V.O.F. Geothermie De Lier

End Of Well Report

Scab Liner Installation

LIR-GT-01

01-06-2017

Prepared by:

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1 EXECUTIVE SUMMARY

VOF Geothermie De Lier operates a geothermal heating system formed by a production well (LIR-GT-01) and an injection well (LIR-GT-02). Both wells were drilled and completed in 2014. In January 2017 the well LIR-GT-01 ceased production as a result of an ESP failure and consequently the ESP completion was retrieved. The work scope was extended by a corrosion logging survey to assess the condition of the casing sections. The results showed that corrosion had taken place in the 9-5/8" liner and, to a lesser extent, in the 13-3/8" casing up to the ESP intake depth at approximately 650 m. The 6-5/8" liner did not show extraordinary corrosion. After completion of the corrosion logging survey, a kill string was installed.

During the last well intervention, two scab liners were installed over the specific zones in the 9-5/8" and 13-3/8" casing sections in LIR-GT-01. After the successful installation of the scab liners another base-line corrosion logging survey was conducted and the ESP completion was reinstalled. To prevent excessive corrosion, an additional inhibitor line for the injection of anti-corrosion fluids was installed to the depth of the reservoir. These operations were completed in May 2017.

2 PROJECT DATA

2.1 GENERAL

2.1.1	Supervisory personnel:	M. Brugman, Well Intervention Manager
2.1.2	Period of supervision:	03/05/2017 to 19/05/2017

2.2 WELL

2.2.1	Well name:	LIR-GT-01
2.2.2	Purpose:	Scab liner installations and ESP recompletion
2.2.3	Start of operations:	03/05/2017
2.2.4	Number of days	17

2.3 WELL INTERVENTION UNIT

2.3.1	Workover Unit Name:	Boekestijn Crane & Odfjell Work Platform
2.3.2	Owners:	Boekestijn / Odfjell

3 BOREHOLE SECTION DATA

3.1 DEPTHS

3.1.1 Depth reference: RKB - THS = 7.09 m

3.1.2 RKB – GL: 6.91 m

3.1.3 RKB – NAP: 5.01 m

3.1.4 Final depth: N/A

3.2 TUBING, CASING

3.2.1 ESP Completion string summary

Size (in)	From (m AH)	To (m AH)	Grade	Weight (ppf)	Cement type	Weight (ppf)	Volume (bbls)	TOC	Method
8-5/8	0	636	L80	32.0	N/A	N/A	N/A	N/A	N/A
ESP	636	662	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/8	0	2840	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/4	0	662	N/A	N/A	N/A	N/A	N/A	N/A	N/A

3.2.2 Scab Liner summary

Size (in)	From (m AH)	To (m AH)	Grade	Weight (ppf)	Cement type	Weight (ppf)	Volume (bbls)	TOC	Method
7-5/8	896	2492	L80	33.7	N/A	N/A	N/A	N/A	N/A
11-3/4	899	638	T95	60.0	N/A	N/A	N/A	N/A	N/A

3.2.3 Well Completion diagram:
See well status diagram - Appendix A

4 MUD PROPERTIES

4.1.1 Mud type per section: N/A

4.1.2 Mud weight versus depth: N/A

5 GEOLOGICAL DATA

5.1 STRATIGRAPHICAL COLUMN

5.1.1	Formation tops:	N/A
5.1.2	Faults:	N/A
5.1.3	Abnormal pressures:	N/A

5.2 HYDROCARBONS

5.2.1	Type of Hydrocarbons:	None
5.2.2	Reservoirs:	Rijswijk, Rodenrijs, Delft & Alblasserdam Sandstone
5.2.3	Maximum flow rate:	4000 – 7500 m3 total fluid (wa
5.2.4	ter) / day	
5.2.5	Closed in THP:	0 bar

6 WELL STATUS

6.1.1	Well status:	Completed ESP water producer
6.1.2	Well status diagram:	See well status diagram - Appendix A
6.1.3	Wellhead configuration:	See wellhead & X-mas tree - Appendix B
6.1.4	X-mas tree configuration:	See wellhead & X-mas tree - Appendix B
6.1.5	Directional data:	See directional data - Appendix C

7 SIGNATURE

De Lier

01/06/2017

VOF Geothermie De Lier

M. Brugman

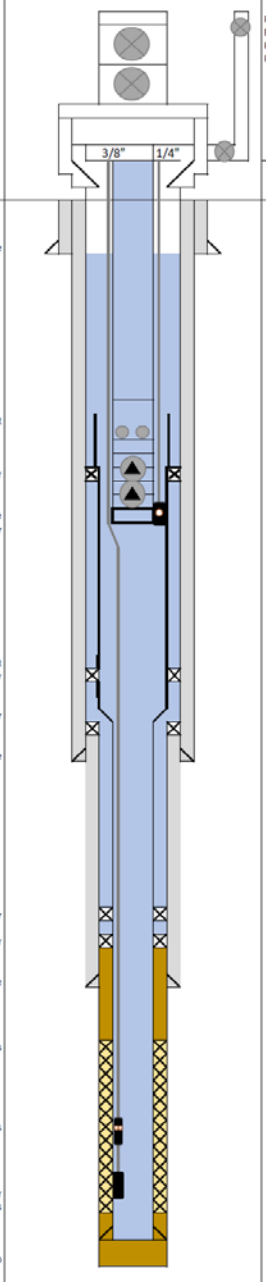
Well Intervention Manager

8 APPENDIX

8.1 APPENDIX A

V.O.F. Geothermie De Lier

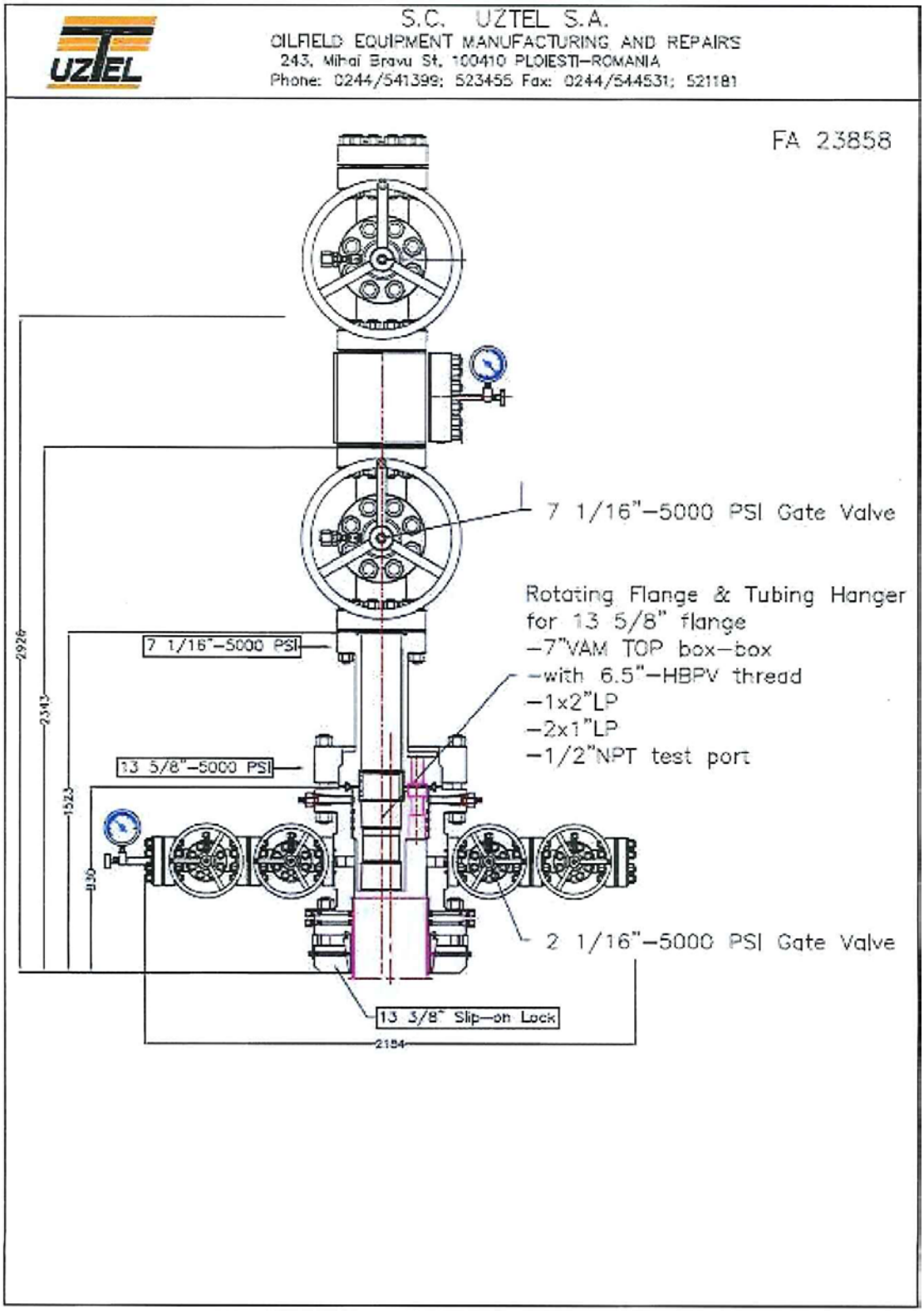
VOF Geothermie De Lier
GDL-GT-01
DEPTH REFERENCE = THS



DESCRIPTION		Depth AH (m)	Depth TVD (m)	Hole ID (in)	Pipe OD (in)	Collar OD (in)	Pipe ID (in)	Pipe Drift (in)
X-mas tree 7-1/16" 5K (RX46) Spool 7-1/16" 5K (RX 46) x 13-5/8" 5K (BX160)		RKB - THS 7.09 m RKB - CHH 7.78 m RKB - GL 6.91 m RKB - NAP 5.01 m						
Wellhead 13-5/8" 5K x 13-5/8" 5K Tubing Head Spool (THS) Tubing hanger - Excentric - 7" VAM TOP box x box - 6.5" HBPV Feed through: 2x 1" LP - 1x 2" LP - 1/2" NPT test port Casing Head Housing (CHH) 13-3/8" x 13-5/8" 5K slip-on lock								
8-5/8" x 7" VT L80 x-over pin x pin tubing		1	1		7	N/A	6.094	5.969
24" - 125# - X65 - Conductor	Shoe	135	135	driven	24.000	welded	23.118	23
8-5/8" - 32# - L80 Polseal HC1 Tubing 3/8"x 0.065" inhibitor line alloy 825 to mid screens 1/4"x 0.049" inhibitor line SS316L to centralizer					8.625	9.650	7.921	7.796
GOT Top 10.8" Scab Liner PBR 3m stroke ESP Intake	PBR	638 640	637 639		11.750	Flush	10.800	10.616
GOT Packer 11-3/4" Scab Liner Dual ESP ESP Sensor ESP Centralizer 266 mm Resato Injection Nozzle 80 bar opening pressure 3/8" inhibitor line union at bottom centralizer	Packer	641 661 662	640 660 661		11.750	Flush	10.800	10.616
13-3/8" - 68# - Vam Top Casing				15.000	13.375	14.375	12.615	12.459
11-3/4" - 60 - T95 - THS Wedge 513 Scab Liner								
GOT top 10.590" PBR 3m stroke GOT 9-5/8" Tieback stem bottom GOT packer GOT top Extension joint (10 ft stroke) set in half open position	PBR Packer	896 899 900 901	894 897 898 899					
13-3/8" x 9-5/8" Liner hanger + packer 9-5/8" - 47# - L80 - GT premium Casing	X-over Top of Liner	932	930		7.000	7.681	6.276	6.151
13-3/8" - 68# - Casing	Shoe	1029	1027	15.000	13.375	14.375	12.615	12.459
7-5/8" - 33.7# - L80 SC Polseal HC1 Scab Liner					7.625	8.525	6.765	6.540
GOT Bottom packer Scab Liner GOT 7" - 26# - VAM TOP x 7.289" Stinger 9-5/8" x 6-5/8" Black Cat packer	Packer Top of Liner	2489 2492 2492	2266 2269 2269				4.750	
9-5/8" - 47# - L80 - GT premium Casing	Shoe	2553	2313	12.250	9.625	10.650	8.681	8.525
6-5/8" - 24# - L80 Polseal Blank joints Liner				8.500	6.625	7.413	5.921	5.796
Wire-Wrapped screens (300 micron on 6 5/8" base pipe Polseal)	Top of Screens	2606	2456					
	Baker Injection Nozzle 6.5mm holes	2740	2454					
	Bottom of Sinkerbar Bottom of Screens	2840 2856	2528 2544		2.500			
6-5/8" - 24# - L80 - Seal sub - Polseal Blank Joint + bullnose		2881	2558	8.500	7.000	7.191	5.921	5.796
	TD	2897	2575	8.5				

SIZE (in)	WEIGHT (ppf)	GRADE	CONN	OD (in)	OD COUPLING (in)	ID (in)	DRIFT (in)	SHOE DEPTH (m AH)	TOP DEPTH (m AH)	CAP (l/m)	BURST (bar)	COLLAPSE (bar)	TENSILE (klbs)
13.375	54.50	K55	BTC	13.375	14.374	12.615	12.459	230	0	80.651	188	78	853
11.750	60.00	T95	THS 513	11.750	11.750	10.772	10.616	895	641	58.807	276	219	909
9.625	47.00	L80	GT-Premium	9.625	10.650	8.681	8.525	2553	932	38.190	473	328	1086
8.625	32.00	L80	PS HC1	8.625	9.650	7.921	7.796	636	2	31.790	393	210	732
7.625	33.70	L80	PS HC1	7.625	8.525	6.765	6.640	2488	907	23.139	544	452	778
6.625	24.00	L80	PS HC1	6.625	7.413	5.921	5.796	2881	2499	17.767	512	397	555
0.375	0.23	A825	Swagelock	0.375	--	0.245	--	2869	0	0.039	2351	690	85
0.250	0.11	SS316L	Swagelock	0.250	--	0.152	--	662	0	0.039	2211	540	70

8.2 APPENDIX B



8.3 APPENDIX C

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

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	19.77	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