Well Integrity Multifinger Caliper

Maasdijk

MSD-GT-01

Survey Date: 30 May 2023

ANSA

VERSION HISTORY

Version	Author	Date	Comment
1	J. Purves	16 June 2023	Final Report

Disclaimer

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case where it can be established that gross or wilful negligence has occurred on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations made by any of our officers, agents or employees.

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

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1 — Survey overview & objectives

Tool:	56-arm multi-finger caliper run in SRO mode
Conveyance:	E-Slickline
Survey objectives:	Assess the general casing/GRE liner condition
Comments:	Data was logged in two passes, main and repeat, and was of suitable quality to meet to survey objectives. The main pass (~3226 m to surface) was used for statistical analysis within this report. All depths quoted in this report reference the client supplied pipe tally, unless otherwise stated.

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2 — Executive summary

- The 9-5/8" casing section was found to be in good condition with all of the 34 logged joints displaying maximum penetrations less than 13.5%. The average mean ID was 8.691", slightly higher than the expected nominal of 8.681". All maximum and minimum recorded IDs per joint can be attributed to manufacturing patterns;

- The 9-5/8" GRE lined casing appears to range between good and moderate condition with 92 of the 163 joints exhibiting wall penetrations of less than 12.5%, 47 between 12.5% and 20%, 24 between 20% and 40% wall thickness. The average recorded mean ID throughout the GRE lined casing is 8.230", slightly lower than the expected nominal ID of 8.250". The lower-than-expected recorded diameter is thought to be in part due to extreme changes in temperature affecting the recorded diameters of the tool and/or the properties of the GRE liner;

- Throughout the logged 9-5/8" GRE liner there is evidence of very minor pitting scattered throughout and typically recorded by only one of the caliper fingers. The majority of maximum penetrations per joint within this liner section were caused by either manufacturing patterns or minor ovalisation. The maximum penetration of 36.3% found at a depth of 1051.06 m was the most severe example of ovalisation within this section however additional pitting is found within the period of ovalisation. These penetrations are therefore exacerbated and are representative of less severe metal loss. The minimum ID resulting from the ovality in this area is 8.189" at 1050.91 m, which remains above the drift ID of 8.125". The minimum ID of 8.099" was found at a depth of 2740.53 m and was likely caused by a small piece of deposition. This feature was recorded by one of the caliper fingers over a small depth interval (~0.02 m) and is not thought to cause a significant restriction;

- The 10-3/4" GRE liner section was found to be good to moderate condition with 69 of the 86 logged joints displaying maximum penetrations less than 20% and 16 of the joints displaying maximum penetrations in the range 20-30%. One joint displayed a penetration of 30.3%. The maximum penetration of 30.3% was found at a depth of 856.15 m, this was caused by a small pit recorded over one of the caliper fingers. Throughout this joint 5 other smaller pits can be seen however they are minor. Additional, minor pitting features can be observed intermittently throughout this pipe section. Throughout the interval, minor ovalisation can be seen similar to the 9-5/8" GRE liner section, suggesting the GRE liner is more prone to ovalisation perhaps due to the flexibility of the material they are made from. These instances of ovalisation are minor and are not thought to caused significant restriction. The minimum ID of 9.304" was found at a depth of 868.53 m and was caused by minor ovalisation. There does not appear to be any evidence of deposition within this liner section.

Max. recorded penetration (%)	Depth (m)
36.3	1051.06

Penetration range (%)	No. of joints
0 – 12.5	134
12.5 – 20	108
20 – 30	38
30 – 40	3
40 – 50	0
50 – 60	0
60 – 70	0
70 – 80	0
80 – 90	0
90 – 100	0
Total	**283**

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3 — Data quality

It is not uncommon for well conditions/conveyance/depth system problems to be a major cause of poor data while logging in addition to the performance of the logging tools themselves, impacting the ability to achieve the objectives of the survey. A ranking system summarises the quality of the data affected by the well/conveyance/depth system and the logging tools. An explanation of the rankings used are provided below.

Rank	Well/conveyance/depth system performance	Tool performance	Data analysis
4	Rates stable, complete access and clean pipe / smooth motion; constant logging speeds / good depth control	Good data quality and repeatability with no tool problems	High confidence in analysis results
3	Minor well blockages or debris / minor yo-yo motion / temporary loss of depth	Data standard acceptable but minor noise and/or tool problems	Analysis satisfactory – primary questions answered
2	Limited well access, unstable rates / stick slip; cable stretch; cable torque; speed instability; poor centralisation / frequent loss of depth	Poor quality data with some data loss and/or poor repeatability	Low confidence in analysis results
1	No well access / wire or coil tubing breakage; tractor failure / complete loss of depth	No data acquired due to tool failure	Data uninterpretable

The following table provides a measure of the confidence expressed in this analysis based on the well/conveyance/depth system and tool performance. The rankings (as above) are entered by the Analyst who performed the interpretation based on the status of the well logged, the performance of the conveyance/depth system and data quality from the field and the impact of all these on the analysis.

Sensor	Description	Well/Con/Depth	Tool	Analysis	Comments
LS	Line speed	4	4	4	
MFC	Multi-finger caliper	3	3	3	ID drift due to temperature within the GRE liner
GR	Gamma ray	4	4	4	
CCL	Casing collar locator	4	4	4	
WTemp	Temperature	4	4	4	
	Analysis score			3.5	Good data set for analysis

For each sensor the well conditions that may have affected the survey with respect to the survey objectives have been considered.

For each sensor the quality of the raw data supplied by the acquisition process has been considered.

For each sensor the overall influence of the well conditions and logging process on the certainty of the final interpreted result has been considered.

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4 — Interpretation results

Operation parameters

Tubing OD	9-5/8"	8.480" GRE liner	9.630" GRE Liner
Weight	47 lb/ft	4.9 lb/ft	6.4 lb/ft
Nominal ID	8.681"	8.250"	9.350"
Drift ID	8.525"	8.125"	9.225"

9-5/8" casing condition [3226 – 2839 m]

- The 9-5/8" casing section was found to be in good condition with all of the 34 logged joints displaying maximum penetrations less than 13.5%. The average mean ID was 8.691", slightly higher than the expected nominal of 8.681". An overview of this interval can be seen in Figure 1;

- The maximum penetration of 13.4% was found at a depth of 3118.81 m and was caused by typically characterised manufacturing patterns of which there is evidence of throughout this interval (See Figure 2). All of the maximum penetrations per joint are thought to be caused by manufacturing patterns supporting the conclusion the casing is in good condition free from metal loss;

- There is no evidence of deposition or any other kind of ID restriction within this tubing section. The minimum ID of 8.603" was found at a depth of 2912.88 m and was as a result of manufacturing patterns (See Figure 3). The minimum ID therefore remains well above the drift ID of 8.525" throughout;

- There was no evidence of ID drift due to temperature within this casing section.

9-5/8" GRE liner [2839 – 958 m]

- All values quoted in this section are calculated using the ID and OD quoted above for the GRE liner only. These values were provided by the client in the TK-Liner technical document (See Field Record 2). The OD of 8.480" has been calculated by adding double the quoted nominal thickness of 0.115" to the quoted ID of 8.250";

- The 9-5/8" GRE lined casing overview is shown in Figure 4. The GRE liner appears to range between good and moderate condition with 92 of the 163 joints exhibiting wall penetrations of less than 12.5%, 47 between 12.5% and 20%, 24 between 20% and 40% wall thickness. The average recorded mean ID throughout the GRE lined casing is 8.230", slightly lower than the expected nominal ID of 8.250". The lower-than-expected recorded diameter is thought to be in part due to extreme changes in temperature affecting the recorded diameters of the tool and/or the properties of the GRE liner;

- The difference in recorded mean ID of the pup joint below the crossover at ~960 m and the full joint above the cross-over at ~2839 m is a loss of 0.034" the deeper the log interval, close to the stated accuracy of the tool (0.035"). The temperature change over the same interval is an increase of ~48°C which is thought to be a factor in the change in ID;

- The recorded diameters are very close to nominal ID towards surface and reduce in ID towards the bottom of the casing (see Figure 4), meaning calculated wall penetrations will be smaller as the diameter reduces in size given wall penetrations are calculated based on a constant nominal ID and OD of the GRE liner;

- Throughout the logged interval there is evidence of very minor pitting scattered throughout and typically recorded by only one of the caliper fingers. The majority of maximum penetrations per joint within this liner section were caused

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by either manufacturing patterns or minor ovalisation. The maximum penetration of 36.3% found at a depth of 1051.06 m was the most severe example of ovalisation within this section however additional pitting is found within the period of ovalisation. These penetrations are therefore exacerbated and are representative of less severe metal loss (See Figure 5). The minimum ID resulting from the ovality in this area is 8.189" at 1050.91 m, which remains above the drift ID of 8.125";

- The minimum ID of 8.099" was found at a depth of 2740.53 m and was likely caused by a small piece of deposition. This feature was recorded by one of the caliper fingers over a small depth interval (~0.02 m) and is not thought to cause a significant restriction (See Figure 6 and 7);

- Elsewhere there is no evidence of any significant deposition within the logged liner section with the majority of minimum IDs per joint being caused by manufacturing deviations and occasionally by ovalisation.

10-3/4" GRE liner [958 m - surface]

- The 10-3/4" GRE liner was analysed following the same procedure as the 9-5/8" GRE liner using the relevant GRE liner dimensions listed at the start of the section, without reference to the external 10-3/4" pipe behind it;

- This GRE liner section was found to be good to moderate condition with 69 of the 86 logged joints displaying maximum penetrations less than 20% and 16 of the joints displaying maximum penetrations in the range 20-30%. One joint displayed a penetration of 30.3%. An overview of this interval can be seen in Figure 8;

- The maximum penetration of 30.3% was found at a depth of 856.15 m, this was caused by a small pit recorded over one of the caliper fingers (See Figure 9). Throughout this joint 5 other smaller pits can be seen however they are minor. Additional, minor pitting features can be observed intermittently throughout this pipe section;

- Throughout the interval, minor ovalisation can be seen similar to the 9-5/8" GRE liner section, suggesting the GRE liner is more prone to ovalisation perhaps due to the flexibility of the material they are made from. These instances of ovalisation are minor and are not thought to caused significant restriction. The minimum ID of 9.304" was found at a depth of 868.53 m and was caused by minor ovalisation (See Figure 10). There does not appear to be any evidence of deposition within this liner section.

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5 — Graphics

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Figure 1: 9-5/8" Casing overview [3228 – 2839 m]

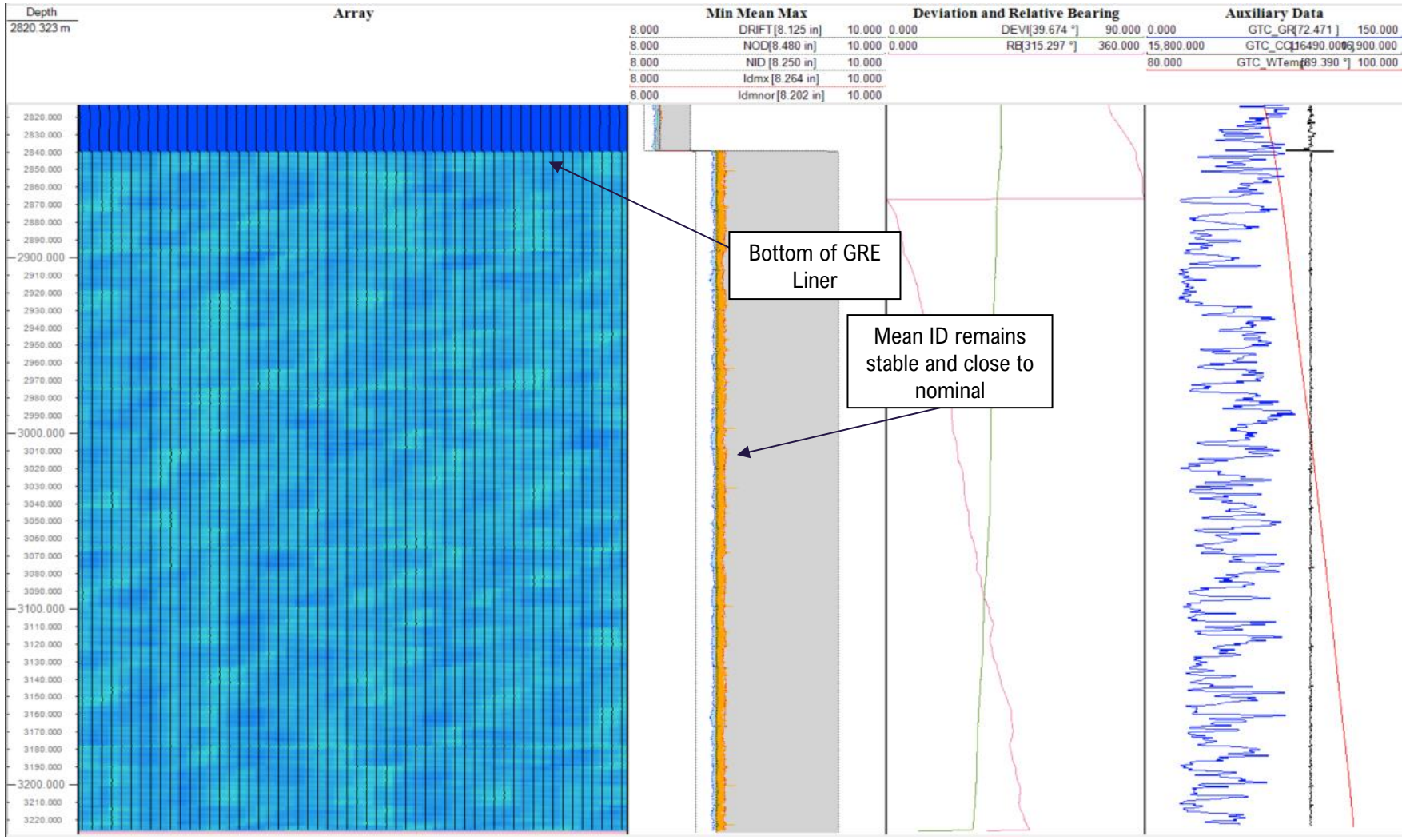

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Figure 2: Maximum penetration of 13.4% at 3118.81 m

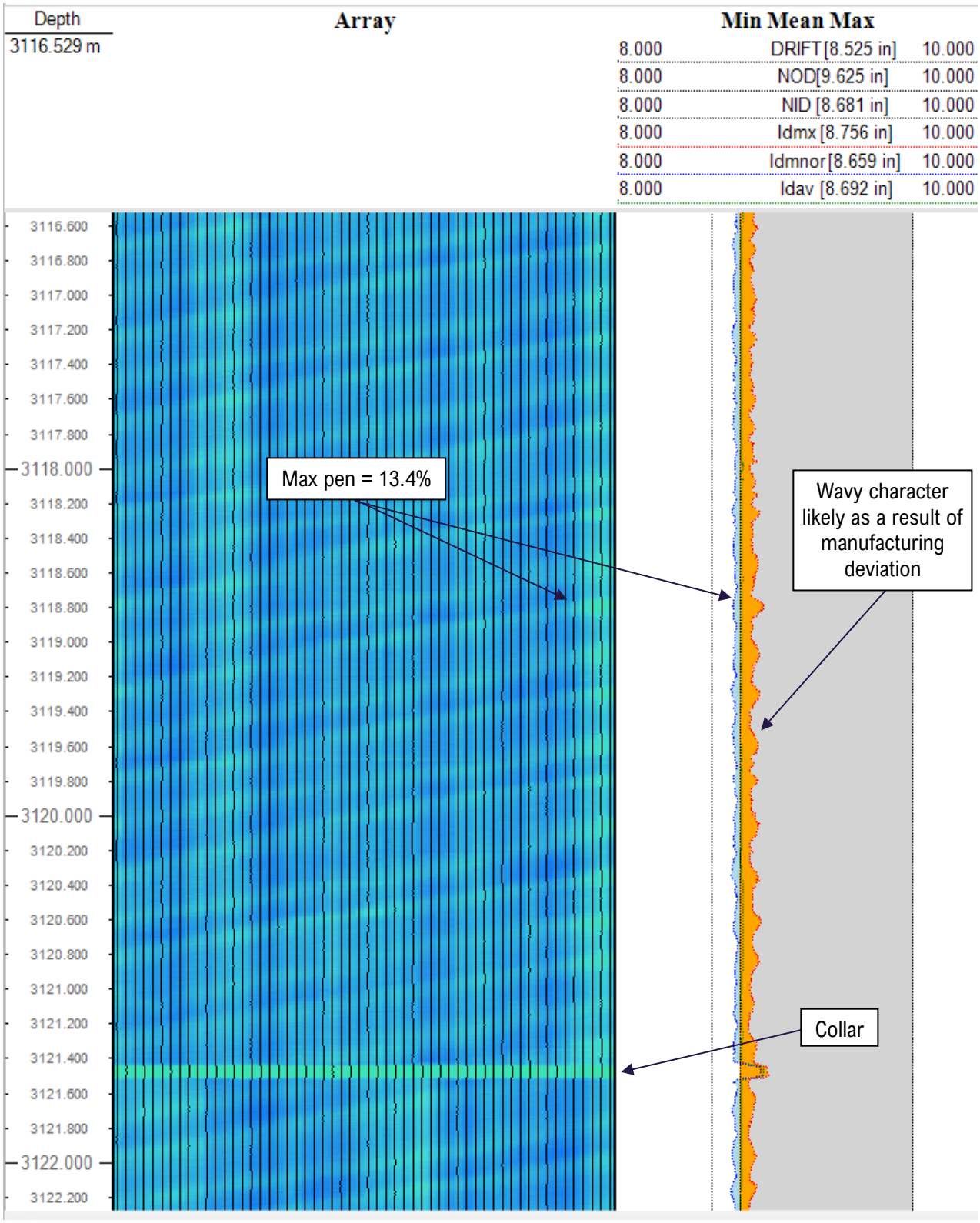

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Figure 3: Minimum ID of 8.603" at 2912.88 m

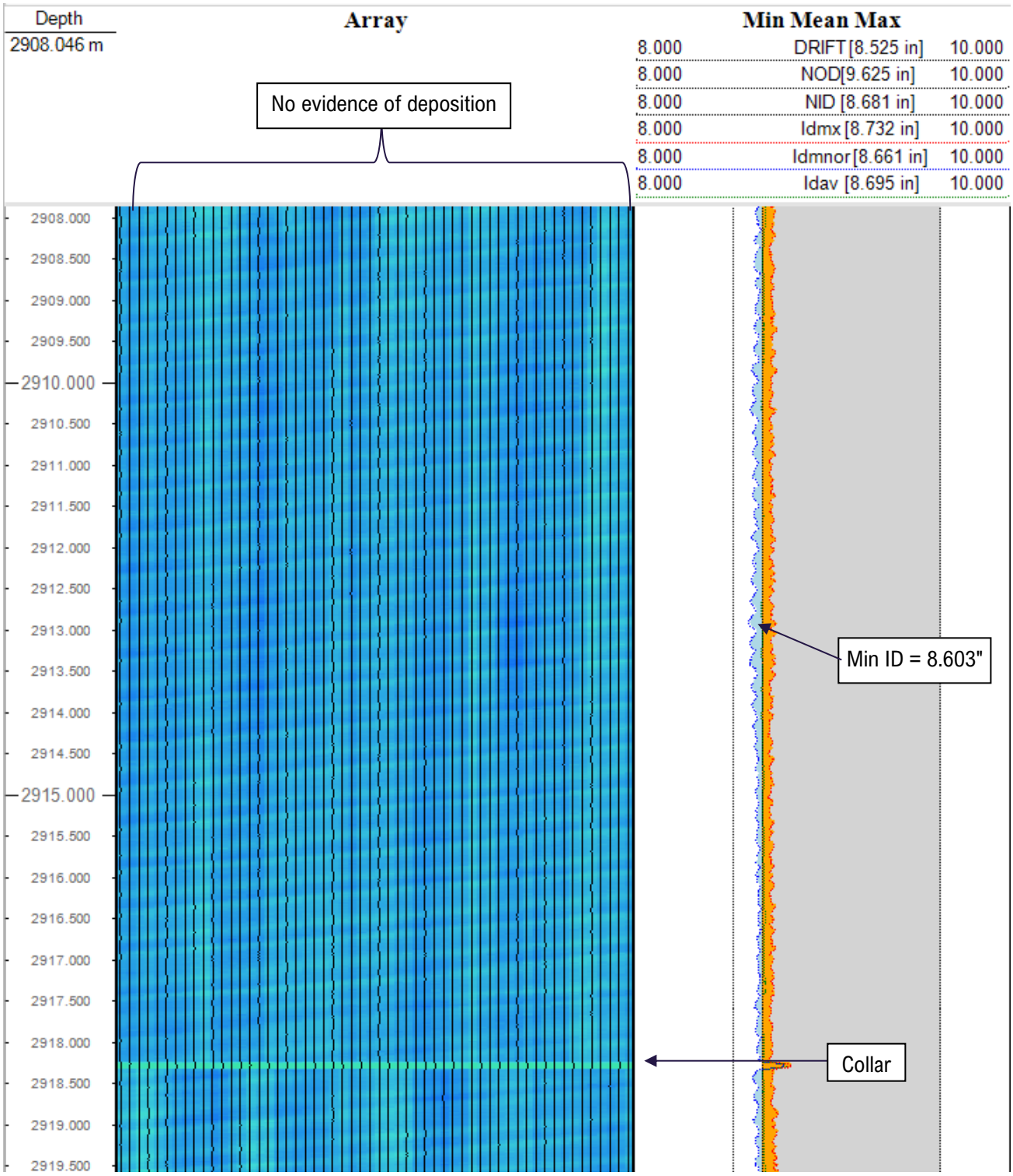

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Figure 4: Overview 9-5/8" GRE liner [2839 – 958 m]

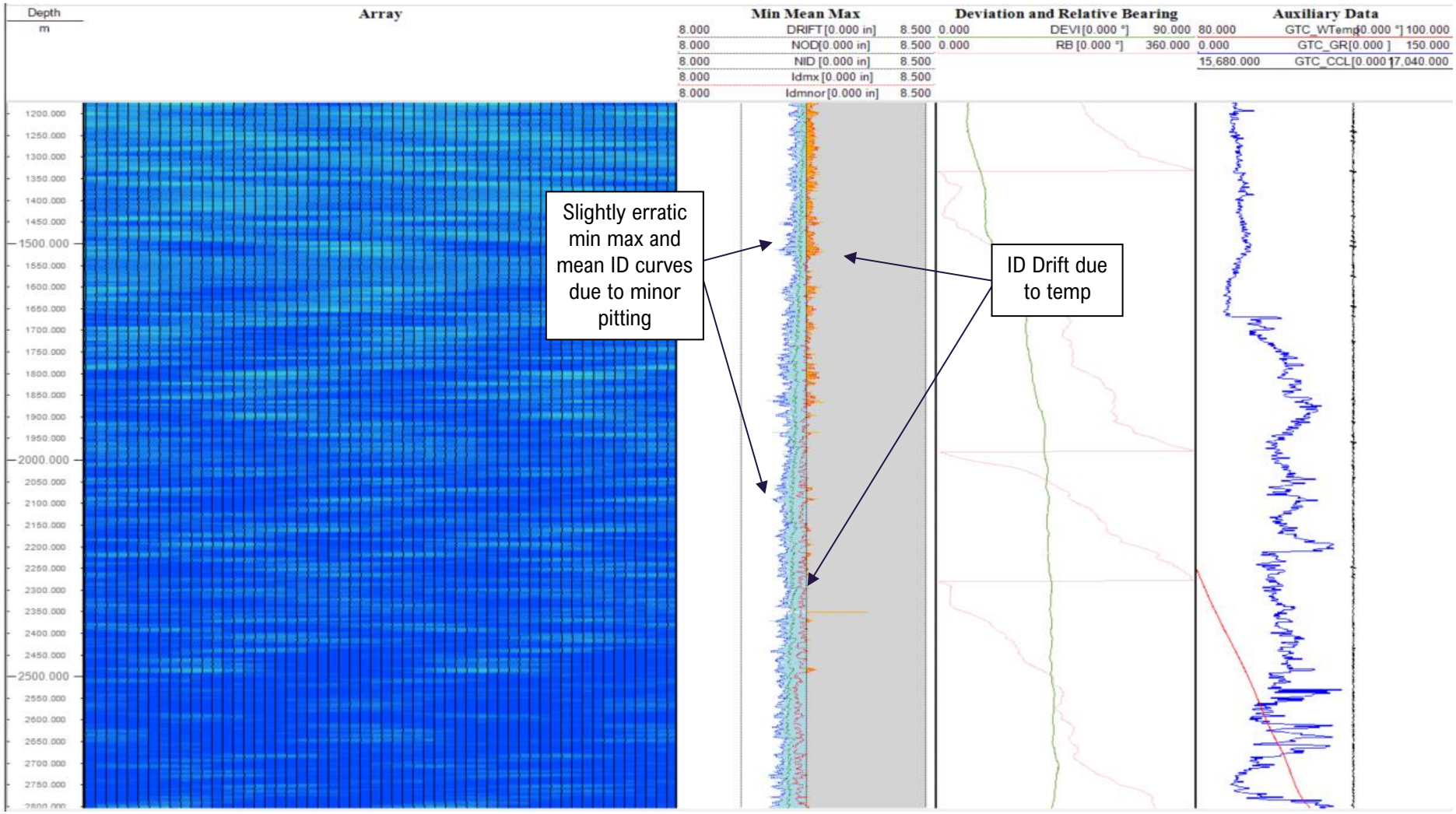

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Figure 5: Maximum penetration of 36.3% at 1051.06 m

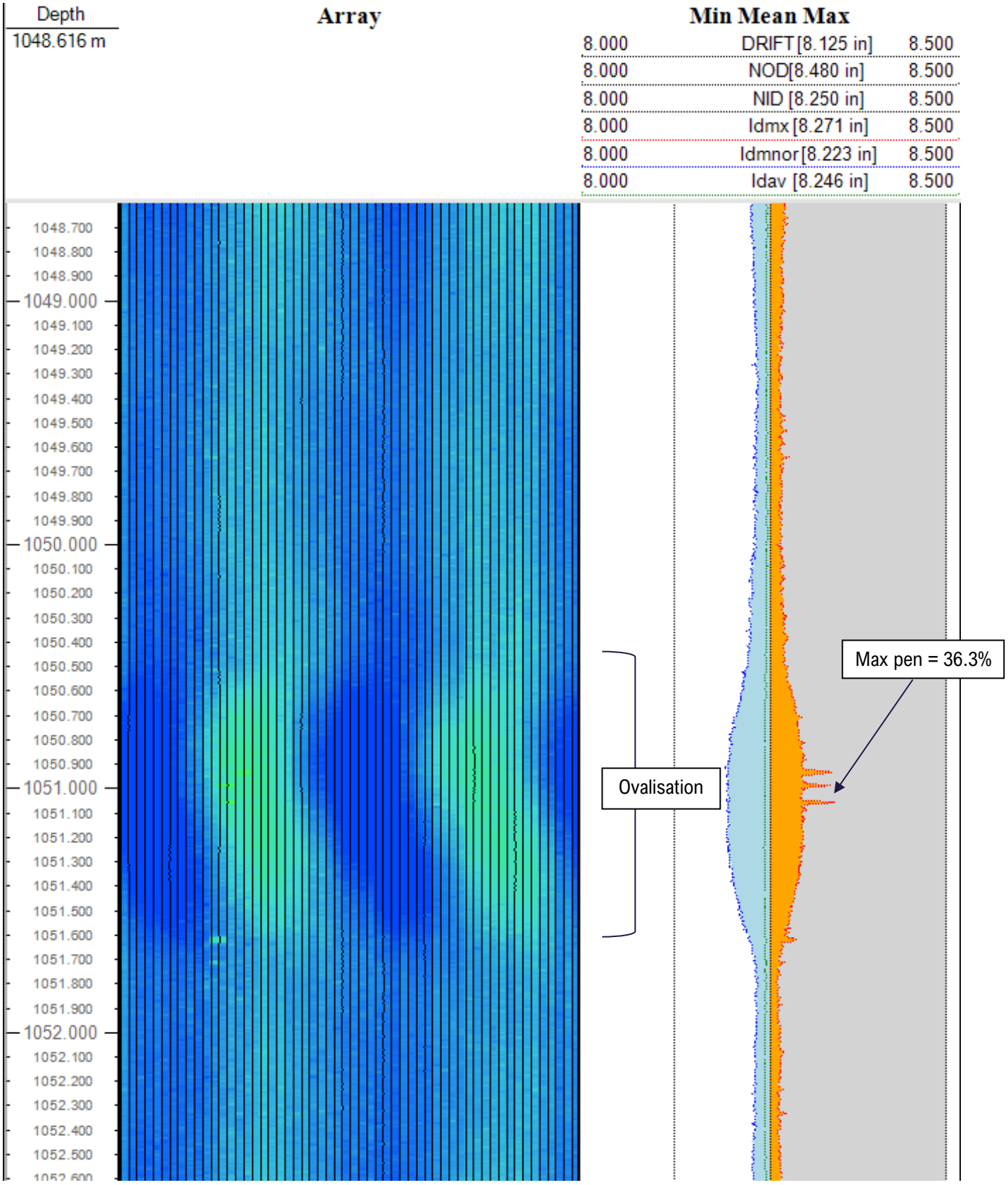

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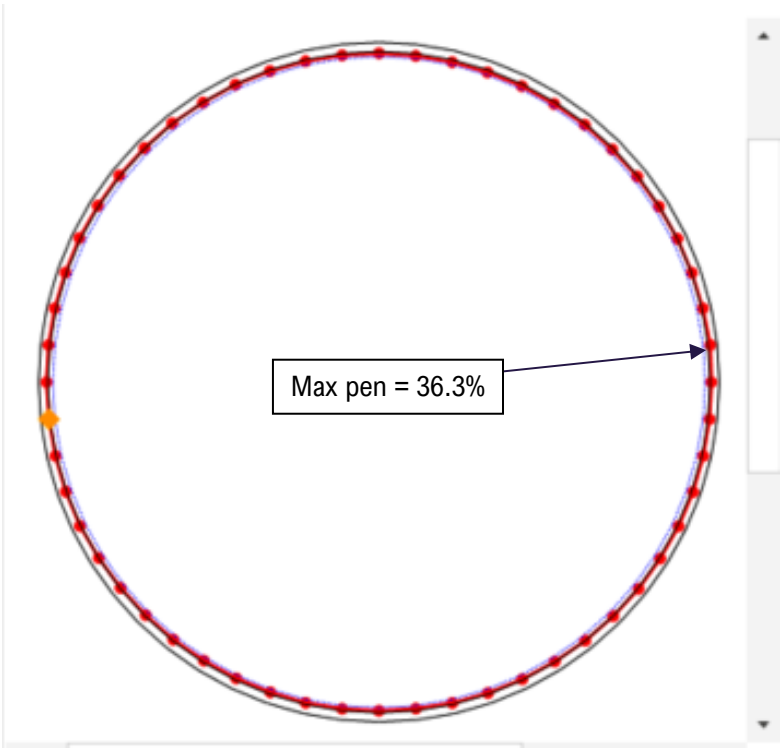
Figure 6: Maximum penetration of 36.3% at 1051.06 m (Cross-section)



Highlight Curves

Idav	8.243	Inch
Idmnor	8.194	Inch
Idmx	8.308	Inch
NID	8.250	Inch
NOD	8.480	Inch
DRIFT	8.125	Inch
Depth	1051.060	Meter
Irmn	4.095	Inch
Irmx	4.154	Inch
Irav	4.121	Inch

Extended Info Curves

RB	102.722	Degree
DEVI	4.076	Degree
TUP	41.021	arm
Mxpp	25.044	Percent

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Figure 7: Minimum ID of 8.099" at 2740.53 m

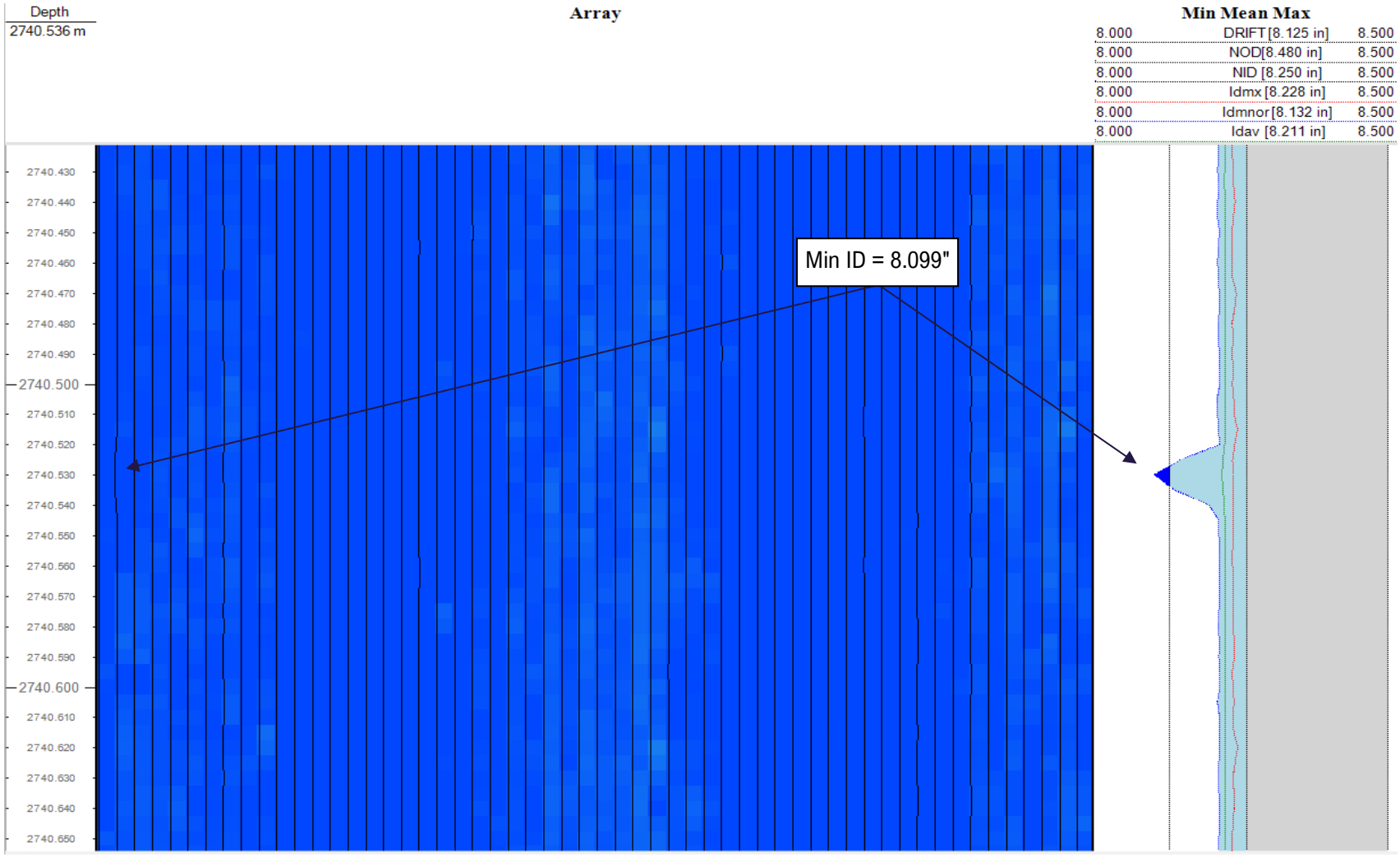

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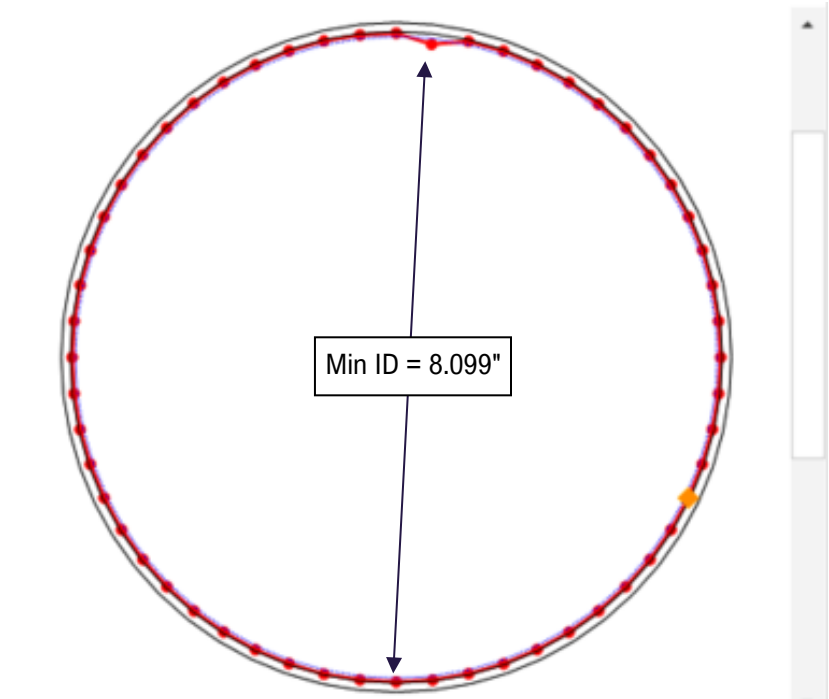
Figure 8: Minimum ID of 8.099" at 2740.53 m (Cross section)



Highlight Curves

Idav	8.210	Inch
Idmnor	8.099	Inch
Idmx	8.228	Inch
NID	8.250	Inch
NOD	8.480	Inch
DRIFT	8.125	Inch
Depth	2740.530	Meter
Irmn	3.990	Inch
Irmx	4.114	Inch
Irav	4.105	Inch

Extended Info Curves

RB	247.184	Degree
DEVI	41.448	Degree
TUP	18.549	arm
Mxpp	-9.522	Percent

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Figure 9: 10-3/4" GRE Liner Overview

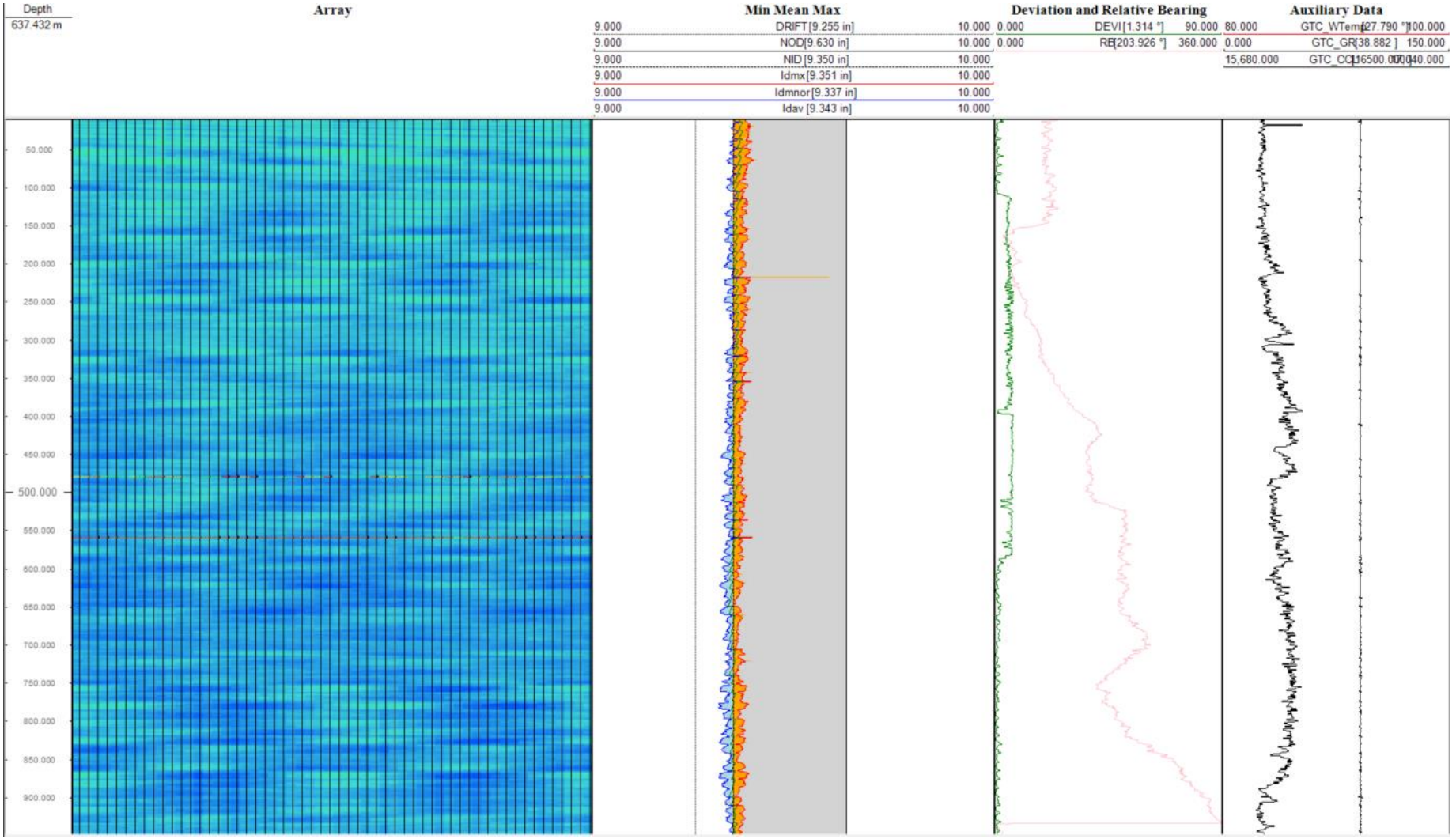

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Figure 10: Maximum penetration of 30.3% at 856.15 m

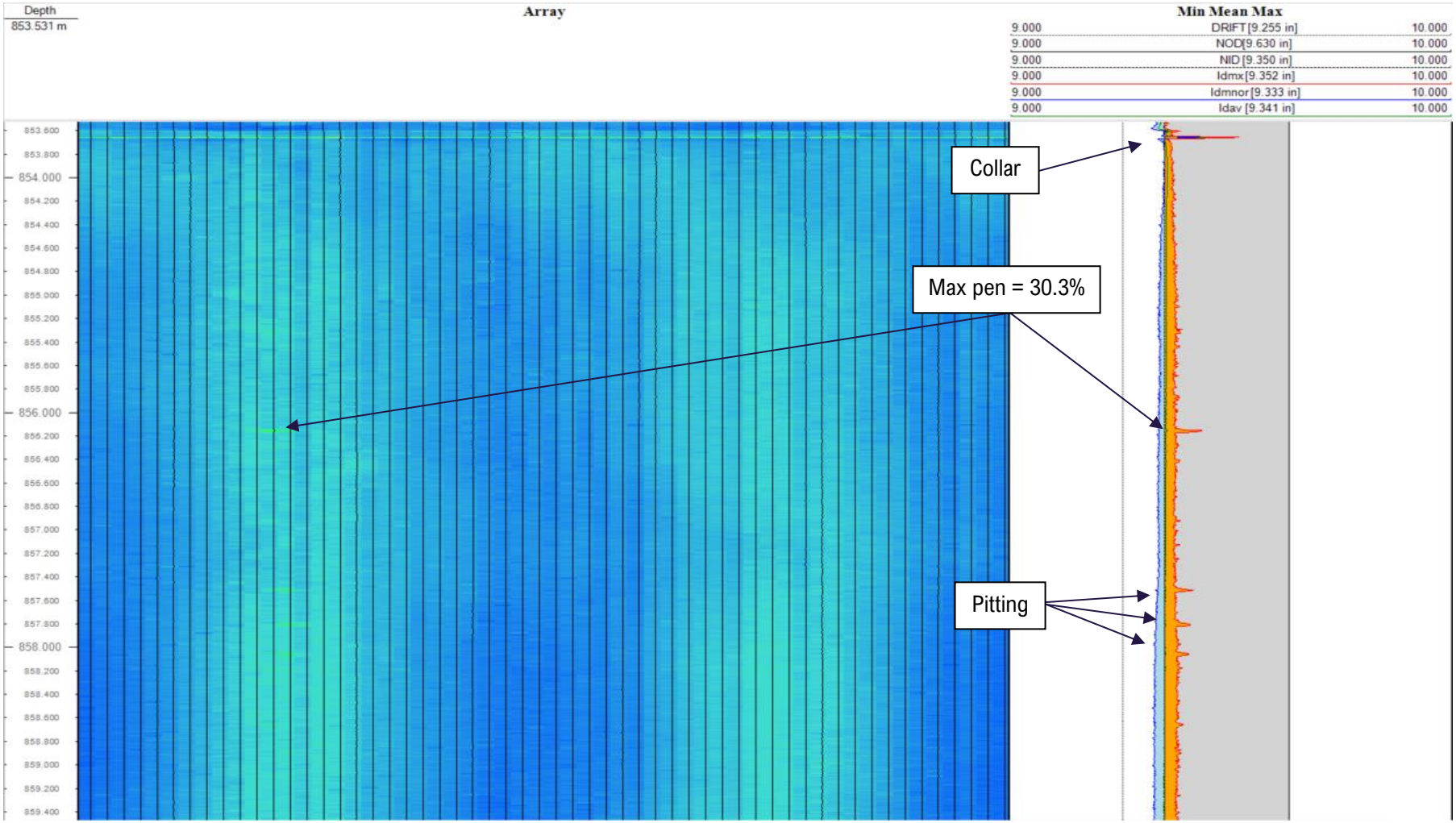

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Figure 11: Minimum ID of 9.304" at 868.53 m (Ovalisation)

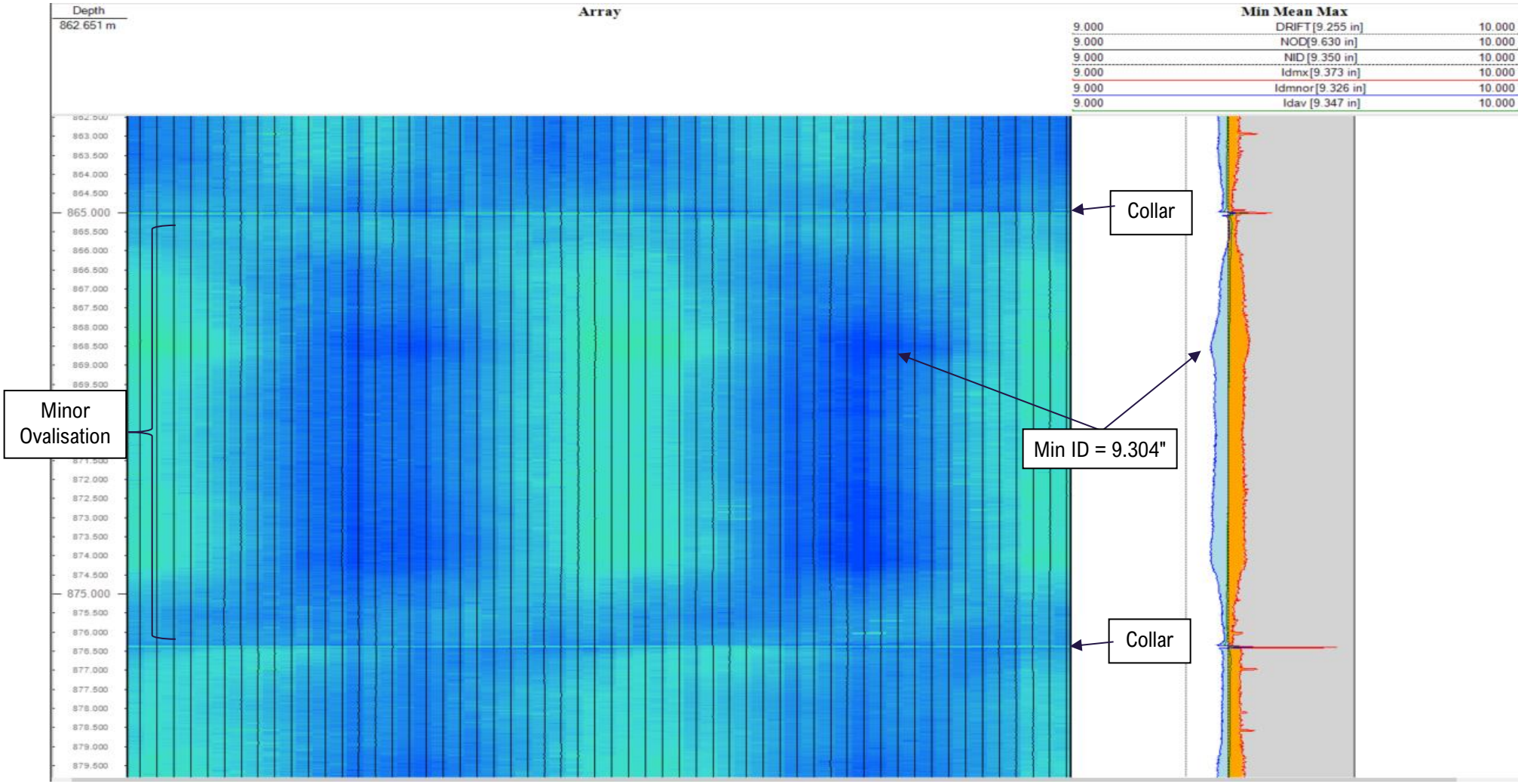

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Figure 12: Percentage penetration vs. measured depth plot

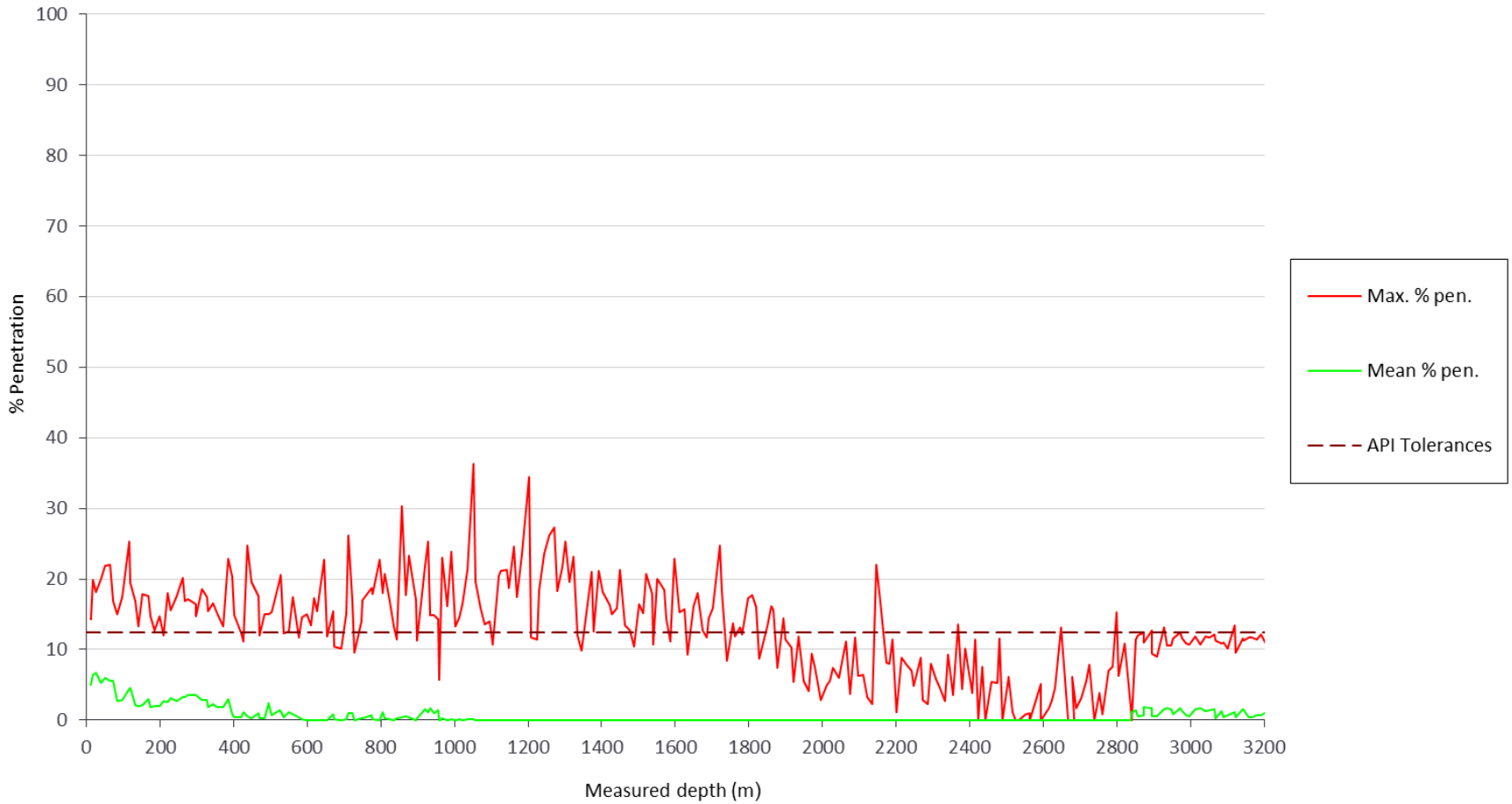

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Figure 13: Measured ID vs. measured depth plot

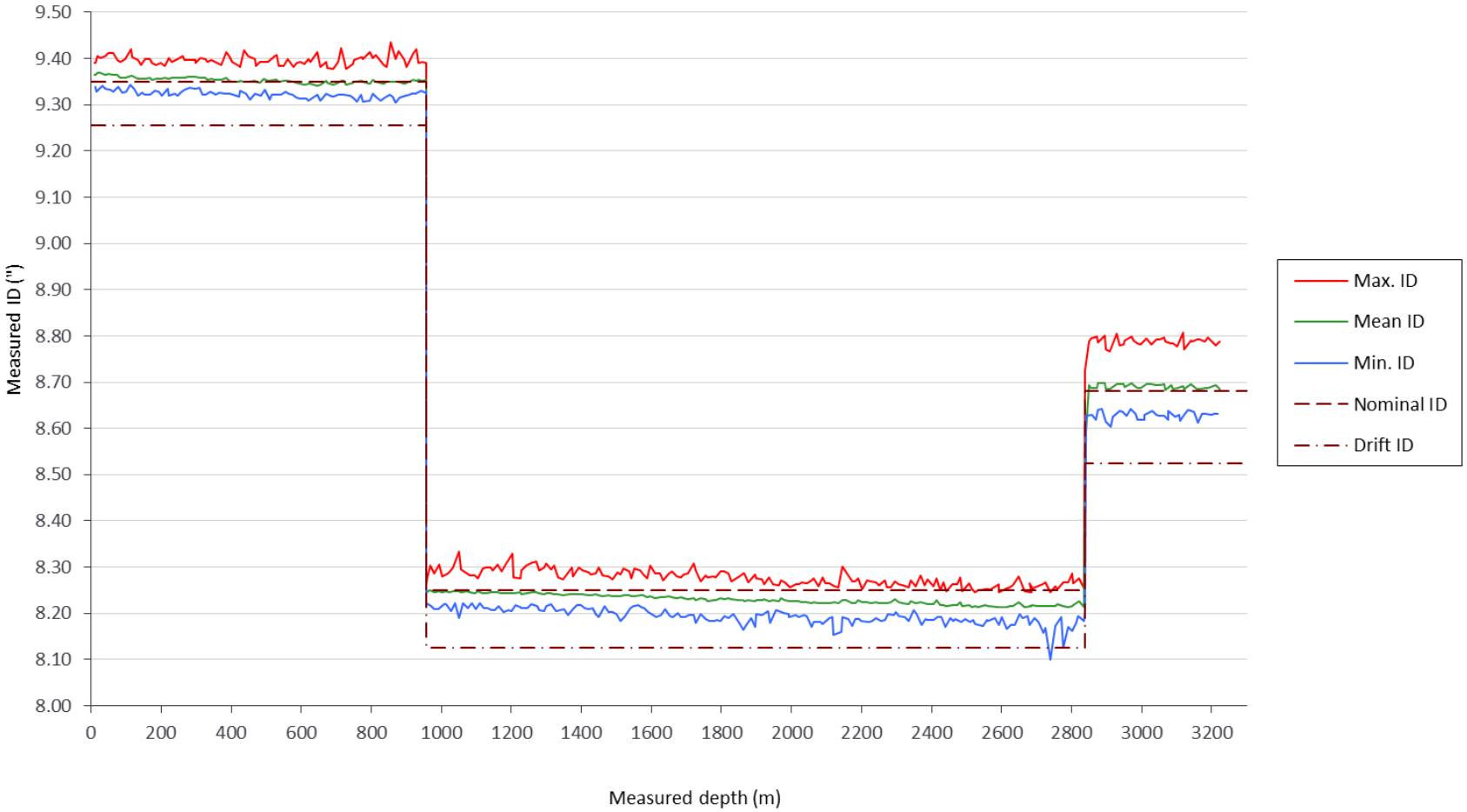

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Figure 14: Body metal percentage penetration histogram

Max. recorded penetration (%)	Depth (m)
36.3	1051.06

Penetration range (%)	No. of joints
0 – 12.5	134
12.5 – 20	108
20 – 30	38
30 – 40	3
40 – 50	0
50 – 60	0
60 – 70	0
70 – 80	0
80 – 90	0
90 – 100	0
Total	**283**

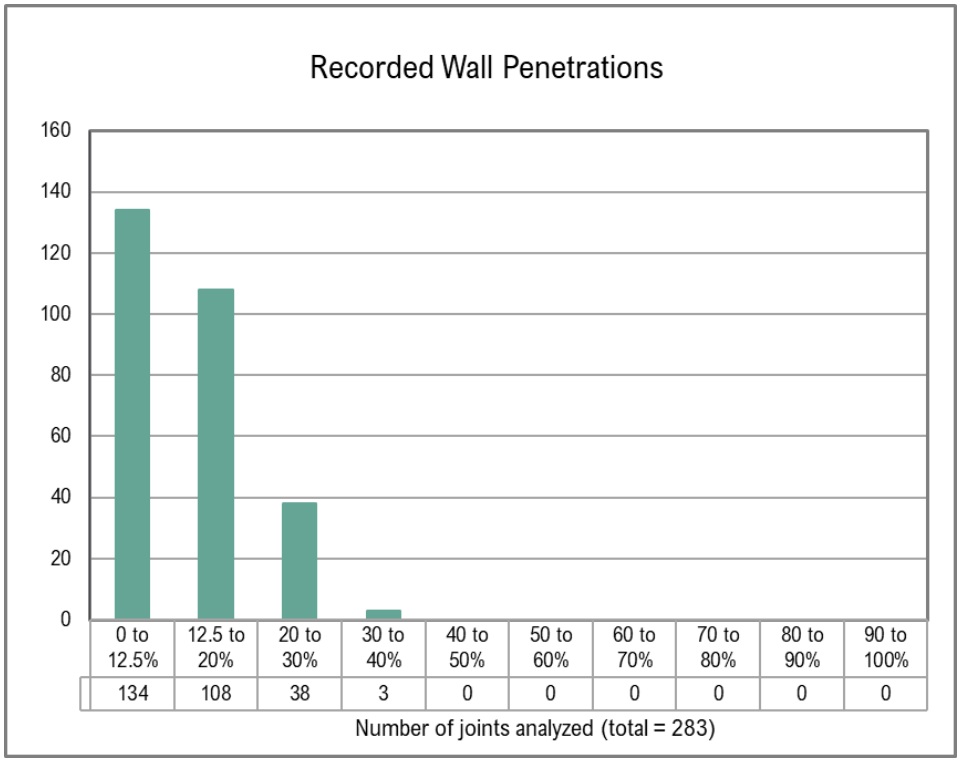

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Figure 15: Tabulated data

Max. Pen. % based on nominal values	0 – 12.5%	12.5 - 20%	20 - 40%	40 - 60%	60 - 80%	80 - 100%
Minimum ID (in)	< Drift ID					

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
1	11.22	9.38	1.84	9.391	11.00	14.5	9.339	11.22	9.364	9.364	Pup Joint
2	13.65	11.32	2.33	9.390	12.94	14.3	9.336	12.77	9.364	9.365	Pup Joint
3	25.08	13.75	11.34	9.406	17.08	19.9	9.328	15.11	9.368	9.368	
4	36.43	25.19	11.24	9.401	26.49	18.2	9.342	33.33	9.369	9.369	
5	47.74	36.53	11.21	9.406	39.52	20.0	9.334	39.53	9.365	9.365	
6	59.10	47.86	11.24	9.411	49.61	21.9	9.333	54.83	9.367	9.367	
7	70.51	59.21	11.30	9.412	64.11	22.0	9.329	63.87	9.365	9.366	
8	81.86	70.62	11.24	9.397	73.33	16.9	9.340	78.41	9.365	9.365	
9	93.08	81.99	11.09	9.392	83.14	15.1	9.327	89.08	9.358	9.357	
10	104.44	93.19	11.25	9.399	98.17	17.4	9.328	101.04	9.358	9.358	
11	115.43	104.55	10.88	9.421	115.40	25.3	9.343	112.00	9.362	9.362	
12	126.97	115.61	11.36	9.405	118.27	19.5	9.335	122.17	9.363	9.363	
13	138.34	127.06	11.29	9.397	133.78	16.9	9.320	133.48	9.356	9.356	
14	149.68	138.39	11.28	9.387	141.90	13.3	9.327	145.66	9.356	9.356	
15	161.11	149.74	11.37	9.400	153.40	17.9	9.322	153.39	9.356	9.356	
16	172.44	161.18	11.26	9.399	169.20	17.6	9.321	169.03	9.358	9.358	
17	183.84	172.51	11.33	9.391	174.03	14.7	9.330	182.93	9.355	9.355	
18	195.23	183.95	11.28	9.386	186.21	12.8	9.328	194.28	9.356	9.356	
19	206.66	195.37	11.30	9.391	198.56	14.7	9.320	203.29	9.356	9.356	
20	217.97	206.73	11.24	9.384	210.18	12.0	9.336	217.97	9.358	9.358	
21	229.21	218.12	11.09	9.401	221.56	18.1	9.320	221.26	9.357	9.357	
22	240.67	229.32	11.35	9.394	229.43	15.6	9.325	237.60	9.359	9.359	

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Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
23	252.04	240.76	11.29	9.399	246.22	17.6	9.319	248.25	9.358	9.358	
24	263.47	252.11	11.36	9.406	261.24	20.1	9.329	259.41	9.359	9.359	
25	274.87	263.55	11.33	9.397	266.44	16.9	9.332	266.52	9.359	9.360	
26	286.27	275.01	11.25	9.398	275.03	17.2	9.338	282.50	9.360	9.360	
27	297.74	286.41	11.33	9.396	297.66	16.4	9.334	297.69	9.360	9.360	
28	309.04	297.81	11.23	9.391	297.83	14.7	9.338	309.04	9.360	9.360	
29	320.40	309.17	11.23	9.402	313.63	18.6	9.322	317.75	9.358	9.358	
30	331.46	320.55	10.91	9.399	326.94	17.5	9.321	325.46	9.358	9.358	
31	342.83	331.53	11.30	9.393	331.61	15.5	9.328	340.98	9.355	9.355	
32	354.24	342.96	11.28	9.397	343.00	16.6	9.323	353.17	9.357	9.356	
33	365.59	354.41	11.18	9.392	354.44	15.1	9.322	354.41	9.355	9.355	
34	376.87	365.66	11.21	9.387	371.68	13.3	9.327	365.66	9.355	9.355	
35	388.27	376.96	11.31	9.414	384.57	22.9	9.324	385.77	9.358	9.358	
36	399.61	388.35	11.26	9.407	395.71	20.3	9.325	397.55	9.352	9.352	
37	411.05	399.79	11.26	9.392	401.39	14.9	9.321	407.03	9.349	9.349	
38	422.38	411.12	11.26	9.384	422.35	12.3	9.318	422.37	9.350	9.350	
39	433.51	422.53	10.98	9.381	426.72	11.1	9.331	425.93	9.353	9.353	
40	444.92	433.67	11.24	9.419	437.29	24.7	9.324	443.31	9.350	9.350	
41	456.24	444.99	11.25	9.405	448.90	19.6	9.312	452.91	9.349	9.350	
42	467.68	456.31	11.37	9.399	467.60	17.5	9.325	467.63	9.352	9.352	
43	478.60	467.76	10.84	9.384	470.67	12.0	9.322	475.21	9.349	9.349	
44	490.05	478.68	11.37	9.392	483.18	15.0	9.319	486.05	9.348	9.348	
45	501.32	490.12	11.20	9.392	494.46	15.1	9.333	495.15	9.357	9.357	
46	512.82	501.52	11.30	9.393	503.84	15.3	9.311	509.97	9.352	9.352	
47	524.06	512.90	11.15	9.406	524.02	19.8	9.321	517.31	9.354	9.354	
48	535.43	524.22	11.21	9.408	528.68	20.5	9.321	530.81	9.353	9.354	
49	546.90	535.65	11.25	9.385	535.66	12.4	9.321	542.10	9.350	9.350	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
50	558.26	546.99	11.28	9.385	550.07	12.5	9.329	556.01	9.353	9.352	
51	569.63	558.47	11.16	9.399	562.17	17.5	9.324	563.50	9.351	9.351	
52	581.03	569.78	11.25	9.383	578.31	11.7	9.321	574.31	9.350	9.350	
53	592.48	581.23	11.25	9.391	586.81	14.6	9.315	587.04	9.347	9.347	
54	603.74	592.59	11.15	9.392	598.20	15.1	9.313	598.48	9.345	9.345	
55	615.01	603.85	11.17	9.388	609.21	13.5	9.314	615.00	9.344	9.344	
56	626.43	615.11	11.32	9.399	619.87	17.4	9.309	621.58	9.345	9.345	
57	637.85	626.52	11.33	9.393	626.72	15.5	9.318	636.75	9.346	9.346	
58	649.10	637.94	11.15	9.414	644.83	22.8	9.321	645.56	9.342	9.342	
59	660.46	649.19	11.27	9.383	655.31	11.8	9.310	655.24	9.343	9.344	
60	671.85	660.56	11.29	9.393	671.80	15.4	9.324	671.85	9.352	9.352	
61	682.90	671.96	10.93	9.379	673.61	10.4	9.320	682.89	9.348	9.348	
62	694.24	683.02	11.22	9.379	692.70	10.2	9.317	692.58	9.344	9.344	
63	705.66	694.34	11.32	9.393	705.61	15.2	9.322	705.65	9.347	9.347	
64	717.08	705.75	11.34	9.423	713.07	26.1	9.323	712.30	9.353	9.353	
65	728.50	717.19	11.32	9.397	721.57	16.9	9.322	721.51	9.353	9.353	
66	739.81	728.61	11.20	9.377	728.77	9.6	9.319	738.41	9.344	9.344	
67	751.23	739.90	11.33	9.389	748.59	14.0	9.315	748.27	9.349	9.348	
68	762.61	751.33	11.29	9.398	751.37	17.0	9.308	759.97	9.350	9.350	
69	773.90	762.71	11.19	9.403	773.87	18.8	9.322	771.72	9.351	9.352	
70	785.32	773.99	11.33	9.400	776.55	17.9	9.306	776.73	9.349	9.349	
71	796.74	785.42	11.32	9.414	795.66	22.8	9.310	796.73	9.345	9.345	
72	808.13	796.85	11.28	9.401	805.29	18.0	9.323	805.39	9.353	9.353	
73	819.31	808.23	11.08	9.408	811.60	20.7	9.316	816.42	9.349	9.350	
74	830.75	819.41	11.33	9.397	825.09	16.9	9.309	827.64	9.348	9.348	
75	842.14	830.84	11.30	9.387	835.66	13.3	9.315	837.57	9.346	9.346	
76	853.57	842.26	11.31	9.382	843.49	11.4	9.323	853.57	9.349	9.349	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
77	864.97	853.68	11.29	9.435	856.15	30.3	9.317	859.99	9.350	9.349	
78	876.32	865.08	11.24	9.400	868.34	17.7	9.304	868.53	9.350	9.351	
79	887.73	876.42	11.30	9.415	876.96	23.3	9.315	882.08	9.350	9.350	
80	899.10	887.83	11.27	9.398	895.81	17.0	9.320	899.10	9.345	9.345	
81	910.31	899.21	11.10	9.382	899.37	11.3	9.321	910.29	9.349	9.348	
82	921.57	910.42	11.15	9.411	920.51	21.9	9.325	915.85	9.354	9.354	
83	932.99	921.69	11.30	9.421	927.92	25.3	9.324	926.05	9.353	9.353	
84	944.34	933.12	11.22	9.392	933.14	14.8	9.331	944.32	9.355	9.355	
85	955.64	944.45	11.19	9.392	944.47	14.9	9.327	955.61	9.352	9.353	
86	958.06	955.79	2.26	9.390	955.87	14.3	9.328	955.82	9.354	9.354	Pup Joint
87	958.36	958.17	0.19	8.263	-	-	8.223	958.36	8.244	8.244	XO
88	960.89	958.41	2.48	8.277	960.41	11.5	8.221	958.42	8.248	8.248	Pup Joint
89	972.55	961.04	11.51	8.303	967.17	23.0	8.216	970.18	8.249	8.249	
90	984.25	972.70	11.55	8.287	980.08	16.1	8.209	980.99	8.246	8.246	
91	995.78	984.40	11.38	8.305	992.63	23.8	8.208	991.66	8.247	8.247	
92	1007.39	995.93	11.46	8.281	1001.44	13.3	8.219	1007.37	8.246	8.246	
93	1019.07	1007.49	11.58	8.284	1014.17	14.6	8.219	1014.05	8.248	8.249	
94	1030.65	1019.22	11.43	8.288	1022.68	16.4	8.205	1027.10	8.246	8.247	
95	1042.03	1030.80	11.23	8.299	1034.47	21.3	8.221	1038.40	8.247	8.247	
96	1053.60	1042.18	11.42	8.334	1051.06	36.3	8.189	1050.91	8.247	8.247	
97	1065.22	1053.75	11.47	8.295	1056.38	19.6	8.221	1061.35	8.246	8.247	
98	1076.90	1065.37	11.52	8.287	1072.40	15.9	8.211	1074.81	8.247	8.248	
99	1088.54	1077.03	11.51	8.281	1080.89	13.5	8.221	1086.84	8.245	8.245	
100	1100.15	1088.69	11.46	8.282	1094.77	14.0	8.208	1098.19	8.243	8.243	
101	1111.76	1100.30	11.46	8.275	1103.63	10.8	8.221	1109.83	8.247	8.247	
102	1123.31	1111.90	11.41	8.297	1119.25	20.5	8.210	1120.12	8.244	8.244	
103	1135.06	1123.48	11.58	8.299	1125.89	21.1	8.212	1132.39	8.243	8.243	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
104	1146.12	1135.21	10.91	8.299	1142.00	21.3	8.207	1142.93	8.245	8.245	
105	1157.78	1146.27	11.50	8.293	1148.05	18.7	8.207	1152.17	8.245	8.245	
106	1169.26	1157.93	11.34	8.307	1161.46	24.6	8.215	1164.09	8.245	8.245	
107	1180.96	1169.41	11.55	8.290	1171.12	17.5	8.203	1178.37	8.242	8.243	
108	1192.52	1181.11	11.41	8.304	1184.44	23.7	8.207	1190.71	8.244	8.244	
109	1204.21	1192.70	11.51	8.329	1202.79	34.4	8.205	1201.59	8.243	8.242	
110	1215.84	1204.36	11.48	8.277	1207.41	11.7	8.218	1211.72	8.243	8.242	
111	1227.40	1215.99	11.41	8.276	1225.58	11.4	8.214	1225.41	8.244	8.244	
112	1238.98	1227.55	11.43	8.292	1229.67	18.4	8.211	1229.67	8.241	8.241	
113	1250.04	1239.13	10.91	8.304	1243.46	23.6	8.211	1247.11	8.243	8.243	
114	1261.56	1250.24	11.33	8.310	1258.46	26.1	8.220	1257.81	8.245	8.245	
115	1273.15	1261.71	11.44	8.313	1270.88	27.3	8.214	1273.15	8.246	8.246	
116	1284.78	1273.30	11.48	8.292	1278.39	18.3	8.207	1280.64	8.242	8.243	
117	1296.19	1284.93	11.25	8.300	1292.47	21.7	8.204	1292.98	8.241	8.241	
118	1307.70	1296.34	11.37	8.308	1300.61	25.3	8.215	1298.60	8.243	8.243	
119	1319.30	1307.85	11.45	8.295	1312.43	19.6	8.220	1314.84	8.243	8.243	
120	1330.98	1319.45	11.53	8.303	1323.42	23.2	8.204	1327.64	8.241	8.241	
121	1342.72	1331.18	11.54	8.278	1333.93	12.0	8.206	1339.63	8.241	8.241	
122	1353.96	1342.87	11.09	8.273	1346.23	9.9	8.209	1349.35	8.239	8.239	
123	1365.63	1354.07	11.56	8.290	1363.77	17.6	8.195	1362.35	8.241	8.240	
124	1376.91	1365.78	11.13	8.298	1373.72	21.0	8.209	1375.54	8.242	8.242	
125	1388.45	1377.10	11.34	8.279	1377.16	12.5	8.217	1388.16	8.240	8.240	
126	1400.01	1388.68	11.33	8.299	1392.68	21.2	8.218	1398.00	8.240	8.240	
127	1411.53	1400.16	11.38	8.292	1403.67	18.2	8.211	1409.53	8.241	8.241	
128	1422.84	1411.68	11.16	8.288	1421.05	16.3	8.209	1420.62	8.239	8.240	
129	1434.37	1422.99	11.38	8.284	1426.46	15.0	8.210	1431.15	8.239	8.239	
130	1445.99	1434.59	11.41	8.287	1441.24	15.9	8.198	1441.36	8.241	8.241	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
131	1457.67	1446.14	11.52	8.299	1449.06	21.3	8.193	1450.54	8.238	8.238	
132	1469.36	1457.90	11.46	8.281	1462.00	13.4	8.216	1465.61	8.238	8.237	
133	1481.14	1469.60	11.54	8.279	1478.35	12.7	8.203	1478.03	8.239	8.239	
134	1492.47	1481.29	11.18	8.274	1488.04	10.5	8.203	1487.82	8.237	8.237	
135	1503.85	1492.62	11.23	8.288	1501.75	16.4	8.199	1501.49	8.237	8.237	
136	1515.31	1504.06	11.25	8.285	1512.08	15.1	8.184	1512.20	8.237	8.238	
137	1526.94	1515.46	11.48	8.298	1520.66	20.7	8.191	1523.77	8.239	8.240	
138	1538.57	1527.09	11.48	8.291	1536.97	17.9	8.211	1538.55	8.239	8.239	
139	1550.18	1538.72	11.47	8.275	1541.30	10.7	8.215	1549.26	8.237	8.236	
140	1561.89	1550.33	11.56	8.296	1552.19	20.0	8.217	1561.87	8.237	8.237	
141	1573.28	1562.04	11.24	8.293	1569.54	18.5	8.212	1572.24	8.238	8.238	
142	1585.01	1573.43	11.57	8.283	1576.84	14.3	8.211	1580.09	8.238	8.239	
143	1596.43	1585.16	11.27	8.276	1586.67	11.2	8.203	1589.77	8.235	8.235	
144	1607.93	1596.58	11.35	8.303	1596.60	22.9	8.195	1604.23	8.236	8.237	
145	1619.65	1608.08	11.57	8.285	1610.56	15.3	8.192	1612.24	8.233	8.233	
146	1631.14	1619.80	11.34	8.286	1624.15	15.7	8.197	1628.09	8.234	8.235	
147	1642.79	1631.29	11.51	8.272	1633.17	9.3	8.209	1639.89	8.235	8.235	
148	1654.42	1642.94	11.48	8.287	1649.10	16.2	8.194	1652.80	8.237	8.237	
149	1665.49	1654.61	10.89	8.291	1659.63	18.0	8.192	1661.99	8.234	8.234	
150	1677.11	1665.64	11.47	8.279	1673.22	12.7	8.201	1675.63	8.233	8.234	
151	1688.81	1677.34	11.47	8.277	1685.30	11.7	8.192	1685.38	8.234	8.234	
152	1700.37	1688.96	11.41	8.283	1691.29	14.4	8.192	1694.71	8.232	8.232	
153	1711.87	1700.52	11.35	8.287	1702.66	15.9	8.195	1707.46	8.231	8.232	
154	1723.58	1712.02	11.56	8.307	1720.17	24.7	8.196	1720.05	8.232	8.233	
155	1735.18	1723.73	11.45	8.292	1725.89	18.3	8.178	1725.67	8.228	8.228	
156	1746.75	1735.33	11.42	8.269	1741.51	8.4	8.197	1741.40	8.232	8.233	
157	1758.36	1746.99	11.37	8.281	1755.98	13.7	8.187	1754.54	8.230	8.230	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
158	1770.13	1758.58	11.55	8.277	1761.53	11.9	8.184	1766.37	8.225	8.225	
159	1780.63	1770.28	10.36	8.280	1777.13	13.1	8.183	1779.71	8.229	8.229	
160	1792.26	1780.84	11.43	8.278	1781.71	12.2	8.185	1786.97	8.228	8.229	
161	1804.64	1792.48	12.16	8.290	1796.91	17.3	8.183	1797.52	8.232	8.232	
162	1816.00	1804.87	11.14	8.291	1809.05	17.7	8.193	1809.01	8.231	8.231	
163	1827.72	1816.15	11.56	8.287	1821.13	16.0	8.189	1821.24	8.233	8.234	
164	1839.42	1827.87	11.55	8.270	1829.39	8.7	8.198	1834.92	8.230	8.230	
165	1851.38	1839.57	11.81	8.281	1850.93	13.3	8.178	1850.87	8.228	8.228	
166	1863.06	1851.53	11.53	8.287	1861.78	16.2	8.163	1861.65	8.228	8.228	
167	1874.83	1863.21	11.62	8.286	1865.63	15.6	8.176	1870.74	8.227	8.227	
168	1886.50	1874.98	11.52	8.267	1876.49	7.5	8.189	1885.86	8.229	8.229	
169	1898.05	1886.71	11.35	8.283	1894.96	14.5	8.170	1894.94	8.225	8.225	
170	1909.75	1898.20	11.55	8.276	1898.87	11.4	8.198	1898.75	8.228	8.228	
171	1921.43	1909.95	11.48	8.274	1917.01	10.2	8.196	1915.77	8.229	8.229	
172	1933.15	1921.58	11.56	8.262	1922.57	5.4	8.204	1932.77	8.230	8.230	
173	1944.86	1933.37	11.49	8.277	1935.03	11.8	8.178	1939.72	8.226	8.227	
174	1956.54	1945.01	11.53	8.263	1948.32	5.5	8.206	1956.54	8.228	8.228	
175	1968.20	1956.69	11.51	8.260	1963.27	4.1	8.204	1964.54	8.227	8.227	
176	1979.86	1968.35	11.51	8.272	1970.35	9.5	8.199	1978.60	8.232	8.233	
177	1991.61	1980.01	11.60	8.267	1980.04	7.6	8.198	1991.61	8.228	8.228	
178	2002.75	1991.76	11.00	8.256	1996.50	2.8	8.192	1991.76	8.227	8.227	
179	2014.32	2002.90	11.42	8.262	2011.00	5.0	8.196	2011.42	8.226	8.227	
180	2025.86	2014.47	11.38	8.263	2019.82	5.5	8.192	2020.98	8.225	8.225	
181	2037.50	2026.01	11.49	8.267	2028.31	7.5	8.195	2035.81	8.224	8.223	
182	2049.08	2037.65	11.43	8.264	2044.04	6.0	8.194	2042.06	8.225	8.224	
183	2060.72	2049.23	11.49	8.271	2056.73	9.0	8.171	2056.92	8.222	8.222	
184	2072.34	2060.96	11.38	8.276	2063.16	11.2	8.181	2064.20	8.223	8.223	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
185	2084.03	2072.55	11.48	8.259	2076.27	3.7	8.181	2083.48	8.221	8.221	
186	2095.67	2084.30	11.37	8.277	2089.24	11.7	8.176	2089.00	8.222	8.223	
187	2107.25	2095.91	11.34	8.264	2096.64	6.3	8.191	2107.21	8.222	8.222	
188	2118.84	2107.58	11.27	8.265	2109.64	6.5	8.191	2115.57	8.221	8.221	
189	2130.55	2119.09	11.46	8.258	2122.83	3.3	8.154	2119.17	8.223	8.223	
190	2141.94	2130.78	11.16	8.255	2134.26	2.3	8.160	2141.86	8.222	8.222	
191	2153.19	2142.15	11.04	8.301	2145.61	22.0	8.192	2145.36	8.228	8.228	
192	2164.88	2153.41	11.47	8.289	2156.00	16.7	8.188	2161.48	8.229	8.230	
193	2176.65	2165.14	11.51	8.269	2174.43	8.1	8.173	2174.44	8.222	8.222	
194	2188.25	2176.80	11.45	8.269	2182.61	8.0	8.187	2182.98	8.222	8.222	
195	2199.90	2188.46	11.43	8.276	2190.64	11.5	8.187	2194.48	8.228	8.229	
196	2211.12	2200.05	11.07	8.253	2201.83	1.1	8.183	2200.08	8.223	8.223	
197	2222.78	2211.32	11.46	8.270	2215.65	8.8	8.182	2220.12	8.224	8.224	
198	2234.25	2222.94	11.31	8.268	2227.95	7.8	8.183	2228.78	8.222	8.223	
199	2245.95	2234.40	11.55	8.266	2241.52	7.0	8.190	2241.13	8.224	8.225	
200	2257.66	2246.10	11.56	8.261	2248.50	4.9	8.184	2255.02	8.222	8.222	
201	2269.77	2257.81	11.96	8.270	2266.38	8.8	8.185	2266.25	8.223	8.222	
202	2281.27	2269.92	11.35	8.257	2273.11	2.9	8.199	2276.22	8.223	8.223	
203	2293.01	2281.50	11.51	8.255	2284.78	2.3	8.196	2292.99	8.223	8.223	
204	2304.29	2293.16	11.13	8.268	2294.03	8.0	8.202	2298.11	8.230	8.230	
205	2315.95	2304.49	11.46	8.263	2307.20	5.8	8.195	2307.68	8.225	8.225	
206	2327.51	2316.10	11.42	8.261	2318.69	4.6	8.193	2323.93	8.222	8.222	
207	2338.56	2327.66	10.90	8.256	2334.01	2.7	8.184	2335.58	8.220	8.220	
208	2350.19	2338.71	11.48	8.271	2341.07	9.3	8.207	2349.83	8.227	8.227	
209	2361.52	2350.40	11.12	8.258	2353.36	3.5	8.199	2357.94	8.223	8.222	
210	2373.22	2361.71	11.52	8.281	2369.30	13.6	8.174	2370.89	8.224	8.225	
211	2384.59	2373.37	11.21	8.260	2378.63	4.4	8.188	2382.28	8.222	8.222	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
212	2396.76	2384.69	12.07	8.273	2387.09	10.2	8.185	2387.32	8.221	8.220	
213	2408.95	2396.86	12.09	8.259	2405.91	3.9	8.185	2405.44	8.221	8.221	
214	2420.20	2409.09	11.11	8.276	2414.15	11.4	8.191	2416.62	8.228	8.228	
215	2431.87	2420.30	11.57	8.250	2424.12	0.2	8.192	2427.58	8.218	8.218	
216	2443.19	2432.07	11.13	8.267	2433.66	7.5	8.171	2440.09	8.218	8.218	
217	2454.86	2443.34	11.51	8.247	2443.21	0.0	8.191	2453.10	8.216	8.216	
218	2466.45	2455.09	11.36	8.262	2459.57	5.4	8.183	2461.31	8.218	8.218	
219	2478.12	2466.60	11.52	8.262	2474.65	5.3	8.187	2468.08	8.217	8.217	
220	2489.83	2478.27	11.56	8.277	2481.28	11.5	8.181	2484.05	8.224	8.224	
221	2501.48	2489.98	11.51	8.247	2487.91	0.0	8.188	2496.61	8.216	8.216	
222	2513.19	2501.63	11.56	8.264	2506.46	6.1	8.180	2509.49	8.218	8.219	
223	2524.92	2513.34	11.57	8.253	2515.48	1.1	8.186	2517.70	8.214	8.214	
224	2536.54	2525.07	11.48	8.245	2524.49	0.0	8.178	2525.11	8.216	8.216	
225	2548.24	2536.74	11.49	8.250	2533.51	0.0	8.174	2546.27	8.214	8.214	
226	2559.91	2548.46	11.45	8.252	2551.85	0.9	8.186	2557.44	8.217	8.218	
227	2571.41	2560.11	11.30	8.252	2563.52	1.0	8.183	2561.98	8.215	8.215	
228	2582.86	2571.61	11.24	8.250	2563.52	0.0	8.190	2581.91	8.216	8.216	
229	2594.41	2583.06	11.36	8.262	2592.17	5.1	8.174	2591.82	8.214	8.214	
230	2605.95	2594.61	11.34	8.246	2592.17	0.0	8.191	2599.28	8.214	8.213	
231	2617.55	2606.20	11.35	8.254	2615.58	1.7	8.167	2615.82	8.214	8.214	
232	2629.21	2617.85	11.36	8.257	2624.13	2.9	8.174	2625.77	8.214	8.215	
233	2640.65	2629.51	11.14	8.261	2631.34	4.6	8.175	2636.77	8.215	8.215	
234	2652.33	2640.95	11.38	8.280	2649.15	13.1	8.198	2650.83	8.224	8.224	
235	2663.95	2652.61	11.34	8.247	2666.96	0.0	8.190	2660.78	8.214	8.214	
236	2675.58	2664.23	11.35	8.245	2684.77	0.0	8.193	2672.94	8.215	8.215	
237	2687.02	2675.84	11.18	8.264	2678.44	6.2	8.175	2678.96	8.216	8.217	
238	2699.37	2687.32	12.05	8.254	2688.80	1.7	8.189	2694.24	8.218	8.218	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
239	2711.04	2699.58	11.47	8.257	2702.04	3.2	8.180	2704.14	8.215	8.215	
240	2722.75	2711.25	11.49	8.263	2717.45	5.6	8.158	2720.33	8.216	8.216	
241	2734.41	2722.95	11.46	8.268	2725.27	7.8	8.167	2726.09	8.215	8.215	
242	2746.44	2734.61	11.83	8.246	2738.15	0.0	8.099	2740.53	8.215	8.215	
243	2758.12	2746.62	11.49	8.259	2752.67	3.9	8.172	2752.46	8.215	8.217	
244	2768.89	2758.32	10.58	8.252	2759.97	0.8	8.191	2768.88	8.219	8.218	
245	2780.36	2769.09	11.27	8.266	2776.99	7.0	8.126	2776.29	8.216	8.216	
246	2792.35	2780.56	11.79	8.267	2788.84	7.5	8.169	2788.74	8.214	8.214	
247	2803.75	2792.55	11.20	8.285	2800.01	15.3	8.161	2799.96	8.216	8.216	
248	2816.01	2803.89	12.12	8.264	2804.44	6.2	8.179	2812.86	8.217	8.217	
249	2827.40	2816.22	11.18	8.275	2820.37	10.9	8.193	2819.63	8.227	8.228	
250	2839.10	2827.60	11.50	8.254	2836.25	1.9	8.182	2836.41	8.214	8.214	
251	2839.53	2839.16	0.37	8.725	-	-	8.207	2839.20	8.558	8.558	XO
252	2850.84	2839.73	11.11	8.789	2850.08	11.4	8.626	2840.14	8.694	8.693	
253	2862.17	2851.08	11.09	8.794	2856.45	12.0	8.630	2856.58	8.687	8.684	
254	2873.04	2862.41	10.63	8.799	2872.07	12.5	8.618	2869.56	8.688	8.688	
255	2884.19	2873.27	10.92	8.785	2874.30	11.0	8.640	2874.38	8.698	8.697	
256	2895.56	2884.44	11.12	8.801	2894.15	12.7	8.641	2884.86	8.697	8.697	
257	2906.99	2895.79	11.20	8.770	2896.29	9.4	8.615	2897.13	8.685	8.687	
258	2918.11	2907.22	10.89	8.766	2909.83	9.0	8.603	2912.88	8.685	8.685	
259	2929.48	2918.40	11.07	8.806	2928.68	13.2	8.625	2918.42	8.695	8.695	
260	2940.71	2929.74	10.98	8.780	2935.87	10.5	8.639	2935.86	8.697	8.696	
261	2951.97	2940.98	10.99	8.781	2947.12	10.6	8.636	2945.17	8.696	8.696	
262	2963.31	2952.16	11.14	8.790	2952.28	11.5	8.627	2955.70	8.689	8.689	
263	2974.49	2963.55	10.94	8.799	2971.02	12.5	8.643	2968.47	8.697	8.696	
264	2985.86	2974.71	11.15	8.790	2977.15	11.6	8.631	2981.97	8.693	8.692	
265	2997.17	2986.06	11.11	8.783	2988.45	10.8	8.618	2989.42	8.687	8.687	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Ref.	Bottom depth (m)	Top depth (m)	Length (m)	Max. ID (")	Depth max. (m)	Max. pen. (%)	Min. ID (")	Depth min. (m)	Mean ID (")	Median ID (")	Completion item
266	3008.57	2997.47	11.10	8.782	2997.75	10.7	8.619	3007.81	8.686	8.687	
267	3019.87	3008.85	11.02	8.794	3013.79	11.9	8.628	3009.16	8.695	8.695	
268	3031.20	3020.16	11.04	8.782	3026.63	10.7	8.638	3030.09	8.697	8.696	
269	3042.50	3031.46	11.04	8.793	3041.68	11.9	8.630	3041.37	8.693	8.693	
270	3053.62	3042.80	10.83	8.791	3051.37	11.7	8.627	3051.44	8.694	8.694	
271	3064.95	3053.89	11.06	8.796	3064.08	12.2	8.628	3063.80	8.696	8.696	
272	3076.34	3065.24	11.10	8.788	3067.66	11.3	8.618	3074.36	8.683	8.682	
273	3087.57	3076.64	10.92	8.783	3085.42	10.8	8.639	3076.80	8.694	8.693	
274	3098.60	3087.87	10.74	8.785	3088.57	11.0	8.626	3094.81	8.685	8.683	
275	3110.01	3098.96	11.06	8.777	3101.98	10.1	8.629	3105.59	8.688	8.688	
276	3121.30	3110.33	10.98	8.808	3118.81	13.4	8.617	3110.61	8.692	8.691	
277	3132.74	3121.62	11.12	8.771	3122.13	9.5	8.630	3122.19	8.685	8.684	
278	3143.80	3132.96	10.84	8.791	3142.11	11.6	8.640	3132.99	8.696	8.695	
279	3155.08	3144.05	11.02	8.787	3144.57	11.2	8.635	3149.28	8.694	8.693	
280	3166.46	3155.37	11.09	8.791	3158.48	11.7	8.612	3160.85	8.684	8.684	
281	3177.83	3166.71	11.13	8.792	3166.83	11.7	8.632	3172.95	8.684	8.683	
282	3189.18	3178.15	11.03	8.789	3179.75	11.4	8.632	3183.76	8.687	8.686	
283	3200.63	3189.43	11.19	8.796	3189.92	12.2	8.628	3200.45	8.688	8.686	
284	3211.77	3200.83	10.94	8.778	3211.14	10.3	8.632	3207.09	8.693	8.692	
285	3223.08	3211.99	11.09	8.788	3222.32	11.3	8.632	3216.74	8.685	8.684	

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

6 — Processing steps

Depth correction

Depth correction was achieved using a stretch/compress function calculated to return selected completion items to their depths as quoted on the provided 10-3/4" x 9-5/8" casing tally.

Completion item	Input depth (m)	Output depth (m)	Depth shift (m)
Pup Joint	13.710	13.730	0.020
Crossover	956.905	955.750	-1.155
Crossover	2840.365	2839.250	-1.385

After depth correction the following processing steps have been performed:

Process	Performed	Mode	Comments
Editing	N		
Recalibration	Y	Modal	Correct for stripy fingers
Centralisation	Y	Prism™,	Correct for tool decentralisation
Reorientation	N		
Splicing	Y	Multifile splice	Combine different recalibrations / centralisations

Centralisation was achieved by calculating a least squares fit of a sinusoid at each depth frame. To provide effective centralisation in heavily pitted pipe or within scattered deposits, outliers (the maximum, minimum or absolute values) can be ignored to provide a better result if necessary. The Clarity AI system, Prism™, automatically detects these outliers and applies the appropriate level of exclusion.

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

7 — Field records

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Field Record 1: Casing Tally

Date: 01-01-2023		**10 3/4" x 9 5/8" Tally**			**Rig: KCAD T207**			**Well: MSD-GT-01**			
DSV: M de Jong & R. Kasirin		**FINAL**									
9 5/8" - 13Cr	Weight	47,00	lbs/ft								
	Casing ID	8,681	inch	38,19 l/m							
9 5/8" - GRE-lined	Weight	51,90	lbs/ft								
	Casing ID	8,250	inch	34,48 l/m							
9 5/8" (threads)	Connection	**Vam Top**	M/U Loss	**0,142**	m		Mud weight	1,16	sg		
	M/U Torque Min	14400	ft.lbs				Bouyancy fact.	0,85			
	M/U Torque Opt	15900	ft.lbs				Block weight	84	klbs		
	M/U Torque Max	17400	ft.lbs								
10 3/4" GRE-lined	Weight	57,40	lbs/ft								
	Casing ID	9,350	inch	44,30 l/m							
	Connection	**Vam Top**	M/U Loss	**0,143**	m		13 5/8" Shoe	1152,75	m		
	M/U Torque Min	14400	ft.lbs				16" Drilled	1156,75	m		
	M/U Torque Opt	15900	ft.lbs								
	M/U Torque Max	17400	ft.lbs				Rathole:	4,28	m		
	90% Burst	364	bar	**RT to Ground Level**		9,34m	**Section TD:**	**3309,00**	**m**		**Tagged**
	90% Collapse	200	bar	**RT to Hang Off Point**		9,01m	**Shoe Depth :**	**3304,72**	**m**		

	Joint no	Check TK-ring	Length m	Less m/u loss	Cum Length	Jt Btm m	Jt Top m	No.of joints	Remarks	Centraliser	Hookload T
assy	**9 5/8" Shoe**		0,62	**0,62**	0,62	3304,72	3304,10		VamTop		38
	Shoe joint		11,43	**11,43**	12,05	3304,10	3292,67		VamTop	Slip-on & 2x collar	39
	Intermediate joint		11,72	11,58	23,63	3292,67	3281,09		VamTop	Slip-on & 2x collar	40
assy	**Float Collar**		0,69	0,55	24,18	3281,09	3280,54		VamTop		40
	Float joint & X/O to CR13		11,36	**11,36**	35,54	3280,54	3269,18		VamTop CR13	Slip-on & 2x collar	40
	C38		11,53	11,39	46,92	3269,18	3257,80	1	VamTop CR13	Slip-on & 2x collar	41
	C37		11,54	11,40	58,32	3257,80	3246,40	2	VamTop CR13	Slip-on & 2x collar	42
	C36		11,56	11,42	69,74	3246,40	3234,98	3	VamTop CR13	Slip-on & 2x collar	42
	C35		11,52	11,38	81,12	3234,98	3223,60	4	VamTop CR13	Slip-on & 2x collar	43
	C34		11,52	11,38	92,50	3223,60	3212,22	5	VamTop CR13	Slip-on & 2x collar	44
	C33		11,28	11,14	103,63	3212,22	3201,09	6	VamTop CR13	Slip-on & 2x collar	44
	C32		11,53	11,39	115,02	3201,09	3189,70	7	VamTop CR13	Slip-on & 2x collar	45
	C31		11,52	11,38	126,40	3189,70	3178,32	8	VamTop CR13	Slip-on & 2x collar	46
	C30		11,55	11,41	137,81	3178,32	3166,91	9	VamTop CR13	Slip-on & 2x collar	46
	C29		11,52	11,38	149,19	3166,91	3155,53	10	VamTop CR13	Slip-on & 2x collar	47
	C28		11,34	11,20	160,38	3155,53	3144,34	11	VamTop CR13	Slip-on & 2x collar	48
	C27		11,36	11,22	171,60	3144,34	3133,12	12	VamTop CR13	Slip-on & 2x collar	48
	C26		11,52	11,38	182,98	3133,12	3121,74	13	VamTop CR13	Slip-on & 2x collar	49
	C25		11,44	11,30	194,28	3121,74	3110,44	14	VamTop CR13	Slip-on & 2x collar	50
	C24		11,55	11,41	205,69	3110,44	3099,03	15	VamTop CR13	Slip-on & 2x collar	50
	C23		11,21	11,07	216,75	3099,03	3087,97	16	VamTop CR13	Slip-on & 2x collar	51
	C22		11,38	11,24	227,99	3087,97	3076,73	17	VamTop CR13	Slip-on & 2x collar	52
	C21		11,52	11,38	239,37	3076,73	3065,35	18	VamTop CR13	Slip-on & 2x collar	52
	C20		11,52	11,38	250,75	3065,35	3053,97	19	VamTop CR13	Slip-on & 2x collar	53
	C19		11,27	11,13	261,88	3053,97	3042,84	20	VamTop CR13	Slip-on & 2x collar	54
	C18		11,42	11,28	273,15	3042,84	3031,57	21	VamTop CR13	Slip-on & 2x collar	54
	C17		11,51	11,37	284,52	3031,57	3020,20	22	VamTop CR13	Slip-on & 2x collar	55
	C16		11,45	11,31	295,83	3020,20	3008,89	23	VamTop CR13	Slip-on & 2x collar	56
	C15		11,51	11,37	307,20	3008,89	2997,52	24	VamTop CR13	Slip-on & 2x collar	56
	C14		11,51	11,37	318,57	2997,52	2986,15	25	VamTop CR13	Slip-on & 2x collar	57
	C13		11,50	11,36	329,93	2986,15	2974,79	26	VamTop CR13	Slip-on & 2x collar	58
	C12		11,33	11,19	341,11	2974,79	2963,61	27	VamTop CR13	Slip-on & 2x collar	58
	C11		11,50	11,36	352,47	2963,61	2952,25	28	VamTop CR13	Slip-on & 2x collar	59
	C10		11,35	11,21	363,68	2952,25	2941,04	29	VamTop CR13	Slip-on & 2x collar	60
	C9		11,36	11,22	374,90	2941,04	2929,82	30	VamTop CR13	Slip-on & 2x collar	60
	C8		11,52	11,38	386,28	2929,82	2918,44	31	VamTop CR13	Slip-on & 2x collar	61
	C7		11,31	11,17	397,44	2918,44	2907,28	32	VamTop CR13	Slip-on & 2x collar	62
	C6		11,55	11,41	408,85	2907,28	2895,87	33	VamTop CR13	Slip-on & 2x collar	62
	C5		11,51	11,37	420,22	2895,87	2884,50	34	VamTop CR13	Slip-on & 2x collar	63
	C4		11,26	11,12	431,34	2884,50	2873,38	35	VamTop CR13	Slip-on & 2x collar	64
	C3		11,05	10,91	442,25	2873,38	2862,47	36	VamTop CR13	Slip-on & 2x collar	64
	C2		11,52	11,38	453,62	2862,47	2851,10	37	VamTop CR13	Slip-on & 2x collar	65
	C1		11,51	11,37	464,99	2851,10	2839,73	38	VamTop CR13	Slip-on & 2x collar	66
assy	**X/O collar**		0,62	0,48	465,47	2839,73	2839,25		VamTop CR13		66
	X/O joint 4	i	11,64	**11,64**	477,11	2839,25	2827,61		GRE VAM TOP		67
	259	i	11,57	11,43	488,54	2827,61	2816,18	1	GRE VAM TOP	Slip-on & 2x collar	67
	258	i	12,44	12,30	500,84	2816,18	2803,88	2	GRE VAM TOP	Slip-on & 2x collar	68
	257	i	11,51	11,37	512,20	2803,88	2792,52	3	GRE VAM TOP	Slip-on & 2x collar	69
	256	i	12,17	12,03	524,23	2792,52	2780,49	4	GRE VAM TOP	Slip-on & 2x collar	69
	255	i	11,64	11,50	535,73	2780,49	2768,99	5	GRE VAM TOP	Slip-on & 2x collar	70
	254	i	10,88	10,74	546,47	2768,99	2758,25	6	GRE VAM TOP	Slip-on & 2x collar	71
	253	i	11,86	11,72	558,19	2758,25	2746,53	7	GRE VAM TOP	Slip-on & 2x collar	71
	252	i	12,18	12,04	570,22	2746,53	2734,50	8	GRE VAM TOP	Slip-on & 2x collar	72

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251	i	11,78	11,64	581,86	2734,50	2722,86	9	GRE VAM TOP	Slip-on & 2x collar	73
250	i	11,86	11,72	593,58	2722,86	2711,14	10	GRE VAM TOP	Slip-on & 2x collar	73
249	i	11,83	11,69	605,27	2711,14	2699,45	11	GRE VAM TOP	Slip-on & 2x collar	74
248	i	12,42	12,28	617,55	2699,45	2687,17	12	GRE VAM TOP	Slip-on & 2x collar	75
247	i	11,62	11,48	629,02	2687,17	2675,70	13	GRE VAM TOP	Slip-on & 2x collar	76
246	i	11,76	11,62	640,64	2675,70	2664,08	14	GRE VAM TOP	Slip-on & 2x collar	76
245	i	11,76	11,62	652,26	2664,08	2652,46	15	GRE VAM TOP	Slip-on & 2x collar	77
244	i	11,79	11,65	663,91	2652,46	2640,81	16	GRE VAM TOP	Slip-on & 2x collar	78
243	i	11,66	11,52	675,43	2640,81	2629,29	17	GRE VAM TOP	Slip-on & 2x collar	78
242	i	11,80	11,66	687,08	2629,29	2617,64	18	GRE VAM TOP	Slip-on & 2x collar	79
241	i	11,72	11,58	698,66	2617,64	2606,06	19	GRE VAM TOP	Slip-on & 2x collar	80
240	i	11,70	11,56	710,22	2606,06	2594,50	20	GRE VAM TOP	Slip-on & 2x collar	80
239	i	11,75	11,61	721,83	2594,50	2582,89	21	GRE VAM TOP	Slip-on & 2x collar	81
238	i	11,56	11,42	733,25	2582,89	2571,47	22	GRE VAM TOP	Slip-on & 2x collar	82
237	i	11,68	11,54	744,78	2571,47	2559,94	23	GRE VAM TOP	Slip-on & 2x collar	82
236	i	11,81	11,67	756,45	2559,94	2548,27	24	GRE VAM TOP	Slip-on & 2x collar	83
235	i	11,84	11,70	768,15	2548,27	2536,57	25	GRE VAM TOP	Slip-on & 2x collar	84
234	i	11,79	11,65	779,80	2536,57	2524,92	26	GRE VAM TOP	Slip-on & 2x collar	85
233	i	11,83	11,69	791,49	2524,92	2513,23	27	GRE VAM TOP	Slip-on & 2x collar	85
232	i	11,82	11,68	803,16	2513,23	2501,56	28	GRE VAM TOP	Slip-on & 2x collar	86
231	i	11,83	11,69	814,85	2501,56	2489,87	29	GRE VAM TOP	Slip-on & 2x collar	87
230	i	11,84	11,70	826,55	2489,87	2478,17	30	GRE VAM TOP	Slip-on & 2x collar	87
229	i	11,83	11,69	838,24	2478,17	2466,48	31	GRE VAM TOP	Slip-on & 2x collar	88
228	i	11,69	11,55	849,79	2466,48	2454,93	32	GRE VAM TOP	Slip-on & 2x collar	89
227	i	11,85	11,71	861,49	2454,93	2443,23	33	GRE VAM TOP	Slip-on & 2x collar	89
226	i	11,45	11,31	872,80	2443,23	2431,92	34	GRE VAM TOP	Slip-on & 2x collar	90
225	i	11,86	11,72	884,52	2431,92	2420,20	35	GRE VAM TOP	Slip-on & 2x collar	91
224	i	11,38	11,24	895,76	2420,20	2408,96	36	GRE VAM TOP	Slip-on & 2x collar	91
223	i	12,36	12,22	907,98	2408,96	2396,74	37	GRE VAM TOP	Slip-on & 2x collar	92
222	i	12,36	12,22	920,20	2396,74	2384,52	38	GRE VAM TOP	Slip-on & 2x collar	93
221	i	11,51	11,37	931,56	2384,52	2373,16	39	GRE VAM TOP	Slip-on & 2x collar	94
220	i	11,81	11,67	943,23	2373,16	2361,49	40	GRE VAM TOP	Slip-on & 2x collar	94
219	i	11,48	11,34	954,57	2361,49	2350,15	41	GRE VAM TOP	Slip-on & 2x collar	95
218	i	11,81	11,67	966,24	2350,15	2338,48	42	GRE VAM TOP	Slip-on & 2x collar	96
217	i	11,21	11,07	977,31	2338,48	2327,41	43	GRE VAM TOP	Slip-on & 2x collar	96
216	i	11,71	11,57	988,87	2327,41	2315,85	44	GRE VAM TOP	Slip-on & 2x collar	97
215	i	11,77	11,63	1000,50	2315,85	2304,22	45	GRE VAM TOP	Slip-on & 2x collar	98
214	i	11,45	11,31	1011,81	2304,22	2292,91	46	GRE VAM TOP	Slip-on & 2x collar	98
213	i	11,83	11,69	1023,50	2292,91	2281,22	47	GRE VAM TOP	Slip-on & 2x collar	99
212	i	11,69	11,55	1035,05	2281,22	2269,67	48	GRE VAM TOP	Slip-on & 2x collar	100
211	i	12,23	12,09	1047,13	2269,67	2257,59	49	GRE VAM TOP	Slip-on & 2x collar	101
210	i	11,85	11,71	1058,84	2257,59	2245,88	50	GRE VAM TOP	Slip-on & 2x collar	101
209	i	11,87	11,73	1070,57	2245,88	2234,15	51	GRE VAM TOP	Slip-on & 2x collar	102
208	i	11,64	11,50	1082,07	2234,15	2222,65	52	GRE VAM TOP	Slip-on & 2x collar	103
207	i	11,79	11,65	1093,72	2222,65	2211,00	53	GRE VAM TOP	Slip-on & 2x collar	103
206	i	11,40	11,26	1104,97	2211,00	2199,75	54	GRE VAM TOP	Slip-on & 2x collar	104
205	i	11,76	11,62	1116,59	2199,75	2188,13	55	GRE VAM TOP	Slip-on & 2x collar	105
204	i	11,80	11,66	1128,25	2188,13	2176,47	56	GRE VAM TOP	Slip-on & 2x collar	105
203	i	11,85	11,71	1139,96	2176,47	2164,76	57	GRE VAM TOP	Slip-on & 2x collar	106
202	i	11,87	11,73	1151,69	2164,76	2153,03	58	GRE VAM TOP	Slip-on & 2x collar	107
201	i	11,38	11,24	1162,92	2153,03	2141,80	59	GRE VAM TOP	Slip-on & 2x collar	107
200	i	11,49	11,35	1174,27	2141,80	2130,45	60	GRE VAM TOP	Slip-on & 2x collar	108
199	i	11,87	11,73	1186,00	2130,45	2118,72	61	GRE VAM TOP	Slip-on & 2x collar	109
198	i	11,72	11,58	1197,58	2118,72	2107,14	62	GRE VAM TOP	Slip-on & 2x collar	109
197	i	11,78	11,64	1209,22	2107,14	2095,50	63	GRE VAM TOP	Slip-on & 2x collar	110
196	i	11,76	11,62	1220,83	2095,50	2083,89	64	GRE VAM TOP	Slip-on & 2x collar	111
195	i	11,86	11,72	1232,55	2083,89	2072,17	65	GRE VAM TOP	Slip-on & 2x collar	112
194	i	11,71	11,57	1244,12	2072,17	2060,60	66	GRE VAM TOP	Slip-on & 2x collar	112
193	i	11,85	11,71	1255,83	2060,60	2048,89	67	GRE VAM TOP	Slip-on & 2x collar	113
192	i	11,73	11,59	1267,42	2048,89	2037,30	68	GRE VAM TOP	Slip-on & 2x collar	114
191	i	11,79	11,65	1279,06	2037,30	2025,66	69	GRE VAM TOP	Slip-on & 2x collar	114
190	i	11,68	11,54	1290,60	2025,66	2014,12	70	GRE VAM TOP	Slip-on & 2x collar	115
189	i	11,69	11,55	1302,15	2014,12	2002,57	71	GRE VAM TOP	Slip-on & 2x collar	116
188	i	11,31	11,17	1313,32	2002,57	1991,40	72	GRE VAM TOP	Slip-on & 2x collar	116
187	i	11,86	11,72	1325,04	1991,40	1979,68	73	GRE VAM TOP	Slip-on & 2x collar	117
186	i	11,84	11,70	1336,73	1979,68	1967,99	74	GRE VAM TOP	Slip-on & 2x collar	118
185	i	11,81	11,67	1348,40	1967,99	1956,32	75	GRE VAM TOP	Slip-on & 2x collar	118
184	i	11,85	11,71	1360,11	1956,32	1944,61	76	GRE VAM TOP	Slip-on & 2x collar	119
183	i	11,80	11,66	1371,77	1944,61	1932,95	77	GRE VAM TOP	Slip-on & 2x collar	120
182	i	11,87	11,73	1383,50	1932,95	1921,22	78	GRE VAM TOP	Slip-on & 2x collar	121
181	i	11,81	11,67	1395,16	1921,22	1909,56	79	GRE VAM TOP	Slip-on & 2x collar	121
180	i	11,83	11,69	1406,85	1909,56	1897,87	80	GRE VAM TOP	Slip-on & 2x collar	122
179	i	11,65	11,51	1418,36	1897,87	1886,36	81	GRE VAM TOP	Slip-on & 2x collar	123
178	i	11,84	11,70	1430,06	1886,36	1874,66	82	GRE VAM TOP	Slip-on & 2x collar	123

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177	i	11,87	11,73	1441,79	1874,66	1862,93	83	GRE VAM TOP	Slip-on & 2x collar	124
176	i	11,86	11,72	1453,50	1862,93	1851,22	84	GRE VAM TOP	Slip-on & 2x collar	125
175	i	12,11	11,97	1465,47	1851,22	1839,25	85	GRE VAM TOP	Slip-on & 2x collar	125
174	i	11,83	11,69	1477,16	1839,25	1827,56	86	GRE VAM TOP	Slip-on & 2x collar	126
173	i	11,86	11,72	1488,88	1827,56	1815,84	87	GRE VAM TOP	Slip-on & 2x collar	127
172	i	11,46	11,32	1500,20	1815,84	1804,52	88	GRE VAM TOP	Slip-on & 2x collar	128
171	i	12,51	12,37	1512,57	1804,52	1792,15	89	GRE VAM TOP	Slip-on & 2x collar	128
170	i	11,80	11,66	1524,22	1792,15	1780,50	90	GRE VAM TOP	Slip-on & 2x collar	129
169	i	10,67	10,53	1534,75	1780,50	1769,97	91	GRE VAM TOP	Slip-on & 2x collar	130
168	i	11,86	11,72	1546,47	1769,97	1758,25	92	GRE VAM TOP	Slip-on & 2x collar	130
167	i	11,73	11,59	1558,06	1758,25	1746,66	93	GRE VAM TOP	Slip-on & 2x collar	131
166	i	11,76	11,62	1569,68	1746,66	1735,04	94	GRE VAM TOP	Slip-on & 2x collar	132
165	i	11,74	11,60	1581,27	1735,04	1723,45	95	GRE VAM TOP	Slip-on & 2x collar	132
164	i	11,85	11,71	1592,98	1723,45	1711,74	96	GRE VAM TOP	Slip-on & 2x collar	133
163	i	11,64	11,50	1604,48	1711,74	1700,24	97	GRE VAM TOP	Slip-on & 2x collar	134
162	i	11,70	11,56	1616,04	1700,24	1688,68	98	GRE VAM TOP	Slip-on & 2x collar	134
161	i	11,79	11,65	1627,69	1688,68	1677,03	99	GRE VAM TOP	Slip-on & 2x collar	135
160	i	11,80	11,66	1639,34	1677,03	1665,38	100	GRE VAM TOP	Slip-on & 2x collar	136
159	i	11,20	11,06	1650,40	1665,38	1654,32	101	GRE VAM TOP	Slip-on & 2x collar	136
158	i	11,80	11,66	1662,06	1654,32	1642,66	102	GRE VAM TOP	Slip-on & 2x collar	137
157	i	11,79	11,65	1673,71	1642,66	1631,01	103	GRE VAM TOP	Slip-on & 2x collar	138
156	i	11,63	11,49	1685,20	1631,01	1619,52	104	GRE VAM TOP	Slip-on & 2x collar	139
155	i	11,85	11,71	1696,90	1619,52	1607,82	105	GRE VAM TOP	Slip-on & 2x collar	139
154	i	11,62	11,48	1708,38	1607,82	1596,34	106	GRE VAM TOP	Slip-on & 2x collar	140
153	i	11,60	11,46	1719,84	1596,34	1584,88	107	GRE VAM TOP	Slip-on & 2x collar	141
152	i	11,84	11,70	1731,54	1584,88	1573,18	108	GRE VAM TOP	Slip-on & 2x collar	141
151	i	11,51	11,37	1742,91	1573,18	1561,81	109	GRE VAM TOP	Slip-on & 2x collar	142
150	i	11,85	11,71	1754,61	1561,81	1550,11	110	GRE VAM TOP	Slip-on & 2x collar	143
149	i	11,75	11,61	1766,22	1550,11	1538,50	111	GRE VAM TOP	Slip-on & 2x collar	143
148	i	11,77	11,63	1777,85	1538,50	1526,87	112	GRE VAM TOP	Slip-on & 2x collar	144
147	i	11,76	11,62	1789,47	1526,87	1515,25	113	GRE VAM TOP	Slip-on & 2x collar	145
146	i	11,58	11,44	1800,91	1515,25	1503,81	114	GRE VAM TOP	Slip-on & 2x collar	145
145	i	11,55	11,41	1812,31	1503,81	1492,41	115	GRE VAM TOP	Slip-on & 2x collar	146
144	i	11,47	11,33	1823,64	1492,41	1481,08	116	GRE VAM TOP	Slip-on & 2x collar	147
143	i	11,85	11,71	1835,35	1481,08	1469,37	117	GRE VAM TOP	Slip-on & 2x collar	147
142	i	11,85	11,71	1847,06	1469,37	1457,66	118	GRE VAM TOP	Slip-on & 2x collar	148
141	i	11,84	11,70	1858,76	1457,66	1445,96	119	GRE VAM TOP	Slip-on & 2x collar	149
140	i	11,74	11,60	1870,35	1445,96	1434,37	120	GRE VAM TOP	Slip-on & 2x collar	150
139	i	11,73	11,59	1881,94	1434,37	1422,78	121	GRE VAM TOP	Slip-on & 2x collar	150
138	i	11,47	11,33	1893,27	1422,78	1411,45	122	GRE VAM TOP	Slip-on & 2x collar	151
137	i	11,64	11,50	1904,77	1411,45	1399,95	123	GRE VAM TOP	Slip-on & 2x collar	152
136	i	11,67	11,53	1916,30	1399,95	1388,42	124	GRE VAM TOP	Slip-on & 2x collar	152
135	i	11,69	11,55	1927,84	1388,42	1376,88	125	GRE VAM TOP	Slip-on & 2x collar	153
134	i	11,44	11,30	1939,14	1376,88	1365,58	126	GRE VAM TOP	Slip-on & 2x collar	154
133	i	11,84	11,70	1950,84	1365,58	1353,88	127	GRE VAM TOP	Slip-on & 2x collar	154
132	i	11,35	11,21	1962,05	1353,88	1342,67	128	GRE VAM TOP	Slip-on & 2x collar	155
131	i	11,84	11,70	1973,75	1342,67	1330,97	129	GRE VAM TOP	Slip-on & 2x collar	156
130	i	11,86	11,72	1985,46	1330,97	1319,26	130	GRE VAM TOP	Slip-on & 2x collar	156
129	i	11,72	11,58	1997,04	1319,26	1307,68	131	GRE VAM TOP	Slip-on & 2x collar	157
128	i	11,64	11,50	2008,54	1307,68	1296,18	132	GRE VAM TOP	Slip-on & 2x collar	158
127	i	11,57	11,43	2019,97	1296,18	1284,75	133	GRE VAM TOP	Slip-on & 2x collar	158
126	i	11,76	11,62	2031,59	1284,75	1273,13	134	GRE VAM TOP	Slip-on & 2x collar	159
125	i	11,73	11,59	2043,17	1273,13	1261,55	135	GRE VAM TOP	Slip-on & 2x collar	160
124	i	11,64	11,50	2054,67	1261,55	1250,05	136	GRE VAM TOP	Slip-on & 2x collar	161
123	i	11,23	11,09	2065,76	1250,05	1238,96	137	GRE VAM TOP	Slip-on & 2x collar	161
122	i	11,69	11,55	2077,31	1238,96	1227,41	138	GRE VAM TOP	Slip-on & 2x collar	162
121	i	11,75	11,61	2088,92	1227,41	1215,80	139	GRE VAM TOP	Slip-on & 2x collar	163
120	i	11,75	11,61	2100,53	1215,80	1204,19	140	GRE VAM TOP	Slip-on & 2x collar	163
119	i	11,79	11,65	2112,17	1204,19	1192,55	141	GRE VAM TOP	Slip-on & 2x collar	164
118	i	11,75	11,61	2123,78	1192,55	1180,94	142	GRE VAM TOP	Slip-on & 2x collar	165
117	i	11,84	11,70	2135,48	1180,94	1169,24	143	GRE VAM TOP	Slip-on & 2x collar	165
116	i	11,60	11,46	2146,94	1169,24	1157,78	144	GRE VAM TOP	Slip-on & 2x collar	166
115	i	11,81	11,67	2158,61	1157,78	1146,11	145	GRE VAM TOP	Slip-on & 2x collar	167
114	i	11,19	11,05	2169,65	1146,11	1135,07	146	GRE VAM TOP	Slip-on & 2x collar	167
113	i	11,86	11,72	2181,37	1135,07	1123,35	147	GRE VAM TOP	Slip-on & 2x collar	168
112	i	11,70	11,56	2192,93	1123,35	1111,79	148	GRE VAM TOP	Slip-on & 2x collar	169
111	i	11,75	11,61	2204,54	1111,79	1100,18	149	GRE VAM TOP	Slip-on & 2x collar	170
110	i	11,78	11,64	2216,18	1100,18	1088,54	150	GRE VAM TOP	Slip-on & 2x collar	170
109	i	11,76	11,62	2227,79	1088,54	1076,93	151	GRE VAM TOP	Slip-on & 2x collar	171
108	i	11,80	11,66	2239,45	1076,93	1065,27	152	GRE VAM TOP	Slip-on & 2x collar	172
107	i	11,76	11,62	2251,07	1065,27	1053,65	153	GRE VAM TOP	Slip-on & 2x collar	172
106	i	11,70	11,56	2262,63	1053,65	1042,09	154	GRE VAM TOP	2x Swell packer	173
105	i	11,52	11,38	2274,01	1042,09	1030,71	155	GRE VAM TOP	Slip-on & 2x collar	174
104	i	11,71	11,57	2285,57	1030,71	1019,15	156	GRE VAM TOP	Slip-on & 2x collar	174

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103	i	11,84	11,70	2297,27	1019,15	1007,45	157	GRE VAM TOP		175
102	i	11,70	11,56	2308,83	1007,45	995,89	158	GRE VAM TOP		176
101	i	11,68	11,54	2320,37	995,89	984,35	159	GRE VAM TOP		176
100	i	11,79	11,65	2332,02	984,35	972,70	160	GRE VAM TOP		177
99	i	11,84	11,70	2343,71	972,70	961,01	161	GRE VAM TOP		178
Pup below		2,37	2,23	2345,94	961,01	958,78		GRE VAM TOP		178
Assy XO Collar - D		0,66	0,66	2346,60	958,78	958,12				178
Pup above	i	2,37	2,37	2348,97	958,12	955,75		10 3/4" GRE VAM TOP		178
88	i	11,46	11,32	2360,29	955,75	944,43	1	10 3/4" GRE VAM TOP		179
87	i	11,50	11,36	2371,65	944,43	933,07	2	10 3/4" GRE VAM TOP		179
86	i	11,56	11,42	2383,06	933,07	921,66	3	10 3/4" GRE VAM TOP		180
85	i	11,40	11,26	2394,32	921,66	910,40	4	10 3/4" GRE VAM TOP		181
84	i	11,36	11,22	2405,54	910,40	899,18	5	10 3/4" GRE VAM TOP		181
83	i	11,51	11,37	2416,90	899,18	887,82	6	10 3/4" GRE VAM TOP		182
82	i	11,56	11,42	2428,32	887,82	876,40	7	10 3/4" GRE VAM TOP		183
81	i	11,49	11,35	2439,67	876,40	865,05	8	10 3/4" GRE VAM TOP		184
80	i	11,54	11,40	2451,06	865,05	853,66	9	10 3/4" GRE VAM TOP		184
79	i	11,57	11,43	2462,49	853,66	842,23	10	10 3/4" GRE VAM TOP		185
78	i	11,57	11,43	2473,92	842,23	830,80	11	10 3/4" GRE VAM TOP		186
77	i	11,56	11,42	2485,33	830,80	819,39	12	10 3/4" GRE VAM TOP		186
76	i	11,34	11,20	2496,53	819,39	808,19	13	10 3/4" GRE VAM TOP		187
75	i	11,52	11,38	2507,91	808,19	796,81	14	10 3/4" GRE VAM TOP		188
74	i	11,57	11,43	2519,34	796,81	785,38	15	10 3/4" GRE VAM TOP		188
73	i	11,57	11,43	2530,76	785,38	773,96	16	10 3/4" GRE VAM TOP		189
72	i	11,41	11,27	2542,03	773,96	762,69	17	10 3/4" GRE VAM TOP		190
71	i	11,55	11,41	2553,44	762,69	751,28	18	10 3/4" GRE VAM TOP		190
70	i	11,55	11,41	2564,84	751,28	739,88	19	10 3/4" GRE VAM TOP		191
69	i	11,46	11,32	2576,16	739,88	728,56	20	10 3/4" GRE VAM TOP		192
68	i	11,56	11,42	2587,58	728,56	717,14	21	10 3/4" GRE VAM TOP		192
67	i	11,57	11,43	2599,00	717,14	705,72	22	10 3/4" GRE VAM TOP		193
66	i	11,57	11,43	2610,43	705,72	694,29	23	10 3/4" GRE VAM TOP		194
65	i	11,48	11,34	2621,77	694,29	682,95	24	10 3/4" GRE VAM TOP		194
64	i	11,19	11,05	2632,81	682,95	671,91	25	10 3/4" GRE VAM TOP		195
63	i	11,54	11,40	2644,21	671,91	660,51	26	10 3/4" GRE VAM TOP		196
62	i	11,52	11,38	2655,59	660,51	649,13	27	10 3/4" GRE VAM TOP		196
61	i	11,39	11,25	2666,84	649,13	637,88	28	10 3/4" GRE VAM TOP		197
60	i	11,56	11,42	2678,25	637,88	626,47	29	10 3/4" GRE VAM TOP		198
59	i	11,57	11,43	2689,68	626,47	615,04	30	10 3/4" GRE VAM TOP		198
58	i	11,40	11,26	2700,94	615,04	603,78	31	10 3/4" GRE VAM TOP		199
57	i	11,38	11,24	2712,17	603,78	592,55	32	10 3/4" GRE VAM TOP		200
56	i	11,55	11,41	2723,58	592,55	581,14	33	10 3/4" GRE VAM TOP		200
55	i	11,56	11,42	2735,00	581,14	569,72	34	10 3/4" GRE VAM TOP		201
54	i	11,49	11,35	2746,34	569,72	558,38	35	10 3/4" GRE VAM TOP		202
53	i	11,57	11,43	2757,77	558,38	546,95	36	10 3/4" GRE VAM TOP		202
52	i	11,53	11,39	2769,16	546,95	535,56	37	10 3/4" GRE VAM TOP		203
51	i	11,57	11,43	2780,58	535,56	524,14	38	10 3/4" GRE VAM TOP		204
50	i	11,43	11,29	2791,87	524,14	512,85	39	10 3/4" GRE VAM TOP		205
49	i	11,56	11,42	2803,29	512,85	501,43	40	10 3/4" GRE VAM TOP		205
48	i	11,50	11,36	2814,64	501,43	490,08	41	10 3/4" GRE VAM TOP		206
47	i	11,56	11,42	2826,06	490,08	478,66	42	10 3/4" GRE VAM TOP		207
46	i	11,11	10,97	2837,03	478,66	467,69	43	10 3/4" GRE VAM TOP		207
45	i	11,54	11,40	2848,43	467,69	456,29	44	10 3/4" GRE VAM TOP		208
44	i	11,50	11,36	2859,78	456,29	444,94	45	10 3/4" GRE VAM TOP		209
43	i	11,49	11,35	2871,13	444,94	433,59	46	10 3/4" GRE VAM TOP		209
42	i	11,27	11,13	2882,26	433,59	422,46	47	10 3/4" GRE VAM TOP		210
41	i	11,50	11,36	2893,61	422,46	411,11	48	10 3/4" GRE VAM TOP		211
40	i	11,52	11,38	2904,99	411,11	399,73	49	10 3/4" GRE VAM TOP		211
39	i	11,57	11,43	2916,42	399,73	388,30	50	10 3/4" GRE VAM TOP		212
38	i	11,51	11,37	2927,78	388,30	376,94	51	10 3/4" GRE VAM TOP		213
37	i	11,41	11,27	2939,05	376,94	365,67	52	10 3/4" GRE VAM TOP		213
36	i	11,46	11,32	2950,37	365,67	354,35	53	10 3/4" GRE VAM TOP		214
35	i	11,56	11,42	2961,78	354,35	342,94	54	10 3/4" GRE VAM TOP		215
34	i	11,52	11,38	2973,16	342,94	331,56	55	10 3/4" GRE VAM TOP		215
33	i	11,18	11,04	2984,20	331,56	320,52	56	10 3/4" GRE VAM TOP		216
32	i	11,55	11,41	2995,61	320,52	309,11	57	10 3/4" GRE VAM TOP		217
31	i	11,48	11,34	3006,94	309,11	297,78	58	10 3/4" GRE VAM TOP		217
30	i	11,52	11,38	3018,32	297,78	286,40	59	10 3/4" GRE VAM TOP		218
29	i	11,56	11,42	3029,74	286,40	274,98	60	10 3/4" GRE VAM TOP		219
28	i	11,24	0,00	3029,74	274,98	274,98		10 3/4" GRE VAM TOP	No M/u shoulder @pin	219
27	i	11,56	11,42	3041,15	274,98	263,57	61	10 3/4" GRE VAM TOP		219
26	i	11,57	11,43	3052,58	263,57	252,14	62	10 3/4" GRE VAM TOP		220
25	i	11,54	11,40	3063,98	252,14	240,74	63	10 3/4" GRE VAM TOP		221
24	i	11,57	11,43	3075,40	240,74	229,32	64	10 3/4" GRE VAM TOP		221
23	i	11,35	11,21	3086,61	229,32	218,11	65	10 3/4" GRE VAM TOP		222

Customer:	HVC	**Service:**	MFC56
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22	i	11,49	11,35	3097,96	218,11	206,76	66	10 3/4" GRE VAM TOP		223
21	i	11,54	11,40	3109,35	206,76	195,37	67	10 3/4" GRE VAM TOP		223
20	i	11,55	11,41	3120,76	195,37	183,96	68	10 3/4" GRE VAM TOP		224
19	i	11,54	11,40	3132,16	183,96	172,56	69	10 3/4" GRE VAM TOP		225
18	i	11,54	11,40	3143,55	172,56	161,17	70	10 3/4" GRE VAM TOP		225
17	i	11,51	11,37	3154,92	161,17	149,80	71	10 3/4" GRE VAM TOP		226
16	i	11,50	11,36	3166,28	149,80	138,44	72	10 3/4" GRE VAM TOP		227
15	i	11,57	11,43	3177,71	138,44	127,01	73	10 3/4" GRE VAM TOP		228
14	i	11,57	11,43	3189,13	127,01	115,59	74	10 3/4" GRE VAM TOP		228
13	i	11,19	11,05	3200,18	115,59	104,54	75	10 3/4" GRE VAM TOP		229
12	i	11,55	11,41	3211,59	104,54	93,13	76	10 3/4" GRE VAM TOP		230
11	i	11,35	11,21	3222,79	93,13	81,93	77	10 3/4" GRE VAM TOP		230
10	i	11,50	11,36	3234,15	81,93	70,57	78	10 3/4" GRE VAM TOP		231
9	i	11,55	11,41	3245,56	70,57	59,16	79	10 3/4" GRE VAM TOP		232
8	i	11,51	11,37	3256,92	59,16	47,80	80	10 3/4" GRE VAM TOP		232
7	i	11,46	11,32	3268,24	47,80	36,48	81	10 3/4" GRE VAM TOP		233
6	i	11,49	11,35	3279,59	36,48	25,13	82	10 3/4" GRE VAM TOP		234
5	i	11,55	11,41	3290,99	25,13	13,73	83	10 3/4" GRE VAM TOP		234
4	i	11,58	0,00	3290,99	13,73	13,73		10 3/4" GRE VAM TOP		234
3	i	11,57	0,00	3290,99	13,73	13,73		10 3/4" GRE VAM TOP		234
2	i	11,51	0,00	3290,99	13,73	13,73		10 3/4" GRE VAM TOP		234
1	i	11,56	0,00	3290,99	13,73	13,73		10 3/4" GRE VAM TOP		234
Space out pup #11	i	2,57	2,42	3293,42	13,73	11,30	1	10 3/4" GRE VAM TOP		234
Pup joint below Hng		2,22	2,08	3295,49	11,30	9,23		10 3/4" GRE VAM TOP		235
Hanger - Below LOP		0,20	**0,20**	3295,69	9,23	9,03		to be 9,03m below RKB		235
Hanger - Above LOP		0,12	**0,12**	3295,81	9,03	8,91				235
Running tool		0,42	**0,42**	3296,23	8,91	8,49				235
9 5/8" Landing joint		9,85	**9,85**	3306,08	8,49	-1,36				235
Joint no	Check TK-ring	Length m	Less m/u loss	Cum Length	Jt Btm m	Jt Top m	No.of joints	Remarks	Centraliser	Hookload T

assy

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
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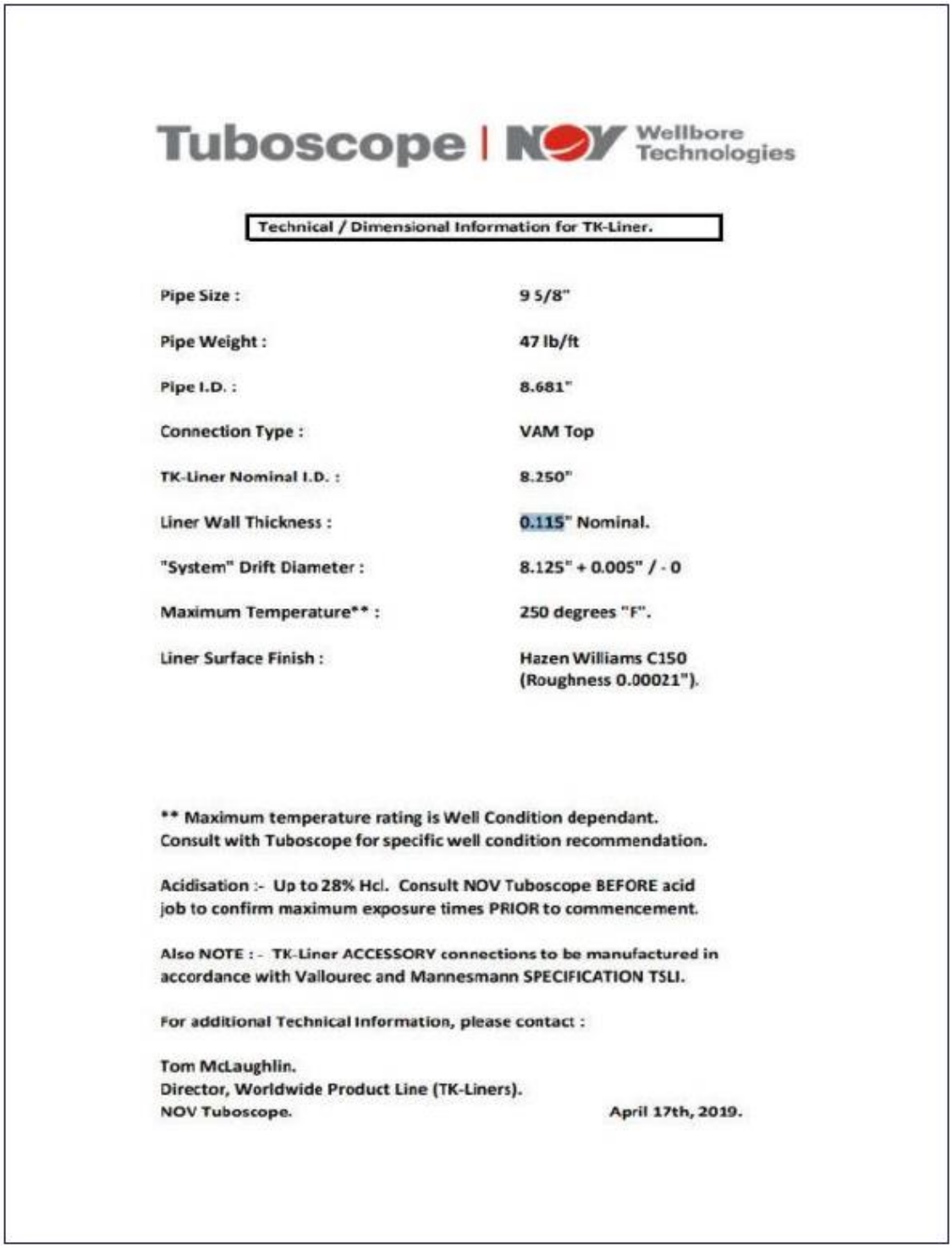
Field Record 2: TK-Liner Data Sheet



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Technical / Dimensional Information for TK-Liner.

Pipe Size :	9 5/8"
Pipe Weight :	47 lb/ft
Pipe I.D. :	8.681"
Connection Type :	VAM Top
TK-Liner Nominal I.D. :	8.250"
Liner Wall Thickness :	0.115" Nominal.
"System" Drift Diameter :	8.125" + 0.005" / - 0
Maximum Temperature** :	250 degrees "F".
Liner Surface Finish :	Hazen Williams C150 (Roughness 0.00021").

** Maximum temperature rating is Well Condition dependant. Consult with Tuboscope for specific well condition recommendation.

Acidisation :- Up to 28% Hcl. Consult NOV Tuboscope BEFORE acid job to confirm maximum exposure times PRIOR to commencement.

Also NOTE : - TK-Liner ACCESSORY connections to be manufactured in accordance with Vallourec and Mannesmann SPECIFICATION TSLI.

For additional Technical Information, please contact :

Tom McLaughlin.
Director, Worldwide Product Line (TK-Liners).
NOV Tuboscope.

April 17th, 2019.

Customer:	HVC	**Service:**	MFC56
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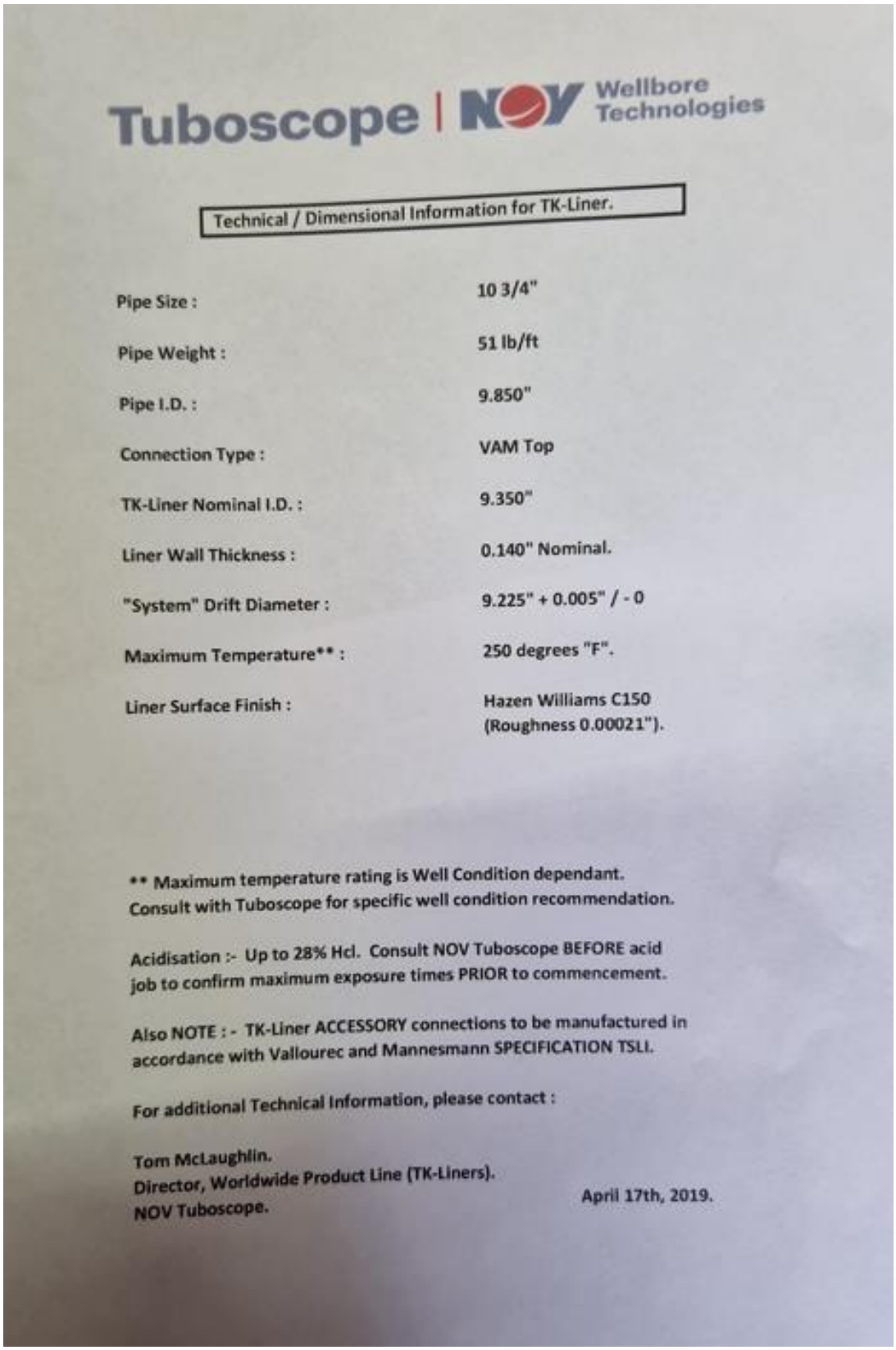
Well:	MSD-GT-01	**Job no.:**	ANS 985



Tuboscope | NOV Wellbore Technologies

Technical / Dimensional Information for TK-Liner.

Pipe Size :	10 3/4"
Pipe Weight :	51 lb/ft
Pipe I.D. :	9.850"
Connection Type :	VAM Top
TK-Liner Nominal I.D. :	9.350"
Liner Wall Thickness :	0.140" Nominal.
"System" Drift Diameter :	9.225" + 0.005" / - 0
Maximum Temperature** :	250 degrees "F".
Liner Surface Finish :	Hazen Williams C150 (Roughness 0.00021").

** Maximum temperature rating is Well Condition dependant. Consult with Tuboscope for specific well condition recommendation.

Acidisation :- Up to 28% Hcl. Consult NOV Tuboscope BEFORE acid job to confirm maximum exposure times PRIOR to commencement.

Also NOTE : - TK-Liner ACCESSORY connections to be manufactured in accordance with Vallourec and Mannesmann SPECIFICATION TSLI.

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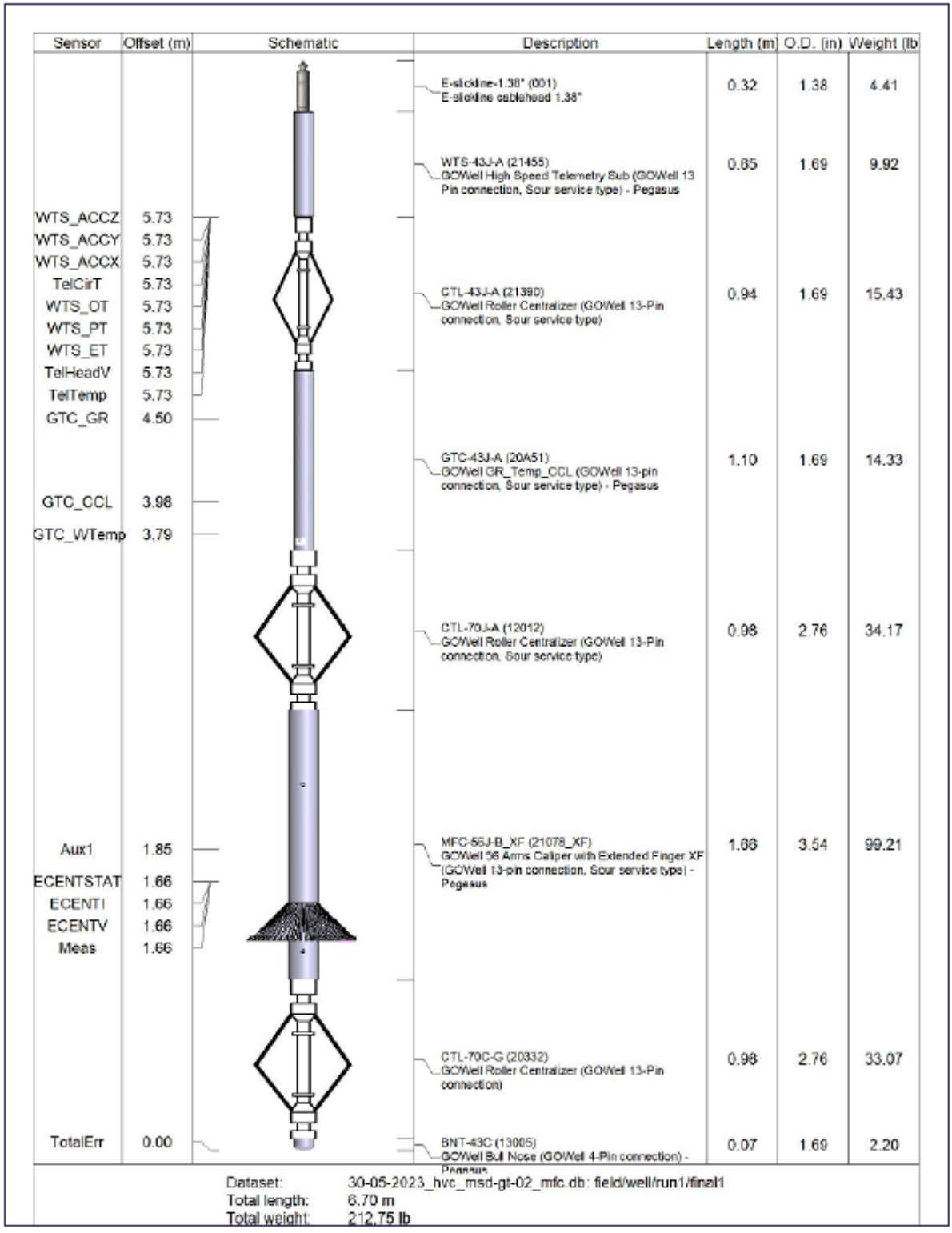
April 17th, 2019.

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Field Record 3: Toolstring diagram



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Field Record 4: Well schematic

Nr.	Item Description All depths from RT *RT= +9,32m above ground level* *RT= +10,72m above NAP*	**MSD-GT-01 Geothermal Producer**	Depth m tvd	Depth m ah	Hole ID in	Pipe OD in	Collar OD in (nom)	Pipe ID in	Pipe ID in (drift)	Geology m tvd	Geology m ah	Geology
1	24" Conductor		155	155		24.000	welded	23.000	-			North Sea Group
	Kick-off point		900	900								
										907	907	Chalk Group
3d	10 3/4" 51# L80 VAMTOP - GRE Lined (57.4#)		958	958		10.750	11.488	**9.350**	**9.225**			
	2x Swell packers			1054								
	Top of cement		1054	1055	*Not confirmed by CBL*							
2	13 3/8" 68# L80 VAMTOP Casing		1133	1153	16.00	13.375	14.176	12.415	12.259			
	End of build at 36.08 ° inclination		1454	1494								
										1669	1709	KN (Holland)
										2065	2208	KN (Vlieland)
										2498	2781	Schieland Group
3c	9 5/8" 47# L80 VAMTOP - GRE Lined (51.9#)		2543	2839	12 1/4"	9.625	10.396	**8.250**	**8.125**			
											Top Alblasserdam	
										2562	2864	
											Base Alblasserdam	
3b	9 5/8" 47# L80 VAMTOP 13%Chrome									2870	3242	Altena
	HUD (WL - 04/'23)			**3229**								
	Top of float collar		2889	3281	12 1/4"	9.625	t.b.d.	8.681	8.525			
3a	9 5/8" 47# L80 VAMTOP (2 joint shoetrack)		2909	3305	12 1/4"	9.625	10.396	8.681	8.525			

*Not in scale.

Customer:	HVC	**Service:**	MFC56
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Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
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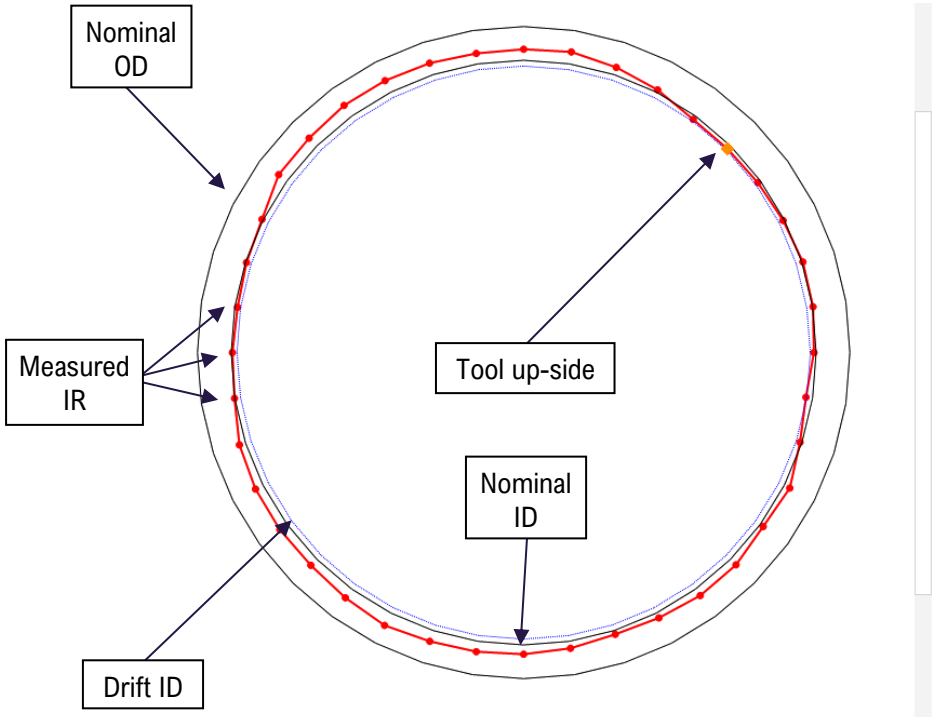
Appendix 1: Presentation

Data is presented in a number of formats. Example views from the MFC data viewing software and Cross-sections (Section 5) have been generated to illustrate pertinent features observed in the tubing.

A Body % Penetration vs. Measured Depth Plot and Body Measured ID vs. Measured Depth Plot have been produced in addition to statistical summary tables and tabulated penetration data. The maximum penetration values and maximum IDs per joint are calculated using double radius values, any minimum IDs quoted are calculated using opposite arm data, unless otherwise stated.

The % penetrations in the body sections have been calculated assuming a nominal thickness given by the difference between the nominal ID and OD. If below nominal IDs occur, negative percentage penetrations may be generated. Should this take place, negative percentage values will be displayed as 0. Similarly percentages greater than 100 shall be displayed as 100%.

Cross sectional view



Highlight Curves		
Idav	6.388	Inch
Idmnor	6.174	Inch
Idmx	6.574	Inch
NID	6.276	Inch
NOD	7.000	Inch
DRIFT	6.151	Inch
Depth	279.156	Foot
Irmn	3.066	Inch
Irmx	3.287	Inch
Irav	3.194	Inch
Extended Info Curves		
MITROT	320.412	Degree
MITDEV	2.967	Degree
TUP	5.399	arm

Stats at specific depth frame

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Field:	Maasdijk	**Survey date:**	30 May 2023
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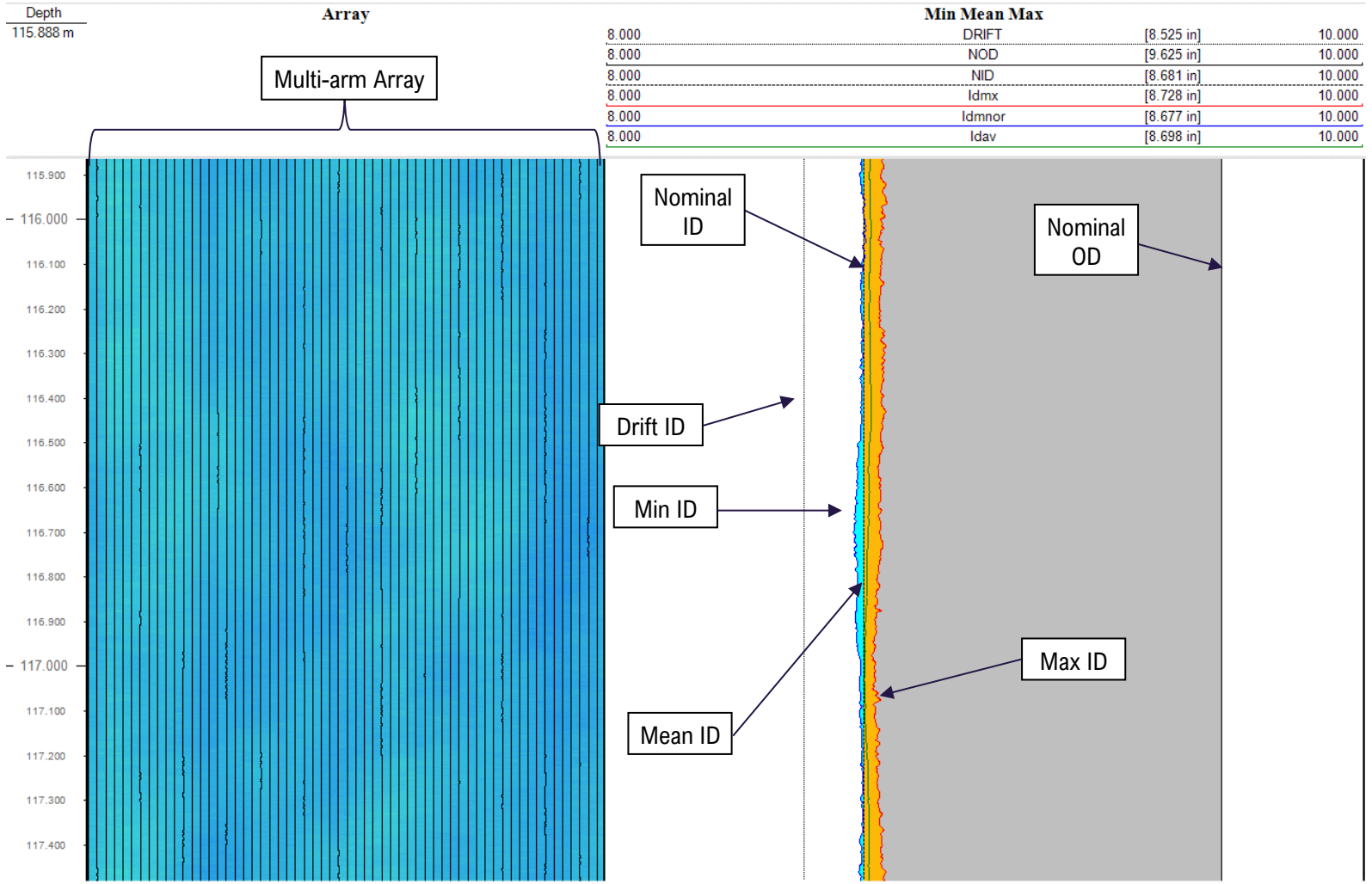
2D view



Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Data reduction

Due to the number of samples often exceeding the ability to display all data points onscreen, some form of data reduction is necessary so that screen display is possible. This is achieved by only showing the maximum, minimum or average value of a number of samples. The number of samples depends on the length of any given interval and the size of the display window onscreen. Combined this is called the 'data reduction factor'.

The data reduction method chosen when displaying data in this report is left to the discretion of the analyst. Typically, longer intervals are affected more than shorter intervals and when looking at individual features within an interval of less than approximately 10 ft no data reduction will be necessary. Unless otherwise stated, an average data reduction will be used for each relevant image in this report.

For example, when trying to illustrate corrosion, erosion or damage, the maximum option will be set which only shows the maximum values from a set of samples.

When viewing data using Clarity™ this option can be changed by the user.

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Appendix 2: Formulae

The following formulae were used in the analysis of the data:

Penetration formulae	Maximum Percentage Penetration = $\left[\frac{MaxID - NomID}{NomOD - NomID}\right] \times 100$
	Mean Percentage Penetration = $\left[\frac{MeanID - NomID}{NomOD - NomID}\right] \times 100$
Cross-section formulae	Area = $\pi \left[\frac{D}{2}\right]^2$
	Volume = $Area \times Length = \pi \left[\frac{D}{2}\right]^2 \times L$
Burst formula	Burst = $\left[1 - \frac{MaxID-NomID}{NomOD-NomID}\right] \times \left[\frac{2y_p t}{NomOD}\right]$
Collapse formulae	API_Yield_Collapse = $2Y_p \times \left[\frac{((D/t)-1)}{((D/t))^2}\right]$
	API_Plastic_Collapse = $Y_p \times \left[\frac{A}{(D/t)} - B\right] - C$
	API_Transition_Collapse = $Y_p \times \left[\frac{F}{D/t} - G\right]$
	API_Elastic_Collapse = $\frac{46.95\times10^6}{(D/t)\times[(D/t)-1]^2}$
	Non_API_Collapse = $\left[1 - \frac{MaxID-NomID}{NomOD-NomID}\right] \times Book\_Collapse$

Table of constants and D/t values for specific pipe grades:

Grade	Constants (from book values)					Yp (Yield - psi)	Boundary conditions (D/t)		
	A	B	C	F	G		1	2	3
J/K 55	2.991	0.0541	1206	1.989	0.036	55000	14.81	25.01	37.21
L/N 80	3.071	0.0667	1955	1.998	0.0434	80000	13.38	22.74	31.02
C/T/X 95	3.124	0.0743	2404	2.029	0.0482	95000	12.85	21.33	28.36
P110	3.181	0.0819	2852	2.066	0.0532	110000	12.44	20.41	26.22
Q125	3.239	0.0895	3301	2.106	0.0582	125000	12.11	19.63	24.46

Boundary relationships for collapse calculations:

- D/t < Boundary 1: Yield_Collapse
- Boundary 1 < D/t < Boundary 2: Plastic_Collapse
- Boundary 2 < D/t < Boundary 3: Transition_Collapse
- Boundary 3 < D/t: Elastic_Collapse

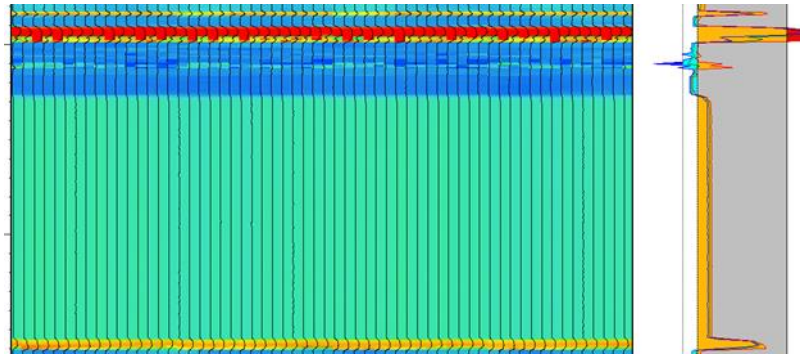
Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Appendix 3: Tool stick and slip

Stick and Slip is a phrase used to describe the conditions downhole that results in stretched and compressed data. Stick and slip or stick/slip is most commonly caused by the friction of the wireline cable/CT against the wall of the well causing the tools to jerk erratically as they are pulled up through the well during logging. As the tool gets stuck, the last data point recorded is stretched until the tool becomes dislodged and begins moving again.

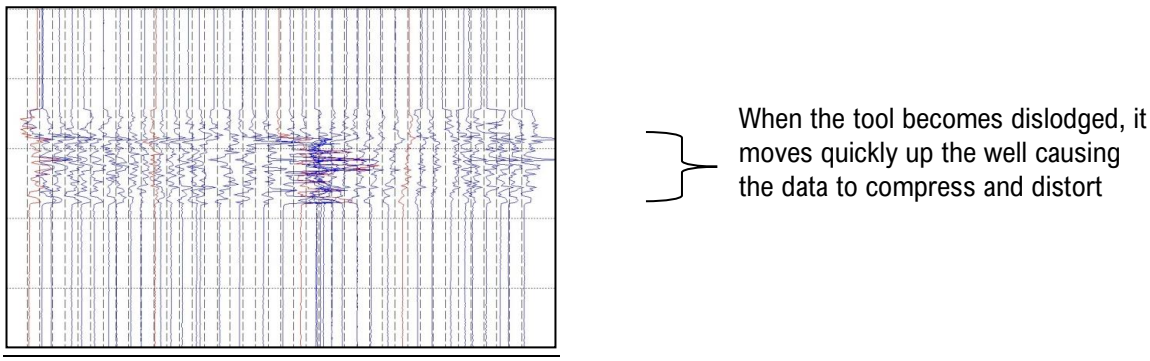
Figure I is a typical representation of what stretched MFC data looks like. The longer the tool is stuck, the straighter and more elongated the data appears, predominantly forming a straight line for each sensor reading. If the tool is stuck for only a short interval of time, a slight stretch in the data may be visible but is likely not enough to distort any metal loss features within the tubing/casing.

Figure I: Stretched data



Of course, as the tool becomes dislodged, it travels quickly up the well to reduce the tension in the cable. This means many data points are taken in a short time interval and results in the data being very compressed in appearance. The more compressed the data is, the more distorted it becomes and commonly appears as a black mass which appears to have very high and low values at similar depths. This compression not only distorts the data but also masks any features in the pipe that may be present within that short depth interval. Figure II illustrates a more extreme case of how compressed MFC data appears when plotted. Like the stretched data however, the compression can sometimes be very minor enabling analysis of any features within the vicinity if the data has not been heavily distorted.

Figure II: Compressed data



NOTE: Any analysis of data affected by stick and slip must be approached with caution as many features can be hidden, overlooked or obscured by these characteristics.

Customer:	HVC	**Service:**	MFC56
Field:	Maasdijk	**Survey date:**	30 May 2023
Well:	MSD-GT-01	**Job no.:**	ANS 985

Appendix 4: Recalibration

Even though the MFC arms are calibrated pre and post survey and the sensor response is temperature compensated there may still be minor drift between sensor responses. Different recalibration methods can also be used to correct for other undesirable data features such as excessive finger wear or to match different processing methods used over time in the same well and between service providers.

There are three methods of recalibration, each defining a depth range over which a shift is calculated for each arm. The way in which each method calculates the shift is summarised below.

Modal/Histogram ID	The shift is calculated to make the modal average of each individual arm in the recalibration zone equal to the average modal average (histogram peak) of all the arms in recalibration zone.
Median ID	The shift is calculated to make the median average of each individual arm in the recalibration zone equal to the median average of all arms in the recalibration zone.
Known ID	The shift is calculated to make the average value of each arm in the recalibration zone equal to a supplied known ID. Typically this is one or more clean item within the well manufactured to a high tolerance.

For each method the approach is similar: -

- Centralise the data with no shifts applied.
- For each arm in each recalibration zone, calculate the scalar required using a method chosen from the table above.
- Apply the depth varying scalars to each arm in the whole, uncentralised, data set. In the case of multiple zones these are depth interpolated with reference to the zone centres.
- Centralise the recalibrated data.

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Appendix 5: Centralisation

In an ideal world there would be no requirement to correct the data for tool eccentricity during acquisition as the tool would remain perfectly centralised throughout the acquisition of the data. While it may be possible to approach this condition under certain circumstances, where the geometry of the well (e.g. limited deviation, no sharp dog legs, near constant ID) and the toolstring configuration (e.g. rigid, use of strong centralisers) are optimised, the reality is that the tool generally stays significantly closer to the low side than the high side.

Centralisation of multi-arm caliper data is applied to compensate for the small offset of the tool centre from the axis of the pipe due to gravity (in deviated wells), tool vibration or deformed pipe. For accurate measurement of pit depths, the raw caliper data needs to be corrected for this effect.

The centralisation algorithm in Clarity uses the least squares fitting method, a mathematical procedure for finding the best-fitting curve to a given set of points by minimising the sum of the squares of the offsets ('the residuals') of the points from the curve. The sum of the squares of the offsets is used instead of the offset absolute values because this allows the residuals to be treated as a continuous differentiable effect on the fit, a property that is related to the unexpected IDs introduced after centralisation when such outliers are present. In this case, when any one quadrant of the internal pipe wall is disproportionately affected by deposits, the smaller than expected values in that region are the outlier values that distort the tubing cross-section after centralisation.

This option uses a more sophisticated algorithm to compute tool eccentricity in regions of perforations or heavy pitting. It works by omitting extreme outliers from the eccentricity calculation.

The centralisation options are:

Maxima	The largest arm readings are rejected from the calculation
Minima	The smallest arm readings are rejected from the calculation
Absolute	The arm readings furthest from the mean are rejected from the calculation
Prism™	Automatically determines which values are outliers and excludes the appropriate number of caliper fingers at each depth frame

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