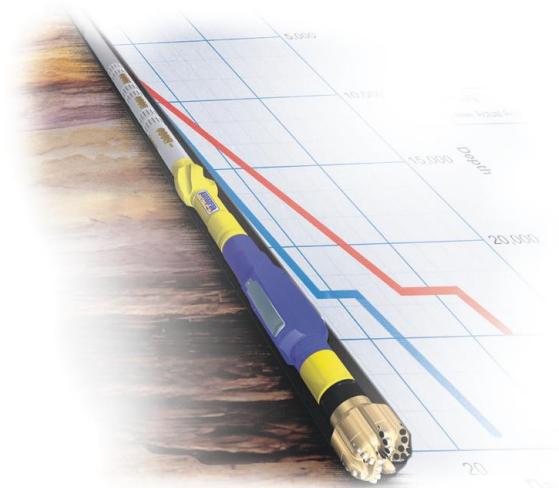




Final Survey Report

BRI-GT-01



FINAL SURVEY REPORT

FOR

Aardwarmte Vierpolders



Field	:	<u>Vierpolders</u>
Well	:	<u>BRI-GT-01</u>

Well Coordinates

Grid Coordinates	Easting	:	<u>70427.89 m</u>
	Northing	:	<u>432178.99 m</u>
Grid System		:	<u>Rijkdriehoekmeting / Netherlands New</u>
Geographic Coordinates	Latitude	:	<u>N 51° 52' 21.656"</u>
	Longitude	:	<u>E 4° 09' 33.818"</u>
Depth Reference		:	<u>Rotary Table</u>
Elevation above MSL		:	<u>5.90 m</u>
Elevation above Ground Level		:	<u>6.70 m</u>
Azimuth Reference		:	<u>Grid North</u>
Convergence		:	<u>0.97°W</u>

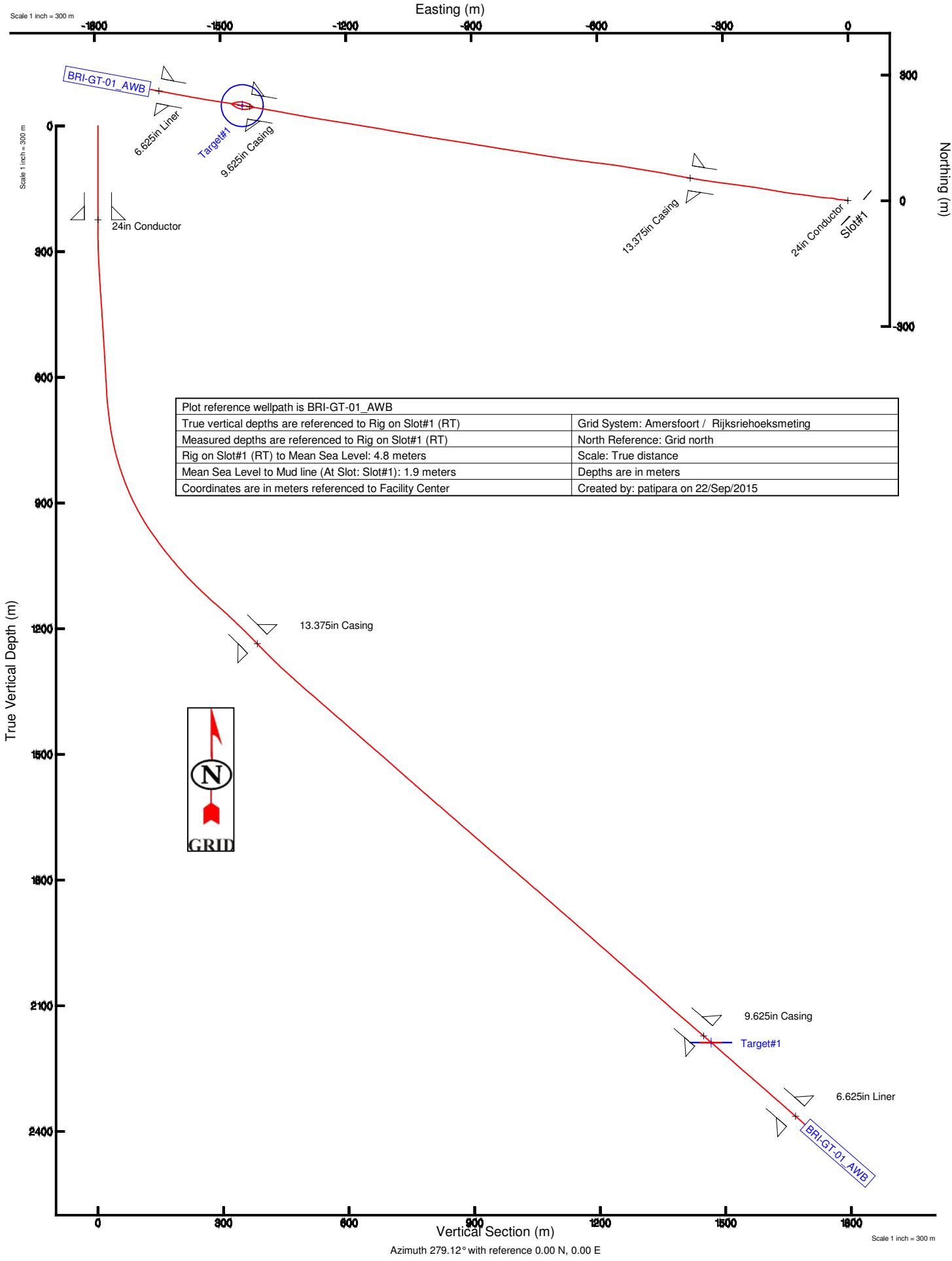
Magnetic Data

Declination	:	<u>0.62°E</u>
Dip angle	:	<u>66.96°</u>
Field Strength	:	<u>48948 nT</u>
Date	:	<u>20-June-2015</u>
Source	:	<u>BHI / BGGM 2017</u>

Aardwarmte Vierpolders

Location: THE NETHERLANDS
 Field: Vierpolders
 Facility: Vierpolders

Slot: Slot#1
 Well: BRI-GT-01
 Wellbore: BRI-GT-01 AWB



Actual Wellpath Report

Positional Uncertainty

BRI-GT-01_AWB

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REFERENCE WELLPATH IDENTIFICATION

Operator	Aardwarmte Vierpolders	Slot	Slot#1
Area	THE NETHERLANDS	Well	BRI-GT-01
Field	Vierpolders	Wellbore	BRI-GT-01_AWB
Facility	Vierpolders		

REPORT SETUP INFORMATION

Projection System	Amersfoort / Rijksriehoeksmeting	Software System	WellArchitect® 4.0.0
North Reference	Grid	User	Patipara
Scale	0.999958	Report Generated	22/Sep/2015 at 10:53
Convergence at slot	0.97° West	Database/Source file	WA_Server/BRI-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	70427.89	432178.99	51°52'21.656"N	4°09'33.818"E
Facility Reference Pt			70427.89	432178.99	51°52'21.656"N	4°09'33.818"E
Field Reference Pt			70428.00	432179.00	51°52'21.657"N	4°09'33.824"E

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on Slot#1 (RT) to Facility Vertical Datum	6.70m
Horizontal Reference Pt	Facility Center	Rig on Slot#1 (RT) to Mean Sea Level	4.80m
Vertical Reference Pt	Rig on Slot#1 (RT)	Rig on Slot#1 (RT) to Mud Line at Slot (Slot#1)	6.70m
MD Reference Pt	Rig on Slot#1 (RT)	Section Origin	N 0.00, E 0.00 m
Field Vertical Reference	Mean Sea Level	Section Azimuth	279.12°

POSITIONAL UNCERTAINTY CALCULATION SETTINGS

Ellipse Confidence Limit	3.00 Std Dev	Ellipse Start MD	6.70m	Surface Position Uncertainty	included
Declination	0.64° East of TN	Dip Angle	66.98°	Magnetic Field Strength	48894nT
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

BRI-GT-01_AWB

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BAKER
HUGHES
REFERENCE WELLPATH IDENTIFICATION

Operator	Aardwarmte Vierpolders					Slot	Slot#1				
Area	THE NETHERLANDS					Well	BRI-GT-01				
Field	Vierpolders					Wellbore	BRI-GT-01_AWB				
Facility	Vierpolders										

WELLPATH DATA (105 stations) - with Positional Uncertainty values

MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	DLS [°/30m]	Vertical Semi-Axis [m]	Horiz Major Semi-Axis [m]	Horiz Minor Semi-Axis [m]	Horiz Minor Axis Azim [°]
0.00	0.000	336.800	0.00	0.00	0.00	0.00	70427.89	432178.99	0.00	0.00	0.00	0.00	0.00
238.00	0.100	336.800	238.00	0.11	0.19	-0.08	70427.81	432179.18	0.01	3.10	18.40	18.40	247.607
262.00	0.520	301.550	262.00	0.22	0.27	-0.18	70427.71	432179.26	0.55	3.11	18.40	18.40	243.267
291.00	1.500	283.210	290.99	0.72	0.42	-0.66	70427.23	432179.41	1.05	3.12	18.41	18.41	357.810
318.00	2.880	279.510	317.97	1.75	0.62	-1.68	70426.21	432179.61	1.54	3.12	18.42	18.41	353.379
346.00	2.890	280.440	345.94	3.16	0.86	-3.07	70424.82	432179.85	0.05	3.13	18.42	18.42	357.450
374.00	3.680	279.470	373.89	4.77	1.14	-4.65	70423.24	432180.13	0.85	3.14	18.43	18.43	357.692
402.00	3.740	276.740	401.83	6.58	1.39	-6.44	70421.45	432180.38	0.20	3.15	18.44	18.43	358.508
430.00	3.910	277.270	429.77	8.44	1.62	-8.29	70419.60	432180.61	0.19	3.16	18.45	18.44	357.777
459.00	3.590	275.190	458.71	10.34	1.83	-10.18	70417.71	432180.82	0.36	3.17	18.45	18.45	357.480
487.00	3.540	273.160	486.66	12.07	1.95	-11.91	70415.98	432180.94	0.15	3.19	18.46	18.46	359.554
515.00	3.620	274.120	514.60	13.81	2.06	-13.66	70414.23	432181.05	0.11	3.20	18.47	18.47	266.440
543.00	3.520	273.990	542.55	15.55	2.19	-15.40	70412.49	432181.18	0.11	3.22	18.48	18.48	267.758
572.00	3.140	275.640	571.50	17.23	2.33	-17.08	70410.81	432181.32	0.41	3.23	18.50	18.49	268.190
600.00	3.470	274.180	599.45	18.84	2.46	-18.69	70409.21	432181.45	0.36	3.25	18.51	18.50	268.592
628.00	3.250	272.690	627.40	20.47	2.56	-20.32	70407.57	432181.55	0.25	3.27	18.52	18.51	268.540
656.00	4.480	274.940	655.34	22.35	2.69	-22.21	70405.69	432181.68	1.33	3.28	18.54	18.53	267.435
684.00	6.530	281.900	683.21	25.03	3.12	-24.85	70403.04	432182.11	2.31	3.30	18.55	18.54	261.491
712.00	8.470	284.870	710.97	28.68	3.97	-28.40	70399.49	432182.96	2.12	3.32	18.57	18.56	252.710
743.00	10.340	282.510	741.55	33.72	5.16	-33.33	70394.56	432184.15	1.85	3.34	18.60	18.58	253.121
771.00	13.450	275.160	768.95	39.48	6.00	-39.03	70388.87	432184.99	3.70	3.37	18.63	18.60	262.579
799.00	16.140	272.450	796.02	46.60	6.46	-46.16	70381.73	432185.45	2.98	3.39	18.66	18.63	278.791
826.00	18.130	274.110	821.82	54.51	6.92	-54.10	70373.79	432185.91	2.28	3.41	18.70	18.66	278.945
855.00	20.920	277.030	849.15	64.18	7.88	-63.74	70364.15	432186.87	3.06	3.44	18.75	18.68	274.891
883.00	23.090	278.400	875.11	74.67	9.29	-74.13	70353.76	432188.28	2.39	3.47	18.81	18.70	272.775
911.00	26.870	278.560	900.48	86.49	11.04	-85.83	70342.07	432190.03	4.05	3.50	18.89	18.73	273.108
940.00	29.230	278.130	926.07	100.13	13.01	-99.32	70328.58	432192.00	2.45	3.55	18.98	18.76	273.814
968.00	32.430	275.980	950.11	114.46	14.76	-113.56	70314.34	432193.75	3.63	3.59	19.10	18.79	274.717
996.00	35.170	277.440	973.38	130.02	16.59	-129.02	70298.87	432195.58	3.06	3.64	19.24	18.81	275.422
1024.00	36.000	278.370	996.15	146.31	18.83	-145.16	70282.73	432197.82	1.06	3.68	19.40	18.84	275.452
1052.00	38.950	279.760	1018.37	163.34	21.52	-161.98	70265.92	432200.51	3.29	3.72	19.59	18.85	275.791
1080.00	39.790	279.700	1040.02	181.10	24.53	-179.49	70248.41	432203.51	0.90	3.77	19.82	18.88	276.090
1109.00	41.980	280.270	1061.94	200.08	27.82	-198.18	70229.72	432206.81	2.30	3.81	20.08	18.90	276.527
1137.00	43.750	278.830	1082.46	219.13	30.97	-216.96	70210.94	432209.96	2.17	3.87	20.37	18.92	276.834
1165.00	46.180	277.720	1102.27	238.91	33.82	-236.54	70191.36	432212.81	2.74	3.92	20.71	18.94	277.058
1193.00	47.160	277.700	1121.49	259.27	36.55	-256.72	70171.18	432215.54	1.05	3.98	21.09	18.95	277.166
1221.00	48.740	277.220	1140.24	280.05	39.25	-277.34	70150.56	432218.24	1.74	4.03	21.52	18.97	277.197
1250.00	48.090	277.510	1159.49	301.73	42.03	-298.85	70129.05	432221.02	0.71	4.09	22.00	18.99	277.218
1278.00	46.300	278.230	1178.51	322.27	44.84	-319.20	70108.70	432223.83	2.00	4.15	22.47	19.01	277.262
1306.00	46.270	278.440	1197.86	342.51	47.77	-339.22	70088.68	432226.76	0.17	4.21	22.95	19.02	277.332
1334.00	44.760	279.690	1217.48	362.48	50.92	-358.95	70068.96	432229.91	1.88	4.27	23.44	19.04	277.428
1344.00	44.310	279.080	1224.61	369.50	52.06	-365.87	70062.04	432231.05	1.86	4.29	23.62	19.05	277.467
1388.00	44.610	280.310	1256.02	400.31	57.25	-396.25	70031.66	432236.24	0.62	4.36	24.32	19.07	277.637
1416.00	45.570	280.420	1275.78	420.14	60.82	-415.75	70012.16	432239.81	1.03	4.39	24.74	19.07	277.773
1445.00	47.400	280.900	1295.75	441.16	64.71	-436.42	69991.49	432243.70	1.93	4.42	25.21	19.08	277.922

Actual Wellpath Report

Positional Uncertainty

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HUGHES

REFERENCE WELLPATH IDENTIFICATION

Operator	Aardwarmte Vierpolders	Slot	Slot#1
Area	THE NETHERLANDS	Well	BRI-GT-01
Field	Vierpolders	Wellbore	BRI-GT-01_AWB
Facility	Vierpolders		

WELLPATH DATA (105 stations) - with Positional Uncertainty values

MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	DLS [°/30m]	Vertical Semi-Axis [m]	Horiz Major Semi-Axis [m]	Horiz Minor Semi-Axis [m]	Horiz Minor Axis Azim [°]
1473.00	48.030	279.310	1314.59	461.87	68.34	-456.81	69971.10	432247.33	1.43	4.46	25.71	19.08	278.037
1501.00	48.520	279.510	1333.23	482.77	71.76	-477.43	69950.48	432250.75	0.55	4.49	26.23	19.09	278.122
1529.00	48.980	279.450	1351.69	503.82	75.23	-498.19	69929.72	432254.21	0.50	4.53	26.78	19.09	278.197
1558.00	49.100	279.550	1370.70	525.72	78.84	-519.79	69908.12	432257.83	0.15	4.57	27.38	19.10	278.270
1585.00	49.080	278.900	1388.38	546.12	82.11	-539.93	69887.98	432261.10	0.55	4.61	27.95	19.11	278.321
1614.00	49.050	277.950	1407.38	568.03	85.32	-561.60	69866.31	432264.31	0.74	4.65	28.59	19.11	278.339
1642.00	48.990	276.830	1425.74	589.15	88.04	-582.56	69845.35	432267.03	0.91	4.70	29.22	19.12	278.314
1670.00	49.000	277.150	1444.11	610.27	90.61	-603.54	69824.38	432269.60	0.26	4.75	29.87	19.13	278.273
1698.00	49.090	277.090	1462.47	631.40	93.23	-624.52	69803.40	432272.22	0.11	4.80	30.53	19.14	278.238
1727.00	49.050	277.500	1481.47	653.30	96.02	-646.25	69781.66	432275.00	0.32	4.85	31.23	19.15	278.209
1755.00	49.020	278.080	1499.82	674.44	98.88	-667.20	69760.72	432277.87	0.47	4.91	31.92	19.16	278.198
1783.00	48.590	278.590	1518.26	695.51	101.94	-688.05	69739.87	432280.92	0.62	4.96	32.62	19.17	278.205
1811.00	48.580	278.690	1536.79	716.50	105.09	-708.81	69719.11	432284.08	0.08	5.02	33.32	19.18	278.221
1839.00	48.490	279.090	1555.33	737.49	108.33	-729.54	69698.38	432287.32	0.34	5.08	34.03	19.19	278.242
1867.00	49.120	279.610	1573.77	758.56	111.76	-750.33	69677.60	432290.74	0.79	5.15	34.76	19.20	278.276
1896.00	49.050	278.450	1592.76	780.47	115.20	-771.97	69655.95	432294.18	0.91	5.21	35.53	19.22	278.300
1923.00	49.060	278.960	1610.46	800.86	118.28	-792.13	69635.80	432297.27	0.43	5.28	36.25	19.23	278.311
1952.00	49.070	278.980	1629.46	822.77	121.70	-813.77	69614.16	432300.68	0.02	5.35	37.04	19.24	278.330
1980.00	49.090	279.480	1647.80	843.93	125.09	-834.65	69593.27	432304.08	0.41	5.42	37.80	19.26	278.355
2008.00	49.130	279.440	1666.13	865.09	128.57	-855.53	69572.40	432307.56	0.05	5.49	38.57	19.27	278.384
2036.00	49.060	278.930	1684.46	886.26	131.95	-876.42	69551.51	432310.93	0.42	5.56	39.36	19.29	278.404
2064.00	49.120	279.490	1702.80	907.42	135.34	-897.31	69530.62	432314.32	0.46	5.64	40.14	19.30	278.424
2093.00	49.120	278.720	1721.78	929.34	138.81	-918.96	69508.97	432317.79	0.60	5.72	40.96	19.32	278.440
2121.00	49.370	278.710	1740.06	950.55	142.02	-939.92	69488.01	432321.00	0.27	5.79	41.77	19.34	278.446
2149.00	49.270	278.960	1758.31	971.79	145.28	-960.91	69467.02	432324.26	0.23	5.87	42.58	19.36	278.454
2176.00	49.280	278.950	1775.92	992.25	148.47	-981.12	69446.81	432327.45	0.01	5.95	43.36	19.38	278.464
2205.00	49.280	279.040	1794.84	1014.23	151.90	-1002.83	69425.10	432330.89	0.07	6.03	44.21	19.40	278.475
2234.00	49.270	279.550	1813.76	1036.21	155.45	-1024.52	69403.42	432334.44	0.40	6.12	45.06	19.42	278.492
2261.00	49.210	279.360	1831.39	1056.66	158.81	-1044.69	69383.24	432337.80	0.17	6.20	45.86	19.44	278.511
2290.00	49.170	279.660	1850.34	1078.61	162.44	-1066.34	69361.60	432341.42	0.24	6.29	46.72	19.46	278.531
2317.00	48.930	280.260	1868.04	1099.00	165.97	-1086.42	69341.51	432344.95	0.57	6.37	47.52	19.48	278.558
2346.00	48.790	280.470	1887.12	1120.83	169.89	-1107.91	69320.03	432348.88	0.22	6.46	48.37	19.50	278.594
2375.00	48.830	279.330	1906.22	1142.65	173.65	-1129.40	69298.53	432352.63	0.89	6.56	49.23	19.53	278.619
2403.00	48.890	278.970	1924.64	1163.74	177.00	-1150.22	69277.72	432355.98	0.30	6.65	50.07	19.55	278.628
2431.00	48.460	279.590	1943.13	1184.76	180.39	-1170.98	69256.96	432359.37	0.68	6.74	50.90	19.58	278.638
2459.00	48.930	279.190	1961.61	1205.80	183.82	-1191.73	69236.21	432362.80	0.60	6.83	51.74	19.60	278.651
2487.00	48.890	279.070	1980.01	1226.90	187.17	-1212.56	69215.38	432366.15	0.11	6.92	52.59	19.63	278.658
2515.00	48.880	279.010	1998.42	1248.00	190.48	-1233.40	69194.55	432369.47	0.05	7.01	53.43	19.66	278.663
2544.00	48.870	278.780	2017.50	1269.84	193.86	-1254.98	69172.97	432372.84	0.18	7.11	54.32	19.68	278.665
2572.00	48.890	279.980	2035.91	1290.93	197.30	-1275.79	69152.16	432376.28	0.97	7.21	55.17	19.71	278.676
2600.00	48.310	280.140	2054.43	1311.93	200.97	-1296.47	69131.48	432379.95	0.63	7.30	56.02	19.74	278.697
2629.00	48.350	280.250	2073.71	1333.59	204.80	-1317.79	69110.16	432383.78	0.09	7.40	56.89	19.77	278.721
2656.00	48.360	280.750	2091.65	1353.76	208.48	-1337.63	69090.32	432387.46	0.42	7.50	57.70	19.80	278.747
2685.00	48.900	280.490	2110.82	1375.52	212.49	-1359.02	69068.93	432391.47	0.59	7.60	58.58	19.83	278.776
2713.00	49.290	279.600	2129.15	1396.68	216.18	-1379.86	69048.09	432395.16	0.83	7.70	59.45	19.86	278.795



Actual Wellpath Report

Positional Uncertainty

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REFERENCE WELLPATH IDENTIFICATION

Operator	Aardwarmte Vierpolders	Slot	Slot#1
Area	THE NETHERLANDS	Well	BRI-GT-01
Field	Vierpolders	Wellbore	BRI-GT-01_AWB
Facility	Vierpolders		

WELLPATH DATA (105 stations) - with Positional Uncertainty values

MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	DLS [°/30m]	Vertical Semi-Axis [m]	Horiz Major Semi-Axis [m]	Horiz Minor Semi-Axis [m]	Horiz Minor Axis Azim [°]
2741.00	49.450	279.400	2147.39	1417.93	219.69	-1400.81	69027.14	432398.67	0.24	7.80	60.33	19.90	278.805
2769.00	49.390	279.420	2165.60	1439.19	223.17	-1421.79	69006.16	432402.15	0.07	7.90	61.21	19.93	278.812
2798.00	48.820	279.560	2184.59	1461.11	226.78	-1443.42	68984.54	432405.76	0.60	7.97	62.02	19.95	278.822
2827.00	48.860	279.510	2203.67	1482.95	230.40	-1464.95	68963.01	432409.38	0.06	8.01	62.75	19.97	278.833
2855.00	48.920	279.070	2222.08	1504.04	233.80	-1485.77	68942.19	432412.78	0.36	8.05	63.45	19.98	278.840
2883.00	48.840	278.590	2240.50	1525.14	237.04	-1506.61	68921.34	432416.02	0.40	8.10	64.16	20.00	278.841
2911.00	48.900	279.030	2258.91	1546.23	240.27	-1527.45	68900.50	432419.25	0.36	8.14	64.88	20.02	278.842
2939.00	48.870	280.120	2277.33	1567.32	243.78	-1548.25	68879.70	432422.76	0.88	8.19	65.60	20.04	278.852
2968.00	48.920	280.200	2296.39	1589.17	247.63	-1569.76	68858.20	432426.61	0.08	8.23	66.35	20.05	278.869
2996.00	48.960	280.120	2314.78	1610.28	251.36	-1590.54	68837.42	432430.34	0.08	8.28	67.09	20.07	278.886
3024.00	48.880	280.930	2333.18	1631.38	255.21	-1611.29	68816.67	432434.19	0.66	8.33	67.82	20.09	278.906
3052.00	48.850	280.770	2351.60	1652.45	259.18	-1632.00	68795.95	432438.16	0.13	8.39	68.56	20.11	278.930
3080.00	48.870	280.600	2370.02	1673.53	263.09	-1652.73	68775.23	432442.07	0.14	8.44	69.30	20.14	278.951
3087.00	48.850	280.500	2374.63	1678.80	264.06	-1657.91	68770.05	432443.04	0.33	8.46	69.49	20.14	278.956
3101.00	48.850	280.500	2383.84	1689.34	265.98	-1668.27	68759.69	432444.96	0.00	8.48	69.86	20.15	278.965

HOLE & CASING SECTIONS - Ref Wellbore: BRI-GT-01_AWB Ref Wellpath: BRI-GT-01_AWB

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]
24in Conductor	0.00	224.00	224.00	0.00	224.00	0.00	0.00	0.17	-0.07
17.5in Open Hole	0.00	1364.00	1364.00	0.00	1238.91	0.00	0.00	54.34	-379.67
13.375in Casing	0.00	1360.00	1360.00	0.00	1236.05	0.00	0.00	53.87	-376.91
12.25in Open Hole	1364.00	2784.00	1420.00	1238.91	2175.39	54.34	-379.67	225.03	-1433.00
9.625in Casing	0.00	2779.00	2779.00	0.00	2172.12	0.00	0.00	224.41	-1429.27
8.5in Open Hole	2784.00	3101.00	317.00	2175.39	2383.84	225.03	-1433.00	265.98	-1668.27
6.625in Liner	2681.50	3070.50	389.00	2108.52	2363.77	212.01	-1356.43	261.77	-1645.69



Actual Wellpath Report

Positional Uncertainty

BRI-GT-01_AWB

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REFERENCE WELLPATH IDENTIFICATION

Operator	Aardwarmte Vierpolders	Slot	Slot#1
Area	THE NETHERLANDS	Well	BRI-GT-01
Field	Vierpolders	Wellbore	BRI-GT-01_AWB
Facility	Vierpolders		

TARGETS

Name	MD [m]	TVD [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Latitude	Longitude	Shape
Target#1		2188.00	227.02	-1446.95	68981.00	432406.00	51°52'28.203"N	4°08'17.984"E	circle

WELLPATH COMPOSITION - Ref Wellbore: BRI-GT-01_AWB Ref Wellpath: BRI-GT-01_AWB

Start MD [m]	End MD [m]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1344.00	NaviTrak (SAG, MagCorr)	01. BHI NaviGamma MWD 17 1/2" <238m - 1344m>	BRI-GT-01_AWB
1344.00	2769.00	NaviTrak (SAG, MagCorr)	02. BHI NaviGamma MWD 12-1/4" <1388.m - 2769m>	BRI-GT-01_AWB
2769.00	3087.00	NaviTrak (SAG, MagCorr)	03. BHI NaviGamma MWD 8-1/2" <2798m - 3087m>	BRI-GT-01_AWB
3087.00	3101.00	Blind Drilling (std)	Projection to bit	BRI-GT-01_AWB