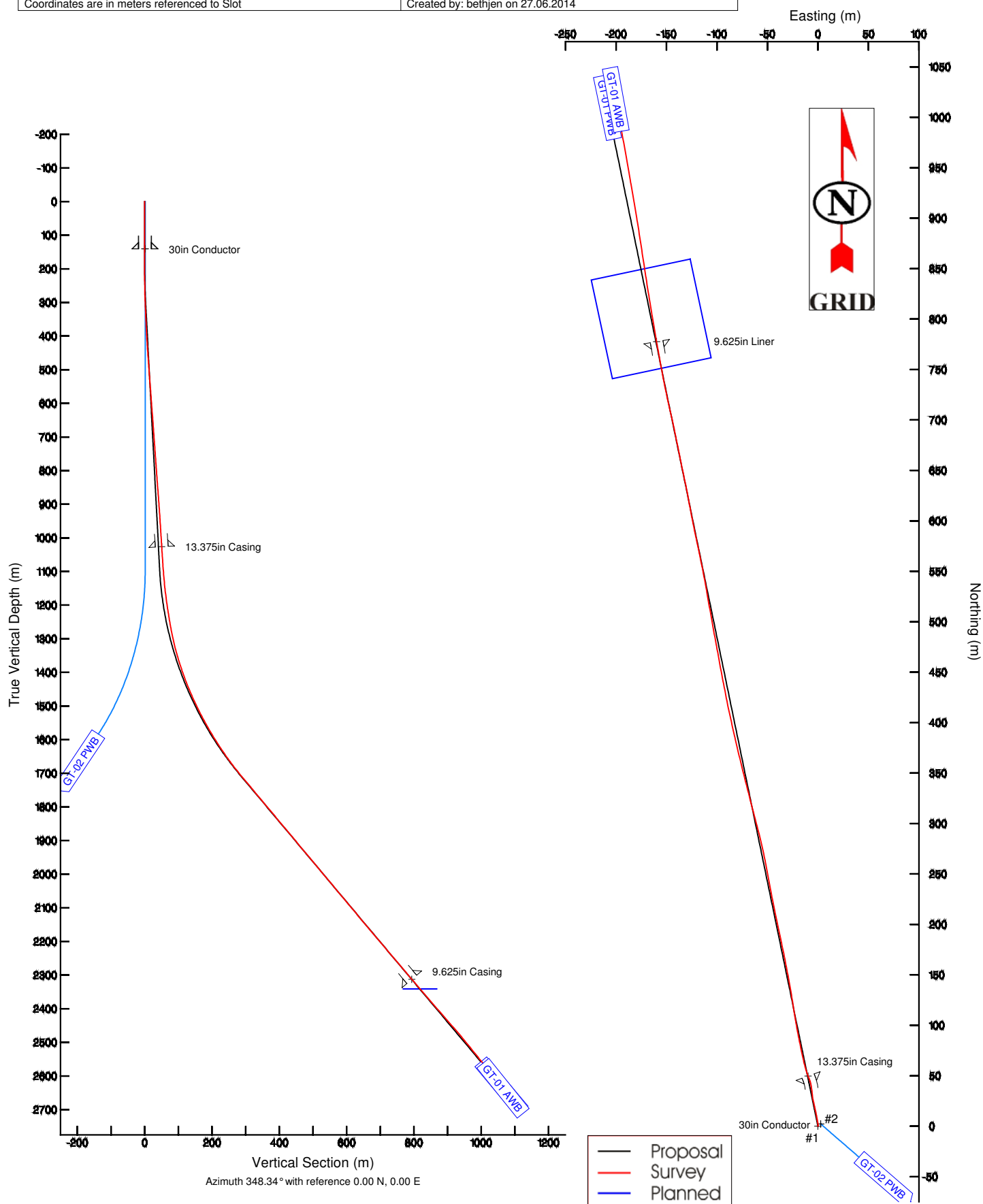


Slot: #1
Well: LIR-GT-01
Wellbore: GT-01 PWB



Created by: bethjen on 27.06.2014



Actual Wellpath Report

Positional Uncertainty

GT-01 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Geothermie de Lier	Slot	#1
Area	THE NETHERLANDS	Well	LIR-GT-01
Field	De Lier	Wellbore	GT-01 AWB
Facility	LIR		

REPORT SETUP INFORMATION			
Projection System	Amersfoort / Rijksriehoeksmeting	Software System	WellArchitect® 4.0.0
North Reference	Grid	User	Bethjen
Scale	0.999946	Report Generated	27.06.2014 at 08:30:37
Convergence at slot	0.87° West	Database/Source file	WA_Server/GT-01_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[m]	East[m]	Easting[m]	Northing[m]	Latitude	Longitude
Slot Location	0.00	0.00	79087.73	443732.32	51°58'39.975"N	4°16'57.311"E
Facility Reference Pt			79087.73	443732.32	51°58'39.975"N	4°16'57.311"E
Field Reference Pt			79087.73	443732.32	51°58'39.975"N	4°16'57.311"E

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on #1 (RT) to Facility Vertical Datum	6.91m
Horizontal Reference Pt	Slot	Rig on #1 (RT) to Mean Sea Level	5.01m
Vertical Reference Pt	Rig on #1 (RT)	Rig on #1 (RT) to Mud Line at Slot (#1)	6.91m
MD Reference Pt	Rig on #1 (RT)	Section Origin	N 0.00, E 0.00 m
Field Vertical Reference	Mean Sea Level	Section Azimuth	348.34°

POSITIONAL UNCERTAINTY CALCULATION SETTINGS					
Ellipse Confidence Limit	3.00 Std Dev	Ellipse Start MD	6.91m	Surface Position Uncertainty	included
Declination	0.53° East of TN	Dip Angle	67.03°	Magnetic Field Strength	48959nT
Slot Surface Uncertainty @1SD		Horizontal	0.610m	Vertical	0.305m
Facility Surface Uncertainty @1SD		Horizontal	6.096m	Vertical	0.914m
Positional Uncertainty values in the WELLPATH DATA table are the projection of the ellipsoid of uncertainty onto the vertical and horizontal planes					

Actual Wellpath Report

Positional Uncertainty

GT-01 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Geothermie de Lier	Slot	#1
Area	THE NETHERLANDS	Well	LIR-GT-01
Field	De Lier	Wellbore	GT-01 AWB
Facility	LIR		

WELLPATH DATA (99 stations) - with Positional Uncertainty values

MD [m]	Course Length [m]	Inclination [°]	Azimuth [°]	TVD [m]	TVD from Fld Vert Ref [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Closure Dist [m]	Closure Dir [°]	DLS [°/30m]	Vertical Semi- Axis [m]	Horiz Major Semi- Axis [m]	Horiz Minor Semi- Axis [m]	Horiz Minor Axis Azim [°]
0.00	0.00	0.000	137.230	0.00	-5.01	0.00	0.00	0.00	79087.73	443732.32	0.00	0.000	0.00	0.00	0.00	0.00	0.000
163.00	163.00	0.140	137.230	163.00	157.99	-0.17	-0.15	0.14	79087.86	443732.17	0.20	137.230	0.03	3.09	18.39	18.39	226.122
176.00	13.00	0.090	318.330	176.00	170.99	-0.18	-0.15	0.14	79087.87	443732.17	0.20	137.175	0.53	3.09	18.39	18.39	46.389
203.00	27.00	0.160	354.480	203.00	197.99	-0.12	-0.10	0.12	79087.85	443732.22	0.16	128.560	0.11	3.10	18.39	18.39	48.968
231.00	28.00	0.520	21.440	231.00	225.99	0.03	0.06	0.16	79087.89	443732.38	0.17	69.825	0.41	3.10	18.39	18.39	43.161
250.00	19.00	0.690	12.870	250.00	244.99	0.20	0.25	0.22	79087.95	443732.57	0.34	41.261	0.30	3.11	18.40	18.40	338.252
277.00	27.00	1.520	355.000	276.99	271.98	0.71	0.77	0.23	79087.95	443733.09	0.80	16.423	0.99	3.11	18.40	18.40	54.438
307.00	30.00	2.590	353.880	306.97	301.96	1.78	1.84	0.12	79087.85	443734.16	1.84	3.712	1.07	3.12	18.41	18.40	61.539
336.00	29.00	2.260	347.890	335.95	330.94	3.00	3.05	-0.07	79087.66	443735.37	3.05	358.674	0.43	3.13	18.41	18.41	70.962
364.00	28.00	2.700	350.050	363.92	358.91	4.21	4.24	-0.30	79087.43	443736.56	4.25	355.946	0.48	3.14	18.42	18.42	73.266
393.00	29.00	3.050	348.260	392.88	387.87	5.67	5.67	-0.58	79087.15	443737.98	5.69	354.202	0.37	3.15	18.42	18.42	74.549
421.00	28.00	3.830	349.970	420.83	415.82	7.34	7.32	-0.89	79086.84	443739.63	7.37	353.066	0.84	3.16	18.43	18.43	74.922
450.00	29.00	4.060	350.560	449.77	444.76	9.34	9.28	-1.23	79086.50	443741.60	9.36	352.471	0.24	3.17	18.44	18.44	78.141
479.00	29.00	3.760	347.900	478.70	473.69	11.32	11.22	-1.59	79086.13	443743.54	11.34	351.915	0.36	3.18	18.45	18.45	259.671
509.00	30.00	4.340	349.650	508.62	503.61	13.43	13.30	-2.00	79085.72	443745.62	13.45	351.431	0.59	3.20	18.46	18.46	266.759
537.00	28.00	4.400	346.980	536.54	531.53	15.57	15.39	-2.44	79085.29	443747.71	15.58	351.003	0.23	3.21	18.47	18.47	289.552
566.00	29.00	4.220	347.040	565.46	560.45	17.75	17.52	-2.93	79084.80	443749.83	17.76	350.513	0.19	3.23	18.48	18.48	332.227
595.00	29.00	4.230	347.790	594.38	589.37	19.88	19.60	-3.39	79084.34	443751.92	19.89	350.181	0.06	3.25	18.49	18.49	339.498
624.00	29.00	4.470	348.270	623.30	618.29	22.08	21.75	-3.85	79083.88	443754.07	22.09	349.967	0.25	3.26	18.50	18.50	342.024
653.00	29.00	4.170	347.590	652.21	647.20	24.27	23.89	-4.30	79083.42	443756.21	24.27	349.785	0.31	3.28	18.52	18.51	343.064
682.00	29.00	4.070	346.110	681.14	676.13	26.35	25.92	-4.78	79082.95	443758.23	26.35	349.554	0.15	3.30	18.53	18.52	343.480
710.00	28.00	4.110	352.110	709.07	704.06	28.34	27.88	-5.15	79082.57	443760.19	28.35	349.524	0.46	3.32	18.55	18.53	344.063
739.00	29.00	4.280	353.580	737.99	732.98	30.46	29.98	-5.42	79082.31	443762.30	30.47	349.756	0.21	3.34	18.56	18.55	344.932
767.00	28.00	4.070	353.530	765.92	760.91	32.49	32.01	-5.65	79082.08	443764.32	32.50	349.994	0.23	3.36	18.58	18.56	345.569
796.00	29.00	4.140	354.170	794.84	789.83	34.55	34.07	-5.87	79081.86	443766.39	34.57	350.226	0.09	3.39	18.59	18.58	346.178
824.00	28.00	4.150	351.050	822.77	817.76	36.57	36.08	-6.13	79081.60	443768.39	36.59	350.357	0.24	3.41	18.61	18.59	346.604
854.00	30.00	4.510	352.660	852.68	847.67	38.83	38.32	-6.45	79081.28	443770.63	38.86	350.446	0.38	3.44	18.63	18.61	346.910
883.00	29.00	4.090	348.310	881.60	876.59	41.00	40.46	-6.80	79080.92	443772.78	41.03	350.454	0.55	3.47	18.65	18.62	346.855
912.00	29.00	4.220	345.980	910.53	905.52	43.10	42.51	-7.27	79080.46	443774.83	43.13	350.292	0.22	3.49	18.67	18.64	346.550
940.00	28.00	3.740	343.660	938.46	933.45	45.04	44.39	-7.78	79079.95	443776.70	45.06	350.060	0.54	3.52	18.69	18.66	346.421
969.00	29.00	3.690	340.050	967.40	962.39	46.91	46.17	-8.36	79079.36	443778.49	46.92	349.733	0.25	3.55	18.71	18.67	346.018
998.00	29.00	3.670	336.380	996.34	991.33	48.74	47.90	-9.05	79078.67	443780.21	48.75	349.296	0.24	3.58	18.74	18.69	345.567
1027.00	29.00	3.580	339.920	1025.28	1020.27	50.54	49.60	-9.74	79077.99	443781.91	50.55	348.894	0.25	3.62	18.76	18.71	345.168
1056.00	29.00	3.890	340.220	1054.22	1049.21	52.41	51.38	-10.38	79077.35	443783.69	52.41	348.577	0.32	3.65	18.78	18.73	344.909
1061.00	5.00	3.780	337.380	1059.21	1054.20	52.74	51.69	-10.50	79077.23	443784.00	52.74	348.516	1.32	3.66	18.79	18.74	344.856
1095.00	34.00	4.260	342.550	1093.12	1088.11	55.10	53.93	-11.31	79076.42	443786.24	55.10	348.154	0.53	3.70	18.80	18.75	344.550
1124.00	29.00	5.060	343.500	1122.03	1117.02	57.45	56.18	-12.00	79075.73	443788.50	57.45	347.946	0.83	3.73	18.81	18.75	344.384
1153.00	29.00	6.300	345.520	1150.88	1145.87	60.31	58.95	-12.76	79074.97	443791.26	60.31	347.788	1.30	3.77	18.82	18.75	344.417
1181.00	28.00	7.690	346.250	1178.67	1173.66	63.72	62.25	-13.59	79074.14	443794.57	63.72	347.688	1.49	3.81	18.83	18.76	344.378
1210.00	29.00	8.220	347.100	1207.40	1202.39	67.73	66.16	-14.51	79073.22	443798.47	67.73	347.629	0.56	3.85	18.85	18.76	344.572
1245.00	35.00	9.570	348.380	1241.97	1236.96	73.14	71.45	-15.66	79072.07	443803.76	73.14	347.640	1.17	3.90	18.87	18.77	344.881
1268.00	23.00	10.390	347.900	1264.63	1259.62	77.12	75.35	-16.48	79071.25	443807.66	77.13	347.666	1.08	3.93	18.89	18.77	345.024
1297.00	29.00	11.780	348.090	1293.08	1288.07	82.70	80.80	-17.64	79070.09	443813.12	82.71	347.688	1.44	3.97	18.92	18.78	345.424
1326.00	29.00	14.090	348.780	1321.35	1316.34	89.19	87.16	-18.93	79068.80	443819.48	89.20	347.745	2.39	4.01	18.95	18.79	345.670
1354.00	28.00	15.930	349.510	1348.39	1343.38	96.44	94.29	-20.30	79067.43	443826.60	96.45	347.852	1.98	4.06	18.99	18.80	345.813
1383.00	29.00	17.730	350.470	1376.15	1371.14	104.83	102.55	-21.75	79065.98	443834.87	104.84	348.025	1.88	4.10	19.03	18.81	346.105
1413.00	30.00	19.600	350.600	1404.57	1399.56	114.43	112.02	-23.33	79064.40	443844.34	114.43	348.236	1.87	4.15	19.09	18.82	346.459
1441.00	28.00	21.300	351.060	1430.80	1425.79	124.20	121.68	-24.89	79062.84	443853.99	124.20	348.441	1.83	4.20	19.16	18.84	346.893
1470.00	29.00	23.300	350.380	1457.63	1452.62	135.19	132.54	-26.66	79061.06	443864.85	135.20	348.625	2.09	4.25	19.24	18.85	347.305
1499.00	29.00	24.730	349.730	1484.12	1479.11	146.99	144.16	-28.70	79059.02	443876.47	146.99	348.739	1.50	4.30	19.33	18.86	347.718

Actual Wellpath Report

Positional Uncertainty

GT-01 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Geothermie de Lier	Slot	#1
Area	THE NETHERLANDS	Well	LIR-GT-01
Field	De Lier	Wellbore	GT-01 AWB
Facility	LIR		

WELLPATH DATA (99 stations) - with Positional Uncertainty values

MD [m]	Course Length [m]	Inclination [°]	Azimuth [°]	TVD [m]	TVD from Fld Vert Ref [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Closure Dist [m]	Closure Dir [°]	DLS [°/30m]	Vertical Semi- Axis [m]	Horiz Major Semi- Axis [m]	Horiz Minor Semi- Axis [m]	Horiz Minor Axis Azim [°]
1527.00	28.00	26.350	349.120	1509.38	1504.37	159.06	156.03	-30.92	79056.81	443888.34	159.07	348.790	1.76	4.35	19.43	18.88	347.979
1556.00	29.00	27.880	348.740	1535.20	1530.19	172.28	169.00	-33.46	79054.27	443901.31	172.28	348.801	1.59	4.41	19.55	18.89	348.151
1585.00	29.00	29.630	347.690	1560.62	1555.61	186.23	182.66	-36.31	79051.42	443914.96	186.23	348.756	1.88	4.46	19.69	18.90	348.231
1614.00	29.00	31.150	347.960	1585.63	1580.62	200.90	197.00	-39.41	79048.32	443929.30	200.90	348.688	1.58	4.52	19.84	18.92	348.275
1643.00	29.00	32.560	348.440	1610.26	1605.25	216.20	211.98	-42.54	79045.19	443944.29	216.20	348.654	1.48	4.57	20.01	18.93	348.257
1671.00	28.00	34.090	349.330	1633.66	1628.65	231.58	227.07	-45.50	79042.23	443959.38	231.59	348.670	1.72	4.63	20.20	18.95	348.279
1700.00	29.00	35.710	349.320	1657.44	1652.43	248.17	243.38	-48.57	79039.16	443975.68	248.18	348.714	1.68	4.69	20.41	18.96	348.330
1729.00	29.00	37.440	349.360	1680.73	1675.72	265.45	260.36	-51.77	79035.96	443992.66	265.46	348.754	1.79	4.75	20.63	18.98	348.410
1758.00	29.00	39.760	347.080	1703.40	1698.39	283.54	278.06	-55.47	79032.26	444010.37	283.54	348.718	2.81	4.82	20.89	19.00	348.438
1786.00	28.00	39.850	345.010	1724.91	1719.90	301.45	295.46	-59.79	79027.94	444027.76	301.45	348.560	1.42	4.88	21.16	19.02	348.378
1815.00	29.00	39.840	345.590	1747.17	1742.16	320.00	313.43	-64.51	79023.22	444045.73	320.00	348.370	0.38	4.95	21.45	19.03	348.185
1844.00	29.00	39.870	345.760	1769.44	1764.43	338.56	331.44	-69.11	79018.63	444063.74	338.57	348.222	0.12	5.01	21.75	19.05	348.033
1873.00	29.00	39.850	345.730	1791.70	1786.69	357.13	349.45	-73.68	79014.05	444081.75	357.14	348.094	0.03	5.08	22.07	19.06	347.902
1902.00	29.00	39.950	346.810	1813.94	1808.93	375.72	367.52	-78.10	79009.64	444099.82	375.73	348.003	0.72	5.14	22.40	19.08	347.812
1931.00	29.00	39.830	347.150	1836.20	1831.19	394.31	385.64	-82.29	79005.45	444117.94	394.32	347.955	0.26	5.21	22.74	19.10	347.765
1960.00	29.00	39.850	347.220	1858.46	1853.45	412.89	403.76	-86.41	79001.32	444136.05	412.90	347.920	0.05	5.29	23.09	19.11	347.735
1988.00	28.00	39.870	348.840	1879.96	1874.95	430.83	421.31	-90.13	78997.60	444153.61	430.84	347.925	1.11	5.35	23.44	19.13	347.744
2017.00	29.00	39.940	349.090	1902.20	1897.19	449.44	439.57	-93.69	78994.04	444171.87	449.45	347.968	0.18	5.43	23.81	19.15	347.792
2046.00	29.00	39.810	349.600	1924.46	1919.45	468.03	457.84	-97.13	78990.60	444190.14	468.03	348.023	0.36	5.50	24.19	19.17	347.854
2075.00	29.00	39.850	349.510	1946.73	1941.72	486.60	476.11	-100.50	78987.24	444208.40	486.60	348.081	0.07	5.58	24.58	19.19	347.920
2104.00	29.00	39.830	349.910	1969.00	1963.99	505.17	494.39	-103.81	78983.92	444226.68	505.17	348.141	0.27	5.66	24.98	19.21	347.986
2132.00	28.00	39.850	349.710	1990.50	1985.49	523.10	512.05	-106.99	78980.75	444244.34	523.10	348.198	0.14	5.74	25.37	19.23	348.049
2161.00	29.00	39.820	350.330	2012.76	2007.75	541.67	530.34	-110.21	78977.53	444262.63	541.67	348.261	0.41	5.82	25.79	19.26	348.117
2190.00	29.00	39.810	348.730	2035.04	2030.03	560.23	548.60	-113.58	78974.15	444280.89	560.23	348.303	1.06	5.90	26.21	19.28	348.164
2219.00	29.00	39.870	348.230	2057.31	2052.30	578.81	566.80	-117.29	78970.44	444299.09	578.81	348.309	0.34	5.98	26.64	19.30	348.174
2248.00	29.00	39.860	348.250	2079.57	2074.56	597.40	585.00	-121.08	78966.65	444317.29	597.40	348.306	0.02	6.07	27.08	19.33	348.174
2277.00	29.00	39.790	348.900	2101.84	2096.83	615.97	603.21	-124.76	78962.98	444335.49	615.97	348.314	0.44	6.15	27.52	19.35	348.184
2305.00	28.00	39.850	349.470	2123.34	2118.33	633.90	620.82	-128.12	78959.61	444353.10	633.90	348.339	0.40	6.24	27.96	19.38	348.211
2334.00	29.00	39.830	348.230	2145.61	2140.60	652.48	639.05	-131.72	78956.02	444371.33	652.48	348.354	0.82	6.33	28.41	19.41	348.228
2362.00	28.00	39.840	348.220	2167.11	2162.10	670.42	656.60	-135.38	78952.36	444388.89	670.42	348.350	0.01	6.41	28.86	19.43	348.226
2391.00	29.00	40.340	348.790	2189.30	2184.29	689.09	674.91	-139.10	78948.64	444407.19	689.09	348.354	0.64	6.50	29.33	19.46	348.232
2420.00	29.00	40.340	348.080	2211.40	2206.39	707.86	693.30	-142.86	78944.87	444425.58	707.86	348.357	0.48	6.59	29.81	19.49	348.234
2449.00	29.00	40.340	346.890	2233.51	2228.50	726.63	711.62	-146.93	78940.81	444443.90	726.63	348.334	0.80	6.69	30.29	19.52	348.213
2478.00	29.00	40.290	348.520	2255.62	2250.61	745.39	729.95	-150.92	78936.81	444462.23	745.39	348.318	1.09	6.78	30.78	19.55	348.198
2506.00	28.00	40.330	349.310	2276.97	2271.96	763.50	747.73	-154.41	78933.33	444480.01	763.50	348.332	0.55	6.87	31.26	19.58	348.213
2535.00	29.00	40.350	349.860	2299.08	2294.07	782.27	766.19	-157.80	78929.94	444498.47	782.27	348.362	0.37	6.97	31.75	19.61	348.245
2549.00	14.00	40.250	350.220	2309.75	2304.74	791.32	775.11	-159.37	78928.37	444507.39	791.32	348.382	0.54	7.01	31.99	19.63	348.264
2566.00	17.00	40.740	349.910	2322.68	2317.67	802.36	785.98	-161.27	78926.47	444518.26	802.36	348.405	0.93	7.06	32.27	19.64	348.289
2595.00	29.00	40.970	350.680	2344.62	2339.61	821.32	804.68	-164.47	78923.27	444536.96	821.32	348.448	0.57	7.12	32.71	19.65	348.333
2623.00	28.00	40.840	350.790	2365.78	2360.77	839.64	822.78	-167.42	78920.32	444555.05	839.64	348.498	0.16	7.18	33.14	19.66	348.383
2653.00	30.00	40.620	351.180	2388.51	2383.50	859.19	842.11	-170.49	78917.25	444574.38	859.20	348.555	0.34	7.24	33.61	19.67	348.440
2682.00	29.00	40.960	351.490	2410.47	2405.46	878.11	860.84	-173.34	78914.40	444593.11	878.12	348.615	0.41	7.31	34.07	19.68	348.500
2710.00	28.00	41.110	351.130	2431.59	2426.58	896.47	879.01	-176.12	78911.62	444611.28	896.48	348.670	0.30	7.37	34.52	19.70	348.556
2739.00	29.00	41.370	350.650	2453.40	2448.39	915.56	897.89	-179.15	78908.59	444630.16	915.58	348.717	0.42	7.44	34.99	19.71	348.604
2768.00	29.00	40.120	350.460	2475.37	2470.36	934.48	916.56	-182.25	78905.49	444648.83	934.50	348.754	1.30	7.51	35.46	19.72	348.644
2797.00	29.00	39.040	350.290	2497.72	2492.71	952.94	934.78	-185.34	78902.40	444667.04	952.97	348.785	1.12	7.59	35.93	19.74	348.678
2826.00	29.00	38.950	350.130	2520.26	2515.25	971.18	952.76	-188.44	78899.29	444685.02	971.22	348.812	0.14	7.67	36.39	19.75	348.707
2854.00	28.00	39.070	349.660	2542.01	2537.00	988.80	970.11	-191.54	78896.20	444702.37	988.84	348.831	0.34	7.74	36.84	19.78	348.729
2880.00	26.00	38.810	349.660	2562.24	2557.23	1005.14	986.19	-194.47	78893.27	444718.45	1005.18	348.845	0.30	7.81	37.27	19.78	348.746

Actual Wellpath Report

Positional Uncertainty

GT-01 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Geothermie de Lier	Slot	#1
Area	THE NETHERLANDS	Well	LIR-GT-01
Field	De Lier	Wellbore	GT-01 AWB
Facility	LIR		

HOLE & CASING SECTIONS - Ref Wellbore: GT-01 AWB Ref Wellpath: GT-01 AWP									
String/Diameter	Start MD [m]	End MD [m]	Interval [m]	Start TVD [m]	End TVD [m]	Start N/S [m]	Start E/W [m]	End N/S [m]	End E/W [m]
13.375in Casing	0.00	1028.00	1028.00	0.00	1026.28	0.00	0.00	49.66	-9.76
9.625in Casing	0.00	2552.90	2552.90	0.00	2312.73	0.00	0.00	777.60	-159.80
12.25in Open Hole	1080.00	2565.00	1485.00	1078.16	2321.92	52.90	-10.97	785.34	-161.16
17.5in Open Hole	0.00	1080.00	1080.00	0.00	1078.16	0.00	0.00	52.90	-10.97

TARGETS									
Name	MD [m]	TVD [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Latitude	Longitude	Shape
GT-01_LP		2341.00	800.13	-165.14	78922.60	444532.40	51°59'05.781"N	4°16'48.020"E	square

WELLPATH COMPOSITION - Ref Wellbore: GT-01 AWB Ref Wellpath: GT-01 AWP				
Start MD [m]	End MD [m]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1061.00	NaviTrak (MagCorr)	17-1/2" BHI MWD NTK	GT-01 AWB
1061.00	2549.00	NaviTrak (SAG, MagCorr)	12-1/4" BHI MWD NTK	GT-01 AWB
2549.00	2880.00	NaviTrak (SAG, MagCorr)	8-1/2" BHI NTK MWD	GT-01 AWB