EXPRO

WELL FLOW MANAGEMENT™

Multifinger Caliper Analysis Report

Client:	NAM
Well No.:	ROSSUM-WEERSELO-4
Field:	ROSSUM-WEERSELO
Country:	Netherlands
Survey Date:	21th June 2021
Survey Type:	Extended 24-Arm Caliper
Job ID:	DAC710

www.exprogroup.com

Pass no.	Survey Interval (m)	Data Quality	Notes
1	1402 to 0	Good	

Rev	Description	Author	Checked by
0	Report		

The Expro Group Data Analysis Centre

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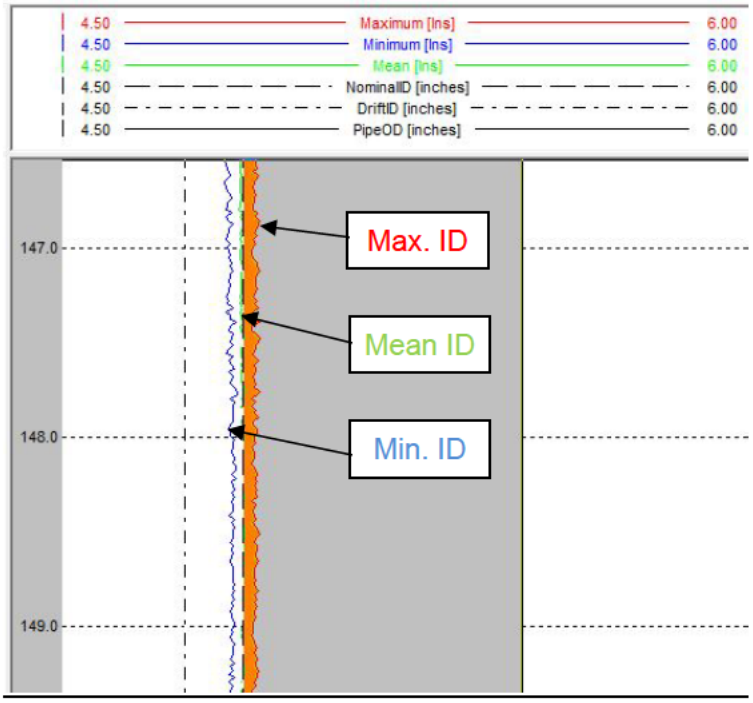
Definitions

Measured IDs

- Each caliper finger records a radius value at each depth sample. For the purposes of calculating metal loss, this value is multiplied by 2, creating an ID value which can be referenced against the nominal ID and OD of the tubular (all ID values quoted are 2* radius values unless otherwise indicated).
- When calculating restrictions within the tubular caused by features such as deposition or deformation, opposite arm radius values are combined to create an ID value.
- At each depth sample the Maximum ID, Minimum ID and Mean ID is recorded. These can then be plotted against the Drift ID and Nominal ID and OD.



Maximum Percentage Penetration

- The maximum percentage penetration is the maximum recorded radius x 2 value referenced against nominal ID and OD
- $Maximum\ percentage\ penetration = 100 * \frac{Max.ID - Nom.ID}{OD - NomID}$

Maximum Percentage Circumferential Wall Loss

- The maximum percentage circumferential wall loss is the sum of the areal metal loss at each depth sample with reference to nominal ID and OD
- $(\frac{100}{N}) * \sum_{i=1}^{i=N}(Si^2 - Nom.ID^2) \div (OD^2 - Nom.ID^2)$
- N: is the number of caliper sensors on the tool, 24, 40, 60.
- Si: is the measured radius value x 2 for each arm.

Report Contents

Section 1: Survey Objectives and Interpretation Summary

Section 2: Data Interpretation

Section 3: Caliper Graphics

Section 4: Statistical Analysis

Section 5: Well & Survey Information

1. Survey Objectives and Interpretation Summary

Survey Objectives

An extended 24-arm memory multifinger caliper was run to determine the general condition of the tubing and casing within the ROSSUM-WEERSELO-4 well.

Data Analysis

This report highlights the main findings of the analysis. However, for a more detailed view of the tubing condition, the accompanying deliverables (which include the tool data and the MIPS client viewer) can be used to inspect the completion on a joint by joint basis.

Processing:

- Centralised
- Depth corrected – to well completion depths, MD in metres
- Statistical analysis applied

Interpretation Summary

- The 3-1/2″ tubing appears to be in moderate condition, with a maximum recorded ID of 3.169″ (equivalent to a 42.7% penetration) at 1148.96 m.
- The surveyed interval of 7″ casing appears to be in moderate condition, with a maximum recorded 6.401″ (equivalent to a 33.9% penetration) at 1221.17 m.
- Time-lapse analysis shows a significant apparent increase in metal loss within the 3-1/2″ tubing compared to all previous surveys.

Statistical Data Summary	2021	2020	2019	2018	2017	T.L. Max Difference
Maximum % Penetration	42.7 %	38.6 %	37.0 %	23.5 %	26.3 %	19.2 %
Maximum Penetration Depth	1148.96 m	1017.18 m	1098.07 m	985.82 m	762.05 m	-
Average Maximum % Penetration	29.5 %	18.0 %	15.3 %	8.5 %	12.9 %	21.0 %
Maximum % Circumferential Wall Loss	28.5 %	15.6 %	13.2 %	7.4 %	-	15.2 %
Maximum % Circumferential Wall Loss Depth	1148.96 m	149.81 m	582.74 m	149.67 m	-	-
Average Recorded Mean ID	3.242 inches	3.124 inches	2.957 inches	2.874 inches	2.937 inches	0.368 inches
Average Maximum % Circumferential Wall Loss	22.3 %	9.9 %	7.6 %	1.8 %	-	14.7 %
Survey Interval	1402 to surface	1290 to surface	1202 to surface	1214 to surface	1213 to surface	-

Note: All values from statistical analysis are based on the maximum, minimum and mean IDs per tubing or casing joint
Note: Caliper measurement tolerance is 0.03"
Note: Circumferential wall loss calculations were not an output of analysis software prior to 2018.

2. Data Interpretation

3-1/2", 10.2 lb/ft Tubing Condition

- The 3-1/2" tubing appears to be in moderate condition, with all 140 joints logged found to contain maximum recorded percentage penetration values between 20 – 43% of the nominal wall thickness, while averaging 30.5% (see Figure 1, Section 3 & Max. Percentage Penetration per Joint vs. Depth Plot, Section 4).
- The maximum recorded ID within the 3-1/2" tubing was 3.169" (equivalent to a 42.7% penetration) at 1148.96 m. This relates to an isolated pit recorded towards the low-side within the upper portion of a joint. The feature was recorded by a single caliper arm (suggesting a maximum potential width of 0.72") and measured approximately 15 mm in length (see Figures 2 & 3, Section 3).
- The abovementioned maximum recorded ID appears to form part of a subtle track of low-side focussed metal loss, with a number of similar isolated pits recorded between approximately 1200 – 600 m.
- The average maximum percentage circumferential wall loss within the surveyed 3-1/2" tubing was 23.3%, with no single joint exceeding 29.0% (see Max. Percentage Circumferential Wall Loss per Joint vs. Depth Plot, Section 4).
- The average mean recorded ID was 3.056", which is noticeably higher than the manufacturer specified nominal ID of 2.922". This may be the result of widespread circumferential metal loss throughout the tubing (see Measured ID per Joint vs. Depth Plot, Section 4).
- None of the recorded IDs within the surveyed 3-1/2" tubing fall below the manufacturer specified drift ID of 2.797" and there is no clear evidence of any significant deposition or restrictions.

7", 32 lb/ft Casing Condition

- The surveyed interval of 7" casing appears to be in moderate condition, with all 9 joints logged found to contain maximum recorded percentage penetration values between 9 – 34% of the nominal wall thickness, while averaging 14.4% (see Figure 4, Section 3 & Max. Percentage Penetration per Joint vs. Depth Plot, Section 4).
- The maximum recorded ID within the surveyed interval of 7" casing was 6.401" (equivalent to a 33.9% penetration) at 1221.17 m. This relates to an isolated pit recorded towards the low-side within the upper portion of a joint. The feature was recorded by a single caliper arm (suggesting a maximum potential width of 1.53") and measured approximately 25 mm in length (see Figures 5 & 6, Section 3).

Time-lapse Analysis

- 24-arm caliper surveys have been performed previously within this well by Expro. Time-lapse analysis has been performed by comparing data from surveys conducted on the 13th of June 2017, 5th of October 2018, 6th of November 2019 and 10th of November 2020 with data from the current 2021 survey to give a 5 survey overview (see Time-lapse Plots, Section 4).
- Due to differing survey lengths, the 7" casing condition cannot be compared directly between all years.
- The current 2021 survey shows the recorded IDs within the 3-1/2" tubing to be significantly higher than shown in any previous years. It is thought that this could be the result of major cleaning operations conducted in the well immediately before the caliper survey, which may have removed a layer of circumferential deposition which could have been masking metal loss. However, this theory cannot be confirmed without performing further surveys.

3. Caliper Graphics

Figure 1: 3-1/2″ Tubing Overview

Figure 2: Maximum Recorded ID within 3-1/2″ Tubing

Figure 3: Maximum Recorded ID within 3-1/2″ Tubing (Cross-section)

Figure 4: 7″ Casing Overview

Figure 5: Maximum Recorded ID within 7″ Casing

Figure 6: Maximum Recorded ID within 7″ Casing (Cross-section)

Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
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Figure 1: 3-1/2" Tubing Overview

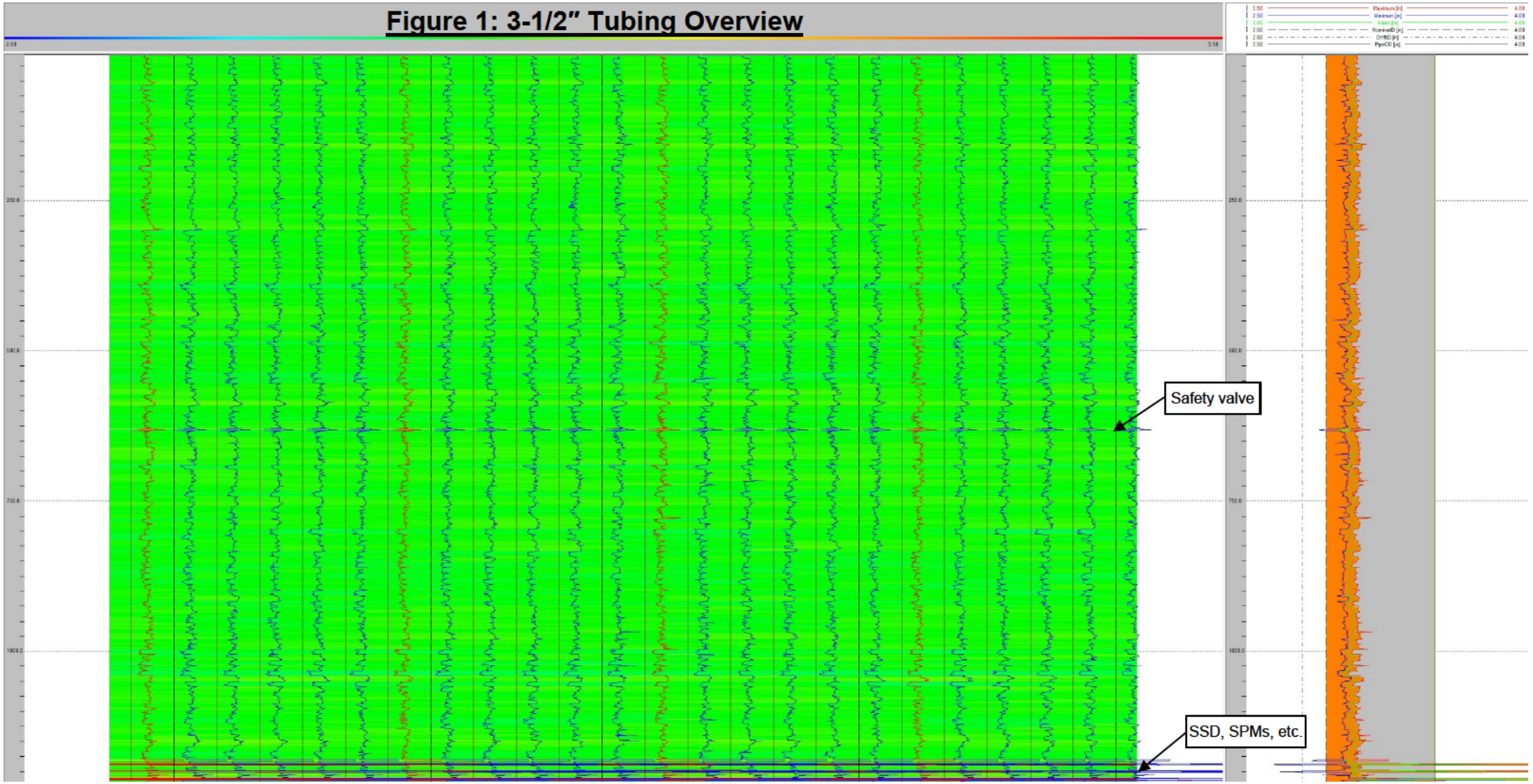

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Figure 2: Maximum Recorded ID within 3-1/2" Tubing

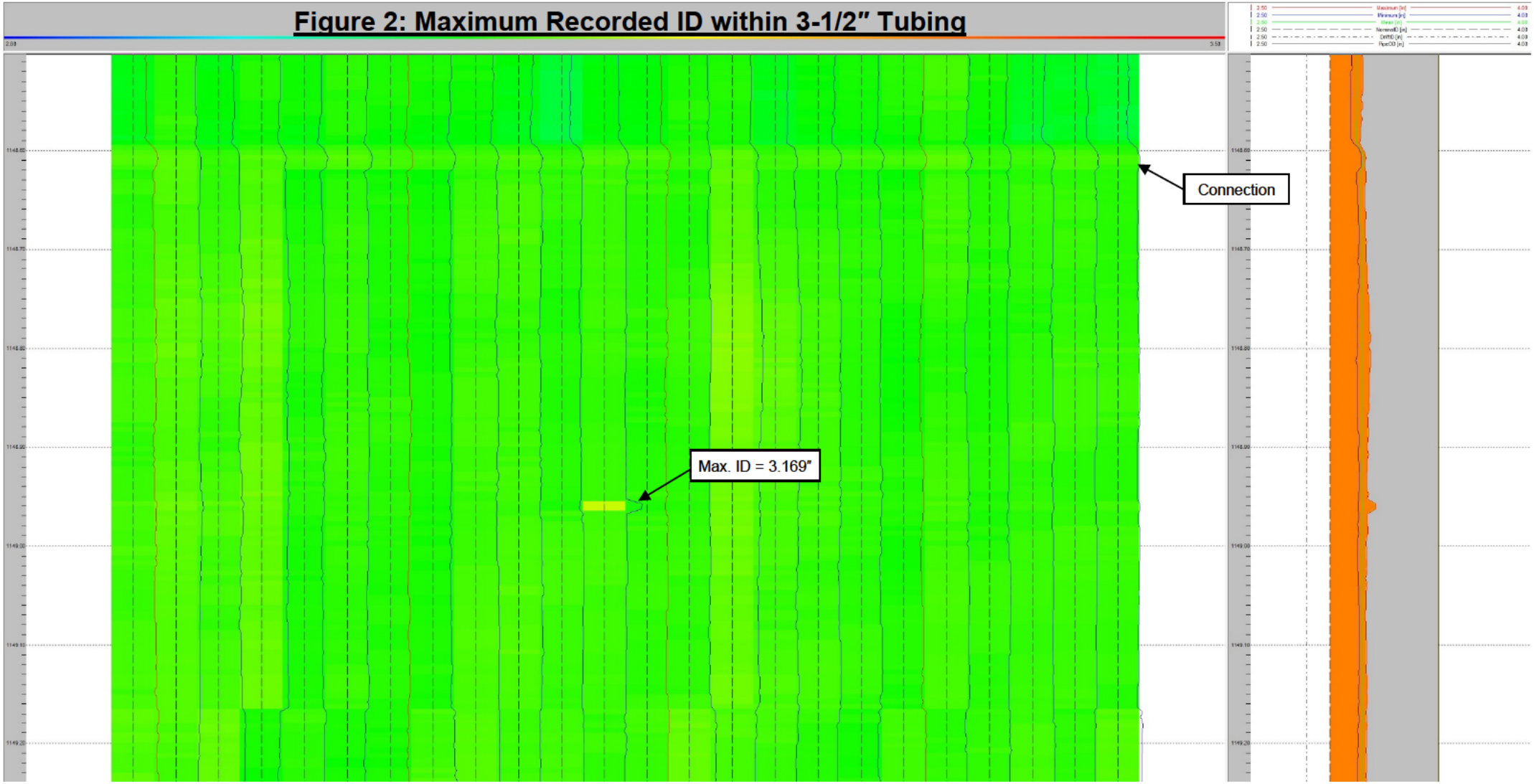

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Figure 3: Maximum Recorded ID within 3-1/2" Tubing (Cross-section)

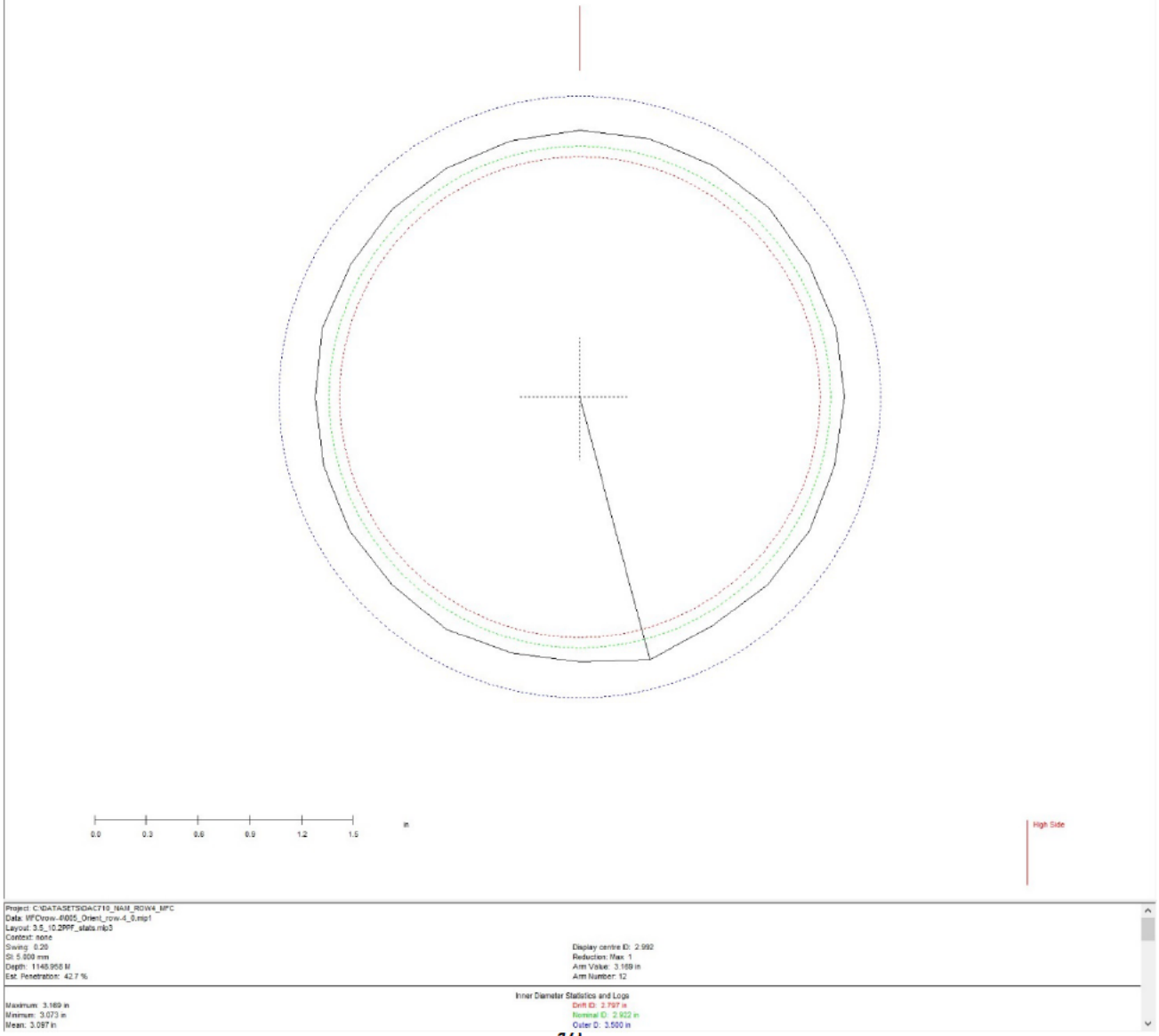

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Figure 4: 7" Casing Overview

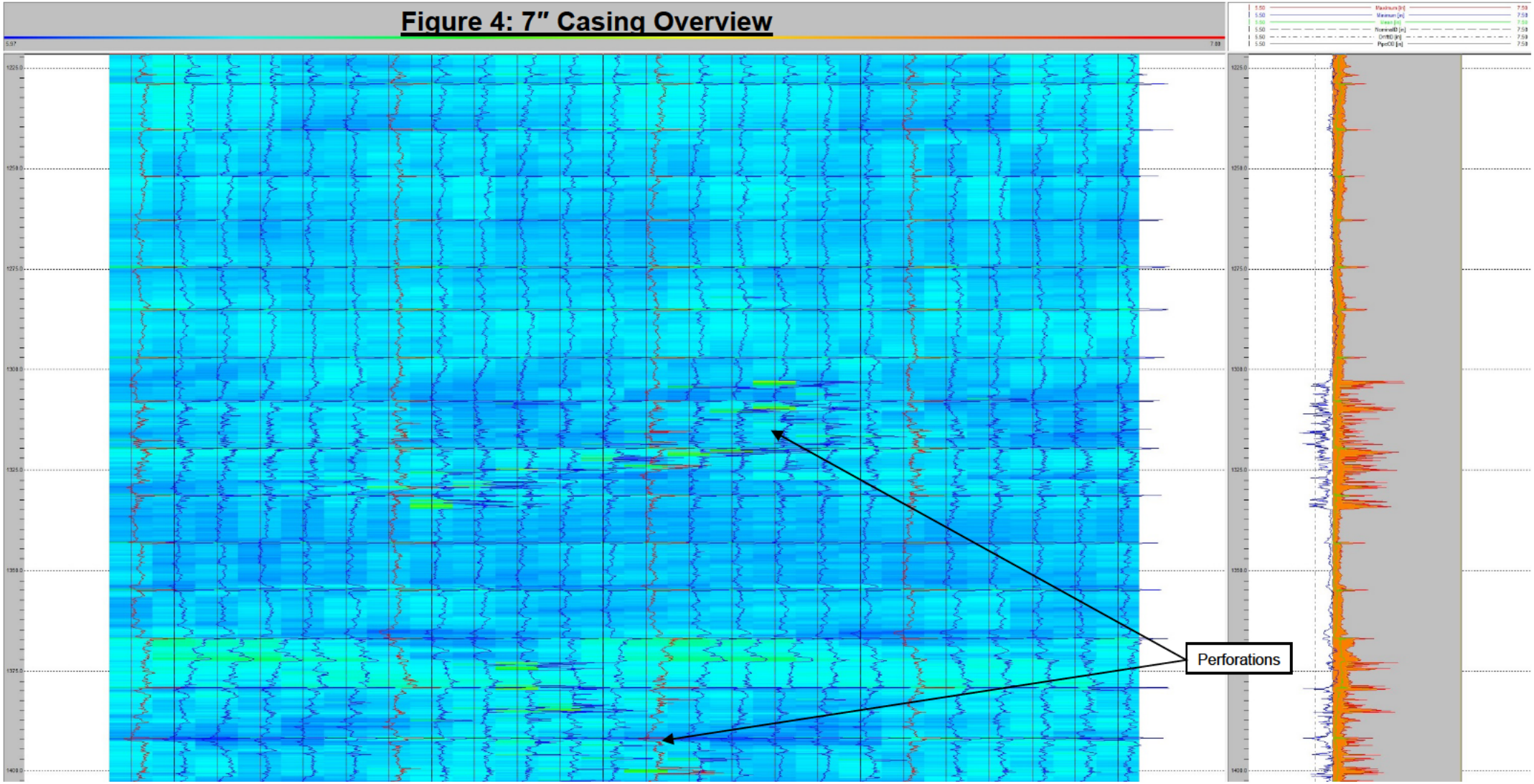

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Figure 5: Maximum Recorded ID within 7" Casing

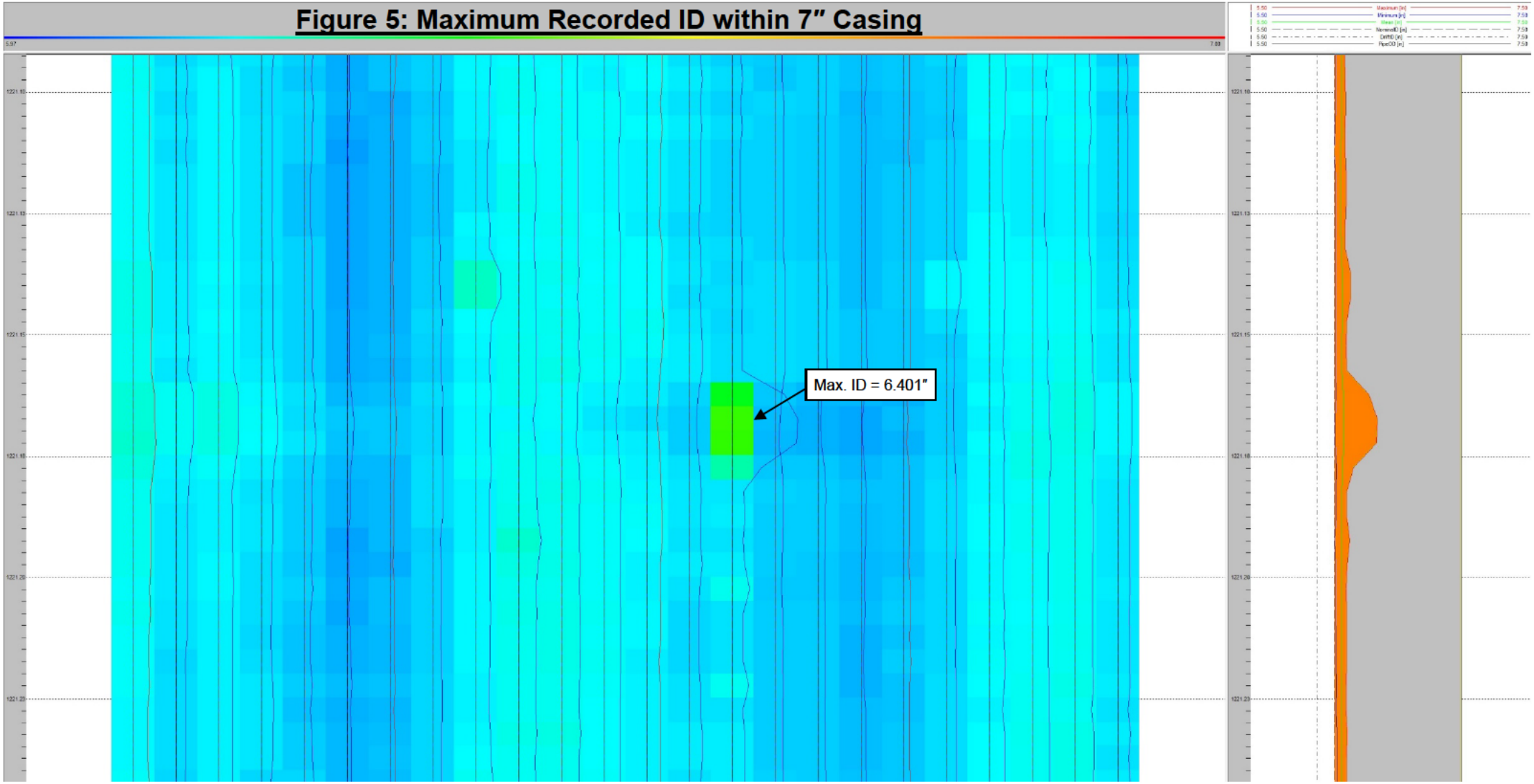

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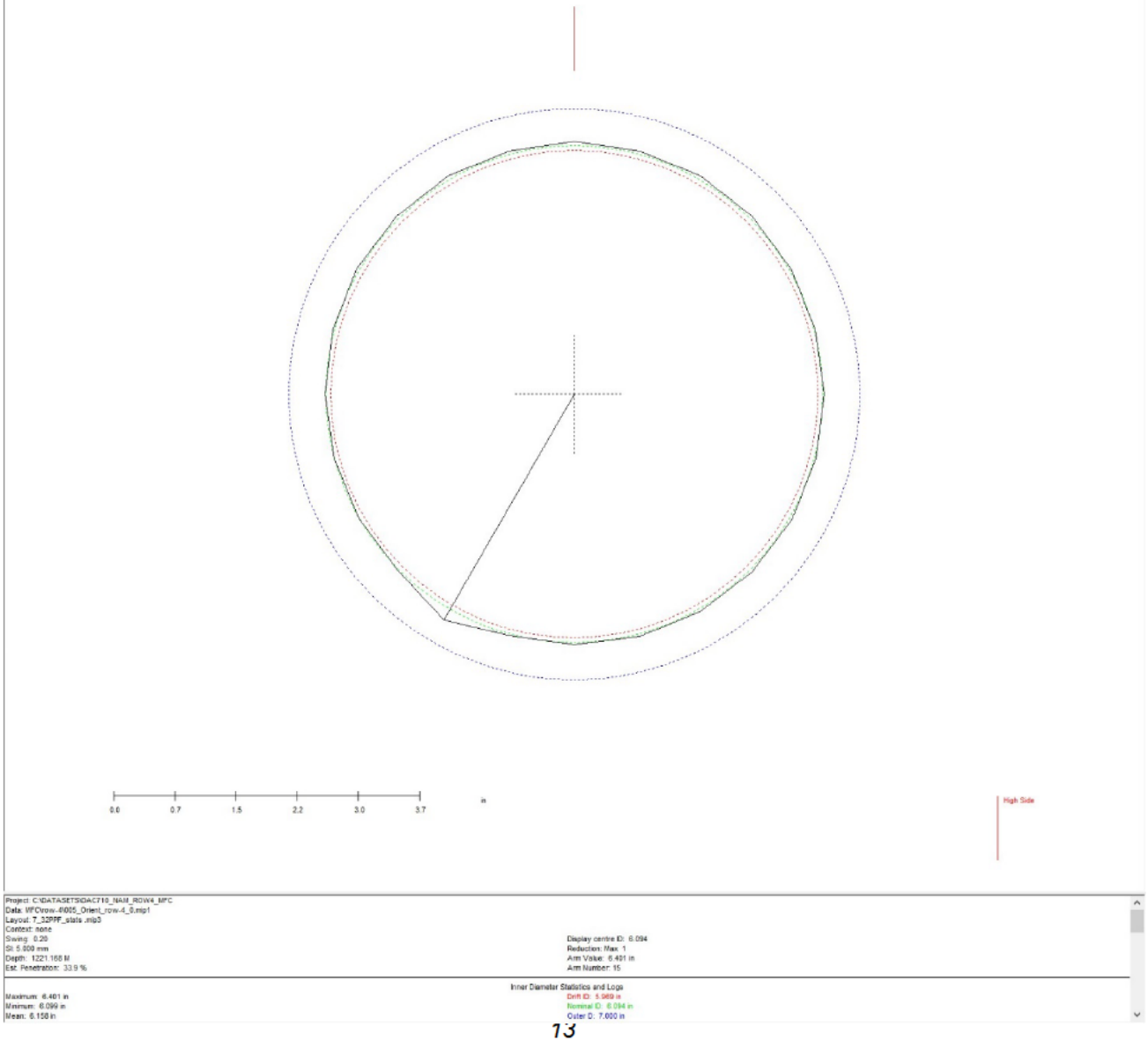
Figure 6: Maximum Recorded ID within 7" Casing (Cross-section)



4. Statistical Analysis

Max. Percentage Penetration vs. Depth Plot

Max. Percentage Circumferential Wall Loss vs. Depth plot

Measured ID vs. Depth Plot

Tabulated Data

Time-lapse Percentage Penetration Histogram Plot

Time-lapse Max. Percentage Penetration vs. Depth Plot

Time-lapse Max. Percentage Circumferential Wall Loss vs. Depth Plot

Time-lapse Maximum ID vs. Depth Plot

Time-lapse Mean ID vs. Depth Plot

Time-lapse Minimum ID vs. Depth Plot

(Note: All values from statistical analysis are based on the maximum, mean & minimum recorded ID's from each tubing or casing joint)

Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
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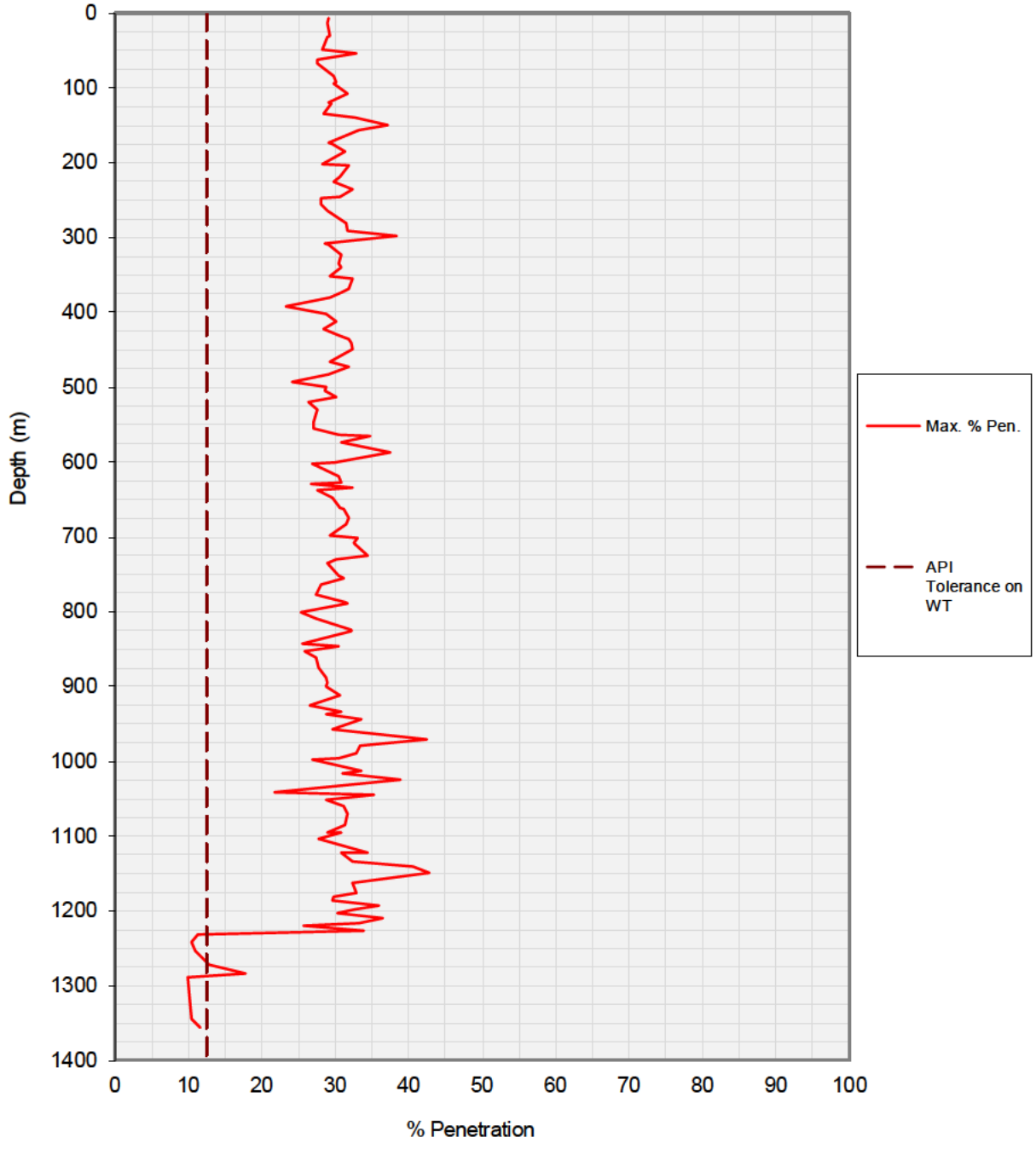
Max. Percentage Penetration per Joint vs. Depth Plot



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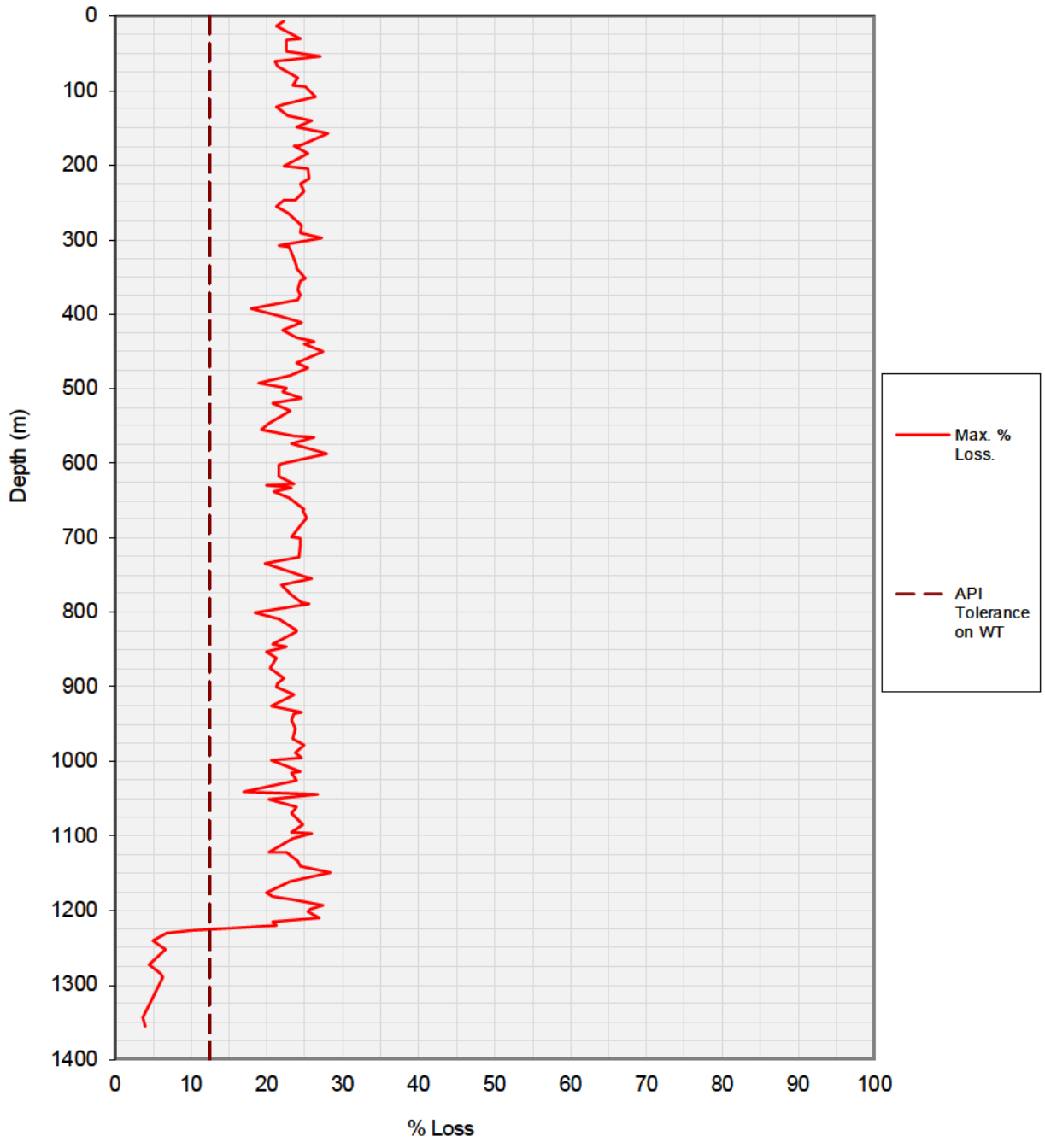
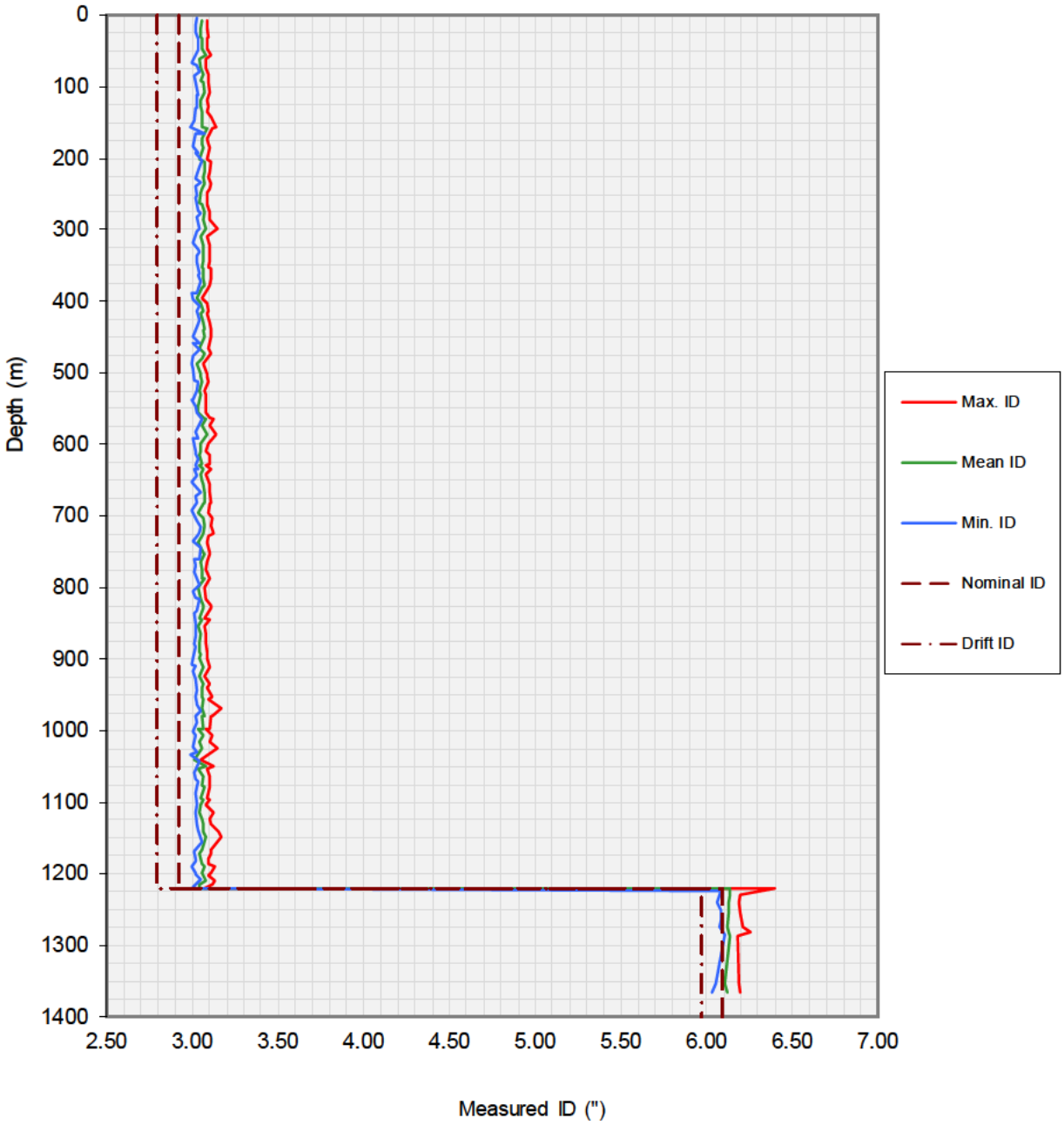
Max. Percentage Circumferential Wall Loss per Joint vs. Depth Plot



Measured ID per Joint vs. Depth Plot



Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
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Client: NAM
Well: ROW-4
Survey Date: 21st June 2021
Tubulars Surveyed: 3-1/2", 10.2 lb/ft — **Nom. ID: 2.922** — **Drift ID: 2.797** — **Nom. OD: 3.500**
7", 32 lb/ft — **Nom. ID: 6.094** — **Drift ID: 5.969** — **Nom. OD: 7.000**

Max. % Penetration	0 - 20%	20 - 40%	40 - 50%	50 - 100%
Max. % Circumferential Loss	0 - 10%	10-20 %	20 - 25 %	25 - 100 %

Ref.	Top (m)	Bottom (m)	Length (m)	Max. ID (")	Dep. Max. (m)	Max. Pen. (%)	Max. Loss (%)	Min. ID (")	Dep. Min. (m)	Mean ID (")	Tubular OD (")	Completion Item
1	4.24	12.87	8.63	3.090	7.85	29.1	22.2	3.026	4.47	3.054	3.500	
2	13.19	22.22	9.04	3.089	17.69	28.9	21.3	3.021	15.01	3.050	3.500	
3	22.54	30.73	8.20	3.091	30.51	29.2	24.3	3.016	22.57	3.052	3.500	
4	31.05	39.58	8.54	3.089	31.63	28.9	22.6	3.034	31.61	3.056	3.500	
5	39.89	48.42	8.53	3.085	46.98	28.2	22.6	3.034	39.90	3.057	3.500	
6	48.73	57.71	8.99	3.112	56.37	32.9	27.1	3.034	48.80	3.077	3.500	
7	58.02	66.54	8.52	3.081	61.45	27.5	21.0	2.999	66.37	3.043	3.500	
8	66.86	75.42	8.56	3.081	74.35	27.5	21.5	3.030	71.01	3.050	3.500	
9	75.70	83.82	8.12	3.094	83.51	29.8	24.1	3.039	79.18	3.063	3.500	
10	84.14	93.05	8.92	3.096	92.43	30.1	23.5	3.012	84.33	3.052	3.500	
11	93.36	101.80	8.44	3.094	94.10	29.8	25.1	3.025	101.80	3.063	3.500	
12	102.07	110.89	8.83	3.105	108.03	31.7	26.4	3.034	110.82	3.074	3.500	
13	111.20	120.28	9.08	3.090	118.58	29.1	22.3	3.025	111.56	3.052	3.500	
14	120.59	129.76	9.18	3.092	128.10	29.4	21.2	3.025	129.40	3.049	3.500	
15	130.08	138.57	8.49	3.086	135.35	28.4	22.7	3.017	130.08	3.057	3.500	
16	138.82	147.41	8.59	3.111	142.84	32.7	25.8	3.012	147.34	3.058	3.500	
17	147.68	156.32	8.64	3.137	156.26	37.2	24.0	2.990	156.25	3.054	3.500	
18	156.53	165.24	8.72	3.114	157.47	33.2	28.1	3.075	165.24	3.088	3.500	
19	165.49	173.89	8.39	3.090	172.14	29.1	24.2	3.021	165.84	3.056	3.500	
20	174.16	183.43	9.27	3.093	180.59	29.6	23.6	3.008	183.36	3.060	3.500	
21	183.74	192.77	9.03	3.103	185.70	31.3	25.3	3.035	192.77	3.068	3.500	
22	193.09	201.96	8.88	3.085	201.52	28.2	22.3	3.016	193.10	3.042	3.500	
23	202.27	211.55	9.28	3.106	204.27	31.8	25.3	3.057	202.31	3.074	3.500	
24	211.84	220.38	8.55	3.099	220.13	30.6	25.5	3.043	211.84	3.069	3.500	
25	220.68	228.58	7.90	3.094	225.66	29.8	24.5	3.016	228.51	3.062	3.500	
26	228.90	237.81	8.91	3.109	235.20	32.4	24.9	3.052	234.10	3.072	3.500	
27	238.05	246.87	8.83	3.099	243.12	30.6	23.8	3.021	238.20	3.057	3.500	
28	247.07	255.26	8.19	3.084	247.23	28.0	22.3	3.030	251.41	3.051	3.500	

Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
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Ref.	Top (m)	Bottom (m)	Length (m)	Max. ID (")	Dep. Max. (m)	Max. Pen. (%)	Max. Loss (%)	Min. ID (")	Dep. Min. (m)	Mean ID (")	Tubular OD (")	Completion Item
29	255.58	264.14	8.56	3.084	262.15	28.0	21.3	3.021	255.84	3.041	3.500	
30	264.39	273.33	8.94	3.089	264.55	28.9	22.7	3.034	273.17	3.054	3.500	
31	273.51	281.78	8.27	3.104	274.40	31.5	24.6	3.052	276.85	3.068	3.500	
32	282.02	290.53	8.51	3.105	285.31	31.7	24.5	3.030	282.61	3.065	3.500	
33	290.73	299.42	8.69	3.144	298.65	38.4	27.3	3.039	298.68	3.081	3.500	
34	299.64	308.72	9.08	3.087	308.69	28.5	21.6	3.026	301.51	3.048	3.500	
35	309.03	317.66	8.64	3.090	309.37	29.1	22.9	3.008	317.66	3.048	3.500	
36	317.98	326.57	8.60	3.100	320.90	30.8	23.4	3.034	326.51	3.063	3.500	
37	326.83	335.75	8.92	3.098	333.68	30.4	23.9	3.039	331.13	3.064	3.500	
38	336.06	344.36	8.31	3.100	344.16	30.8	23.9	3.026	336.38	3.064	3.500	
39	344.68	352.72	8.04	3.091	352.16	29.2	25.1	3.025	344.96	3.054	3.500	
40	353.03	361.84	8.81	3.109	354.45	32.4	24.4	3.039	361.84	3.067	3.500	
41	362.15	370.78	8.63	3.106	368.47	31.8	24.1	3.034	362.35	3.066	3.500	
42	371.09	379.36	8.27	3.100	376.75	30.8	24.4	3.048	371.96	3.068	3.500	
43	379.67	388.52	8.85	3.091	381.13	29.2	24.1	3.030	388.22	3.057	3.500	
44	388.77	396.75	7.98	3.057	396.19	23.4	17.9	2.994	388.79	3.023	3.500	
45	397.06	405.23	8.17	3.088	402.34	28.7	21.7	3.003	397.41	3.047	3.500	
46	405.55	413.59	8.05	3.096	412.72	30.1	24.6	3.040	405.57	3.065	3.500	
47	413.91	422.34	8.44	3.086	417.65	28.4	22.0	3.030	413.92	3.053	3.500	
48	422.65	431.09	8.44	3.098	429.72	30.4	23.9	3.044	426.22	3.064	3.500	
49	431.30	439.35	8.05	3.106	437.92	31.8	26.3	3.034	431.69	3.072	3.500	
50	439.66	448.91	9.25	3.108	440.56	32.2	24.8	3.007	448.90	3.061	3.500	
51	449.22	457.69	8.47	3.109	449.79	32.4	27.4	3.039	457.61	3.068	3.500	
52	458.01	466.89	8.88	3.091	466.19	29.2	23.9	3.003	458.02	3.039	3.500	
53	467.19	475.87	8.68	3.106	471.93	31.8	25.4	3.040	467.21	3.073	3.500	
54	476.18	484.60	8.42	3.090	479.69	29.1	23.0	3.008	476.19	3.057	3.500	
55	484.91	493.31	8.41	3.062	487.97	24.2	18.9	2.999	486.22	3.029	3.500	
56	493.64	502.63	9.00	3.088	501.96	28.7	22.6	3.004	493.68	3.052	3.500	
57	502.94	511.38	8.44	3.087	504.84	28.5	22.1	3.012	511.07	3.047	3.500	
58	511.58	519.89	8.31	3.096	512.34	30.1	24.6	3.034	511.60	3.059	3.500	
59	520.21	528.99	8.79	3.074	524.73	26.3	20.8	3.026	524.33	3.043	3.500	
60	529.19	537.58	8.39	3.081	529.84	27.5	23.0	3.005	537.58	3.051	3.500	
61	537.90	546.41	8.51	3.078	545.75	27.0	20.2	2.995	537.90	3.036	3.500	
62	546.72	555.50	8.78	3.078	555.45	27.0	19.3	3.016	547.08	3.035	3.500	
63	555.82	565.00	9.18	3.098	563.08	30.4	23.5	3.030	555.82	3.061	3.500	
64	565.16	573.40	8.24	3.123	565.21	34.8	26.3	3.057	565.16	3.078	3.500	

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Ref.	Top (m)	Bottom (m)	Length (m)	Max. ID (")	Dep. Max. (m)	Max. Pen. (%)	Max. Loss (%)	Min. ID (")	Dep. Min. (m)	Mean ID (")	Tubular OD (")	Completion Item
65	573.71	582.92	9.21	3.100	573.74	30.8	23.2	3.022	582.32	3.058	3.500	
66	583.23	591.87	8.64	3.139	585.44	37.5	27.8	3.034	591.83	3.083	3.500	
67	592.17	601.17	9.00	3.095	598.64	29.9	21.9	3.003	592.17	3.050	3.500	
68	601.48	610.37	8.89	3.077	609.48	26.8	21.6	3.021	609.77	3.047	3.500	
69	610.68	618.71	8.03	3.098	613.99	30.4	21.5	3.021	612.27	3.042	3.500	
70	619.03	628.12	9.09	3.100	628.03	30.8	23.6	3.034	619.79	3.057	3.500	
71	628.27	629.35	1.08	3.076	629.23	26.6	19.9	3.022	628.59	3.040	3.500	Pup joint
72	629.47	631.12	1.65	3.022	629.97	-	-	2.990	629.80	3.002	3.500	Flow coupling
73	631.24	631.76	0.52	3.157	631.30	-	-	2.901	631.65	2.955	3.500	Safety valve
74	631.86	633.53	1.67	3.034	632.37	-	-	2.985	632.88	2.997	3.500	Flow coupling
75	633.67	634.19	0.52	3.109	634.00	32.4	23.2	3.035	633.97	3.063	3.500	Pup joint
76	634.40	643.49	9.09	3.081	641.21	27.5	21.0	3.008	634.40	3.046	3.500	
77	643.81	652.90	9.09	3.093	649.90	29.6	22.9	3.027	643.97	3.058	3.500	
78	653.21	662.16	8.96	3.099	655.92	30.6	24.9	2.999	653.21	3.066	3.500	
79	662.47	671.59	9.13	3.102	666.51	31.1	24.8	3.049	666.86	3.070	3.500	
80	671.90	681.14	9.24	3.106	681.05	31.8	25.2	3.017	671.95	3.068	3.500	
81	681.45	690.03	8.58	3.104	682.95	31.5	24.3	3.026	681.54	3.068	3.500	
82	690.34	698.51	8.17	3.091	695.58	29.2	23.3	2.999	692.63	3.036	3.500	
83	698.71	706.81	8.10	3.113	703.01	33.0	24.3	3.025	706.77	3.061	3.500	
84	707.06	715.99	8.93	3.110	713.76	32.5	24.5	3.048	715.70	3.068	3.500	
85	716.27	725.47	9.21	3.121	723.55	34.4	24.3	3.043	721.66	3.065	3.500	
86	725.63	734.36	8.73	3.096	728.74	30.1	22.5	3.034	725.73	3.057	3.500	
87	734.67	742.97	8.30	3.089	736.10	28.9	19.8	3.007	735.65	3.038	3.500	
88	743.16	752.03	8.87	3.098	750.99	30.4	24.7	3.048	743.65	3.067	3.500	
89	752.17	760.59	8.42	3.102	753.88	31.1	26.0	3.039	760.59	3.070	3.500	
90	760.91	769.46	8.56	3.084	763.76	28.0	21.9	3.012	760.93	3.051	3.500	
91	769.77	778.32	8.55	3.080	775.39	27.3	23.3	3.017	769.78	3.057	3.500	
92	778.63	787.67	9.04	3.103	786.75	31.3	24.6	3.009	778.94	3.060	3.500	
93	787.88	797.07	9.20	3.105	787.92	31.7	25.6	3.043	796.81	3.068	3.500	
94	797.38	806.30	8.92	3.068	799.18	25.3	18.5	3.007	805.45	3.033	3.500	
95	806.56	815.67	9.11	3.080	815.32	27.3	21.5	3.017	814.90	3.051	3.500	
96	815.98	824.57	8.59	3.108	824.15	32.2	23.9	3.039	816.06	3.062	3.500	
97	824.87	833.96	9.09	3.108	829.45	32.2	23.9	3.030	831.28	3.066	3.500	
98	834.28	843.29	9.01	3.069	842.08	25.4	20.8	3.012	836.61	3.039	3.500	
99	843.52	852.21	8.69	3.098	845.49	30.4	22.5	3.021	850.81	3.055	3.500	
100	852.51	860.95	8.44	3.071	853.41	25.8	19.9	3.016	852.62	3.037	3.500	
101	861.21	870.37	9.16	3.080	864.84	27.3	21.2	3.021	868.23	3.047	3.500	
102	870.69	879.90	9.22	3.082	876.81	27.7	20.4	3.013	878.07	3.044	3.500	
103	880.22	889.34	9.12	3.088	888.91	28.7	22.3	3.017	882.39	3.044	3.500	
104	889.66	898.62	8.96	3.089	892.63	28.9	21.4	3.008	898.01	3.047	3.500	
105	898.87	908.11	9.24	3.088	899.32	28.7	21.3	2.994	908.04	3.043	3.500	

Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
Survey Date:	21/06/2020	Survey	MFC-24 Extended	Job ID:	DAC710

EXPRO

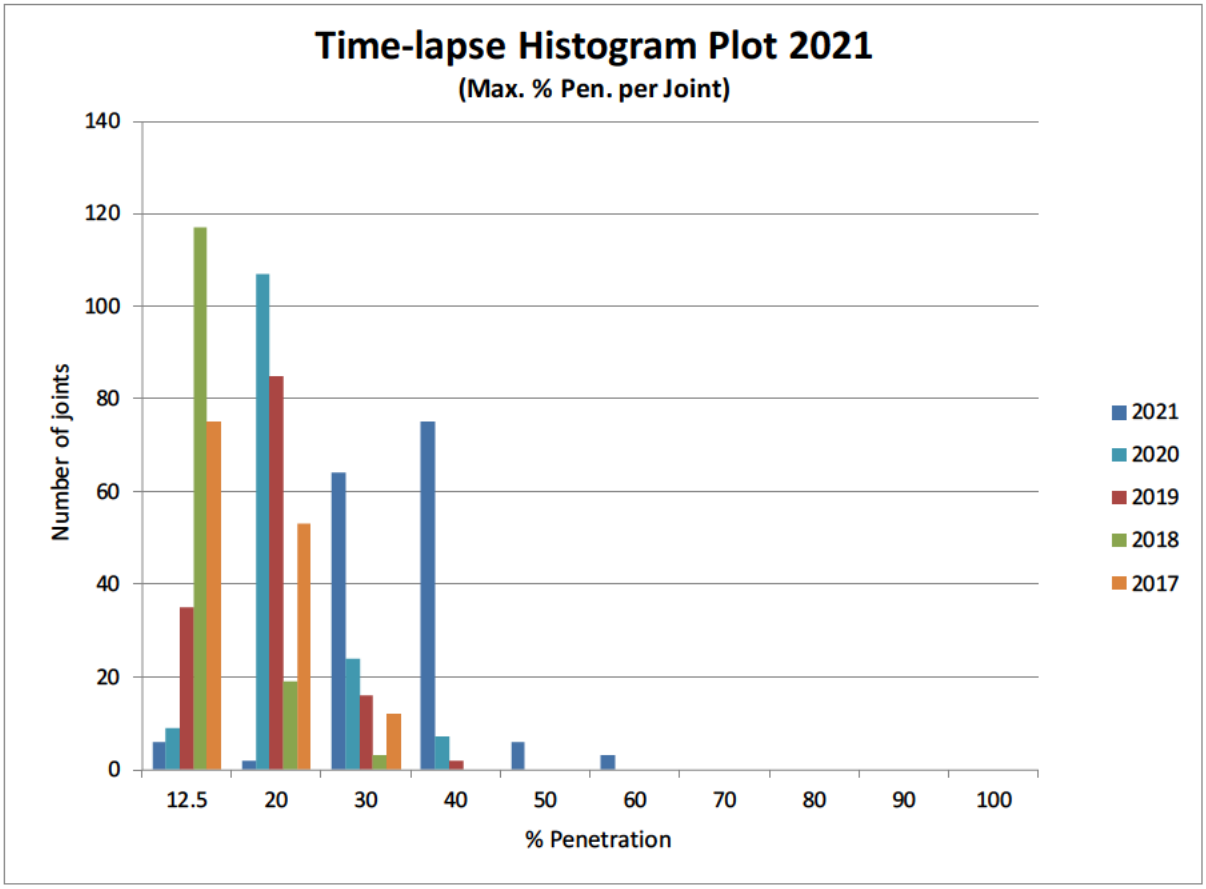
Ref.	Top (m)	Bottom (m)	Length (m)	Max. ID (")	Dep. Max. (m)	Max. Pen. (%)	Max. Loss (%)	Min. ID (")	Dep. Min. (m)	Mean ID (")	Tubular OD (")	Completion Item
106	908.34	917.31	8.98	3.099	911.27	30.6	23.6	3.021	908.70	3.062	3.500	
107	917.51	925.96	8.45	3.075	923.39	26.5	20.5	3.003	917.51	3.038	3.500	
108	926.24	935.47	9.23	3.100	934.46	30.8	24.6	3.021	926.64	3.062	3.500	
109	935.60	943.86	8.26	3.088	939.12	28.7	23.6	3.030	943.78	3.058	3.500	
110	944.11	953.32	9.21	3.116	952.69	33.6	23.3	3.017	953.23	3.059	3.500	
111	953.56	962.75	9.19	3.093	956.42	29.6	23.7	3.025	962.22	3.061	3.500	
112	963.05	971.27	8.22	3.167	968.01	42.4	23.4	3.030	963.66	3.058	3.500	
113	971.58	979.82	8.24	3.115	979.54	33.4	24.9	3.052	972.24	3.071	3.500	
114	979.94	988.48	8.55	3.112	979.97	32.9	23.7	3.016	979.99	3.057	3.500	
115	988.79	997.02	8.24	3.098	996.73	30.4	24.6	3.026	989.30	3.062	3.500	
116	997.34	1005.76	8.43	3.077	997.80	26.8	20.6	3.007	1000.53	3.032	3.500	
117	1006.05	1014.70	8.65	3.116	1006.19	33.6	24.4	3.021	1006.22	3.062	3.500	
118	1015.01	1023.63	8.62	3.101	1015.89	31.0	23.3	3.008	1022.75	3.040	3.500	
119	1023.86	1032.69	8.83	3.147	1023.91	38.9	23.9	3.030	1029.42	3.056	3.500	
120	1033.01	1041.68	8.67	3.048	1041.17	21.8	16.9	2.990	1034.02	3.015	3.500	
121	1041.93	1050.91	8.98	3.126	1050.07	35.3	26.8	3.043	1042.22	3.081	3.500	
122	1051.04	1059.37	8.32	3.088	1052.36	28.7	20.2	3.012	1059.36	3.037	3.500	
123	1059.68	1068.33	8.66	3.102	1063.61	31.1	23.9	3.021	1067.96	3.061	3.500	
124	1068.64	1077.24	8.61	3.105	1076.44	31.7	23.2	3.034	1071.65	3.058	3.500	
125	1077.54	1086.77	9.23	3.103	1078.93	31.3	24.8	3.028	1077.68	3.068	3.500	
126	1087.08	1095.40	8.32	3.089	1094.53	28.9	23.3	3.021	1087.56	3.052	3.500	
127	1095.58	1103.42	7.85	3.100	1095.87	30.8	25.8	3.030	1102.37	3.060	3.500	
128	1103.65	1111.79	8.14	3.082	1104.13	27.7	23.4	3.025	1104.37	3.050	3.500	
129	1112.10	1121.45	9.35	3.121	1114.63	34.4	20.3	3.016	1114.60	3.042	3.500	
130	1121.65	1130.06	8.41	3.100	1123.14	30.8	22.6	3.027	1129.67	3.057	3.500	
131	1130.37	1139.46	9.09	3.109	1131.00	32.4	24.0	3.034	1139.37	3.066	3.500	
132	1139.73	1148.52	8.79	3.157	1141.26	40.7	24.4	3.035	1139.80	3.066	3.500	
133	1148.70	1157.99	9.30	3.169	1148.96	42.7	28.5	3.057	1156.49	3.081	3.500	
134	1158.29	1167.39	9.10	3.109	1166.26	32.4	23.0	3.012	1167.39	3.057	3.500	
135	1167.64	1176.89	9.25	3.112	1171.05	32.9	20.0	3.012	1169.64	3.041	3.500	
136	1177.20	1181.76	4.56	3.094	1178.31	29.8	20.7	3.017	1178.31	3.046	3.500	Pup joint
137	1181.84	1182.70	0.86	3.254	1182.04	-	-	2.901	1181.97	3.019	3.500	SLSD
138	1182.82	1187.32	4.50	3.093	1186.63	29.6	23.8	3.021	1182.97	3.053	3.500	Pup joint
139	1187.42	1189.18	1.76	4.895	1188.56	-	-	3.012	1189.10	3.473	3.500	SPM
140	1189.26	1193.88	4.62	3.130	1189.45	36.0	27.4	2.998	1189.43	3.069	3.500	Pup joint
141	1193.98	1198.64	4.67	3.111	1197.97	32.7	25.7	3.022	1198.13	3.056	3.500	Pup joint
142	1198.77	1200.46	1.69	5.138	1199.88	-	-	3.033	1198.88	3.540	3.500	SPM
143	1200.56	1205.17	4.61	3.097	1202.53	30.3	25.4	3.017	1200.56	3.067	3.500	Pup joint
144	1205.21	1205.51	0.30	3.179	1205.32	-	-	2.919	1205.39	2.992	3.500	Nipple
145	1205.58	1210.36	4.78	3.133	1210.23	36.5	26.9	3.048	1207.71	3.079	3.500	Pup joint
146	1210.54	1214.62	4.08	4.425	1214.55	-	-	3.030	1214.62	3.856	3.500	Anchor / packer assembly

Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
Survey Date:	21/06/2020	Survey	MFC-24 Extended	Job ID:	DAC710

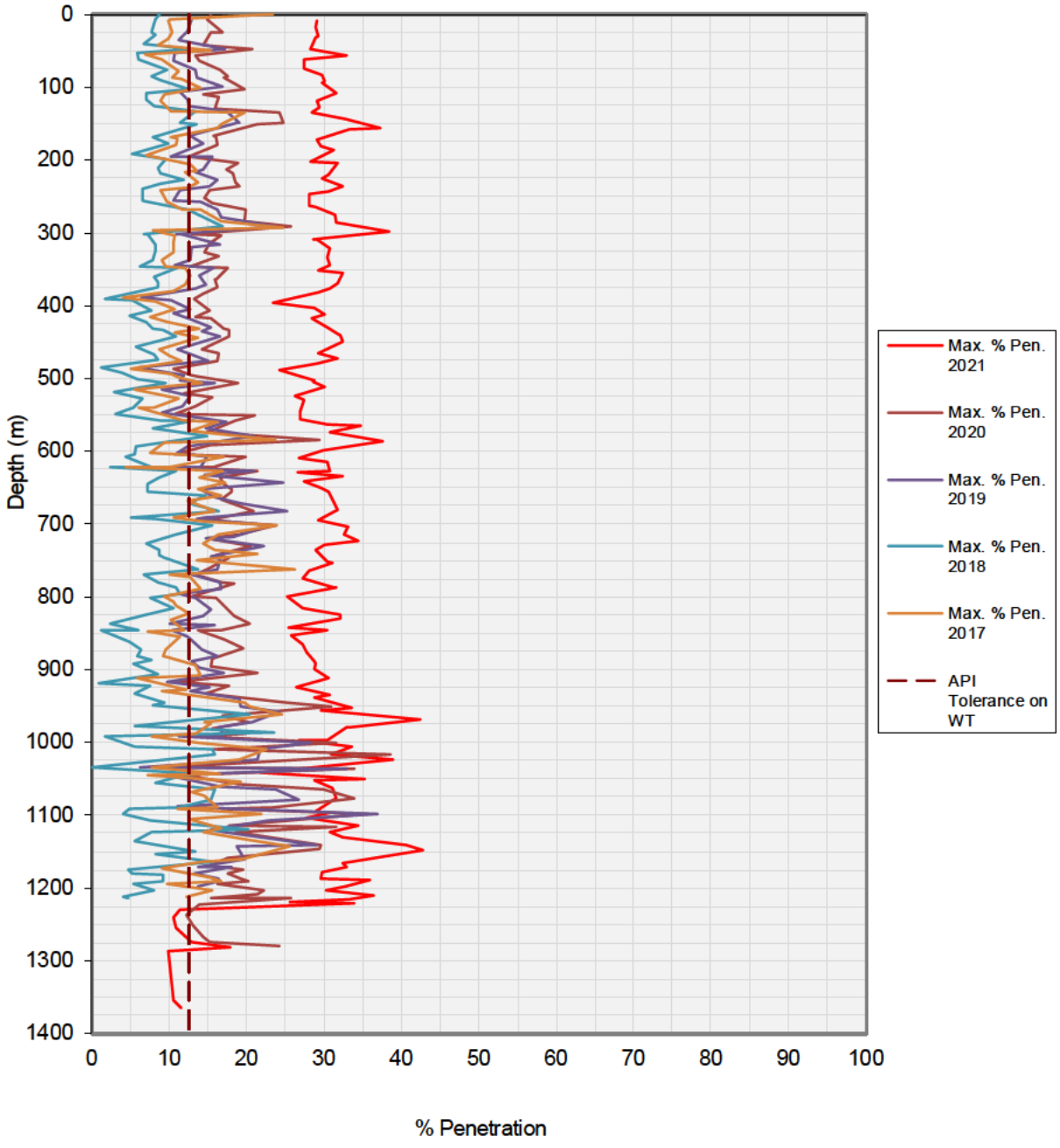
EXPRO

Ref.	Top (m)	Bottom (m)	Length (m)	Max. ID (")	Dep. Max. (m)	Max. Pen. (%)	Max. Loss (%)	Min. ID (")	Dep. Min. (m)	Mean ID (")	Tubular OD (")	Completion Item
147	1214.75	1219.54	4.79	3.114	1215.41	33.2	20.8	3.008	1219.09	3.041	3.500	Pup joint
148	1219.64	1220.29	0.65	3.070	1220.03	25.6	21.2	3.022	1220.11	3.041	3.500	Pup joint
149	1220.44	1220.90	0.46	3.166	1220.53	-	-	2.878	1220.85	2.947	3.500	Nipple
150	1220.94	1221.06	0.13	6.188	1221.06	-	-	2.979	1220.94	4.126	3.500	WEG
151	1221.12	1228.83	7.71	6.401	1221.17	33.9	10.0	6.084	1224.72	6.135	7.000	Partially exposed joint
152	1229.05	1240.06	11.01	6.197	1229.64	11.4	6.8	6.059	1239.82	6.134	7.000	
153	1240.44	1251.75	11.31	6.189	1240.61	10.5	5.0	6.084	1250.85	6.127	7.000	
154	1252.16	1262.52	10.36	6.193	1255.04	10.9	6.6	6.084	1255.31	6.129	7.000	
155	1262.97	1274.40	11.43	6.211	1274.35	12.9	4.5	6.084	1264.81	6.120	7.000	
156	1274.68	1284.87	10.19	6.256	1282.01	17.9	6.0	6.075	1274.85	6.126	7.000	
157	1285.24	1296.89	11.65	6.184	1286.31	9.9	6.3	6.105	1285.38	6.138	7.000	
158	1297.23	1307.53	10.30	6.600	1303.24	-	-	6.003	1304.07	6.115	7.000	Perforated joint
159	1307.90	1319.45	11.55	6.535	1309.56	-	-	5.960	1315.56	6.109	7.000	Perforated joint
160	1319.72	1331.22	11.50	6.558	1320.57	-	-	5.999	1326.90	6.120	7.000	Perforated joint
161	1331.47	1342.88	11.42	6.502	1333.99	-	-	6.012	1332.31	6.107	7.000	Perforated joint
162	1343.22	1354.69	11.48	6.189	1354.04	10.5	3.6	6.054	1353.82	6.109	7.000	
163	1354.97	1366.67	11.70	6.199	1365.68	11.6	4.0	6.035	1365.42	6.118	7.000	
164	1367.01	1379.05	12.04	6.553	1372.98	-	-	6.063	1367.06	6.155	7.000	Perforated joint
165	1379.25	1391.68	12.43	6.531	1385.20	-	-	6.004	1379.43	6.121	7.000	Perforated joint
166	1391.95	1402.64	10.69	6.454	1400.40	-	-	6.005	1392.15	6.123	7.000	Perforated joint

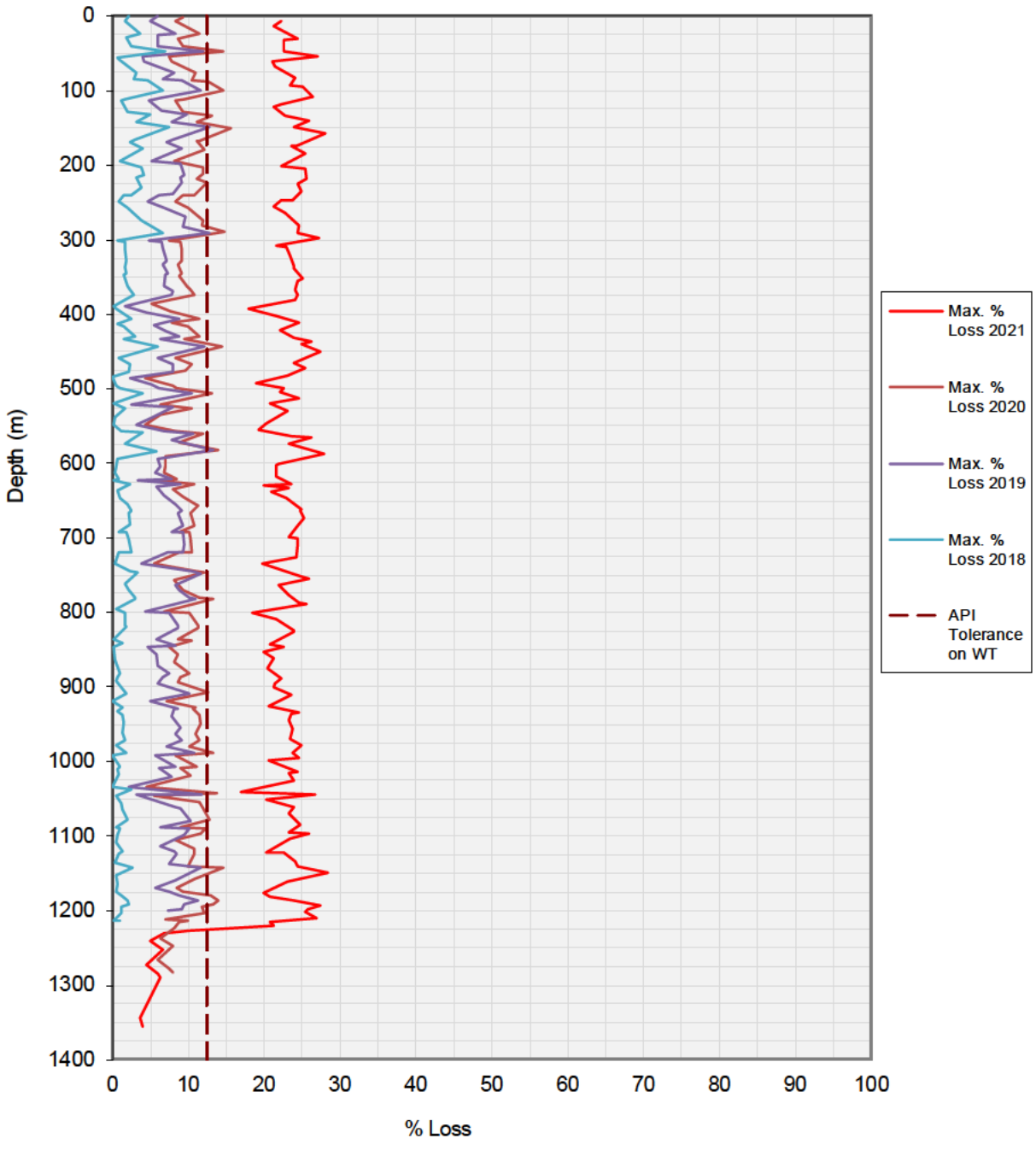
Total number of joints logged: 156					
6	Joints with Max. % Penetrations Between	0	and	13	%
2	Joints with Max. % Penetrations Between	12.5	and	20	%
64	Joints with Max. % Penetrations Between	20	and	30	%
75	Joints with Max. % Penetrations Between	30	and	40	%
6	Joints with Max. % Penetrations Between	40	and	50	%
3	Joints with Max. % Penetrations Between	50	and	60	%
0	Joints with Max. % Penetrations Between	60	and	70	%
0	Joints with Max. % Penetrations Between	70	and	80	%
0	Joints with Max. % Penetrations Between	80	and	90	%
0	Joints with Max. % Penetrations Between	90	and	100	%



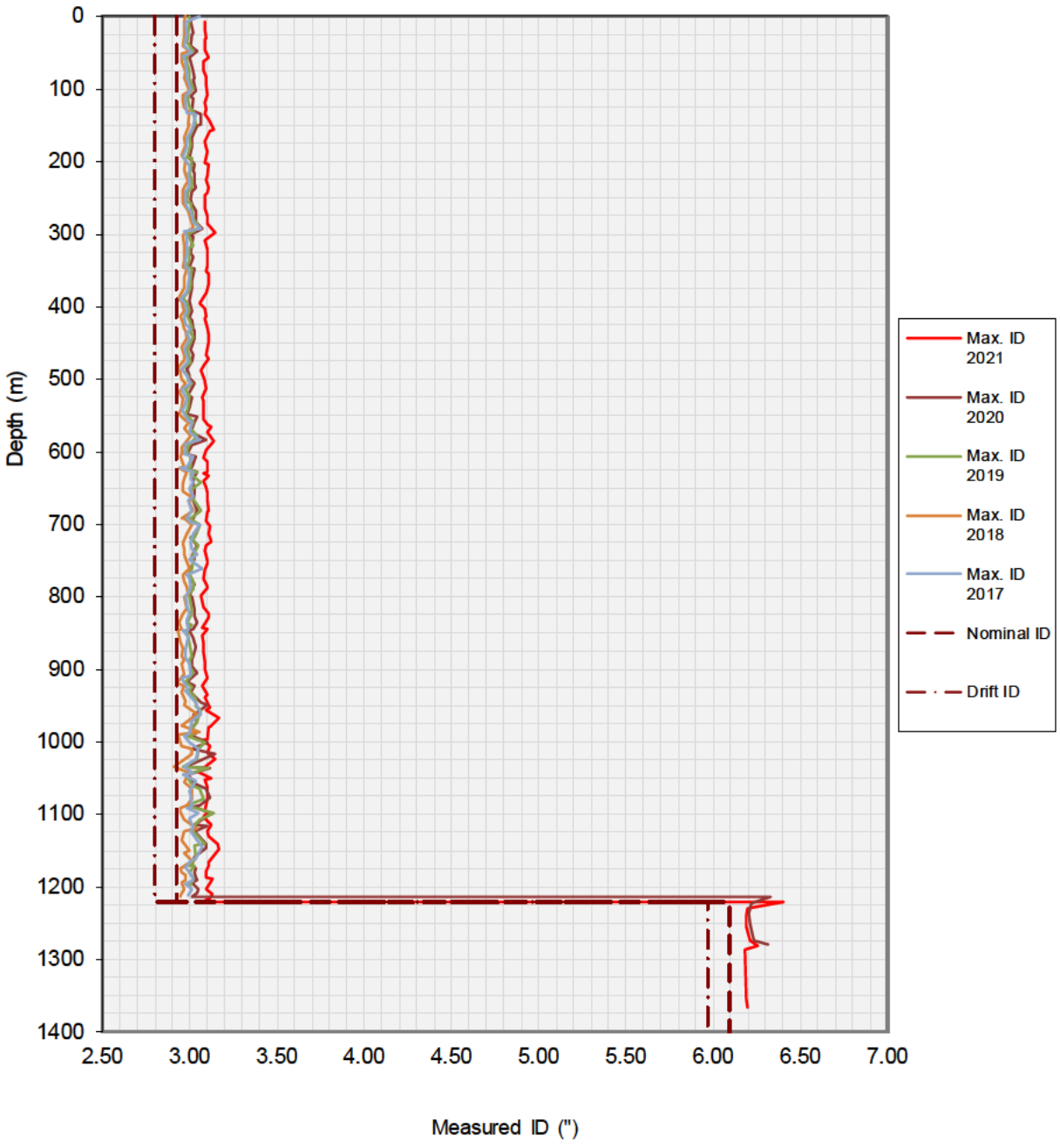
Time-lapse Max. Percentage Penetration per Joint vs. Depth Plot



Max. Percentage Circumferential Wall Loss per Joint vs. Depth Plot



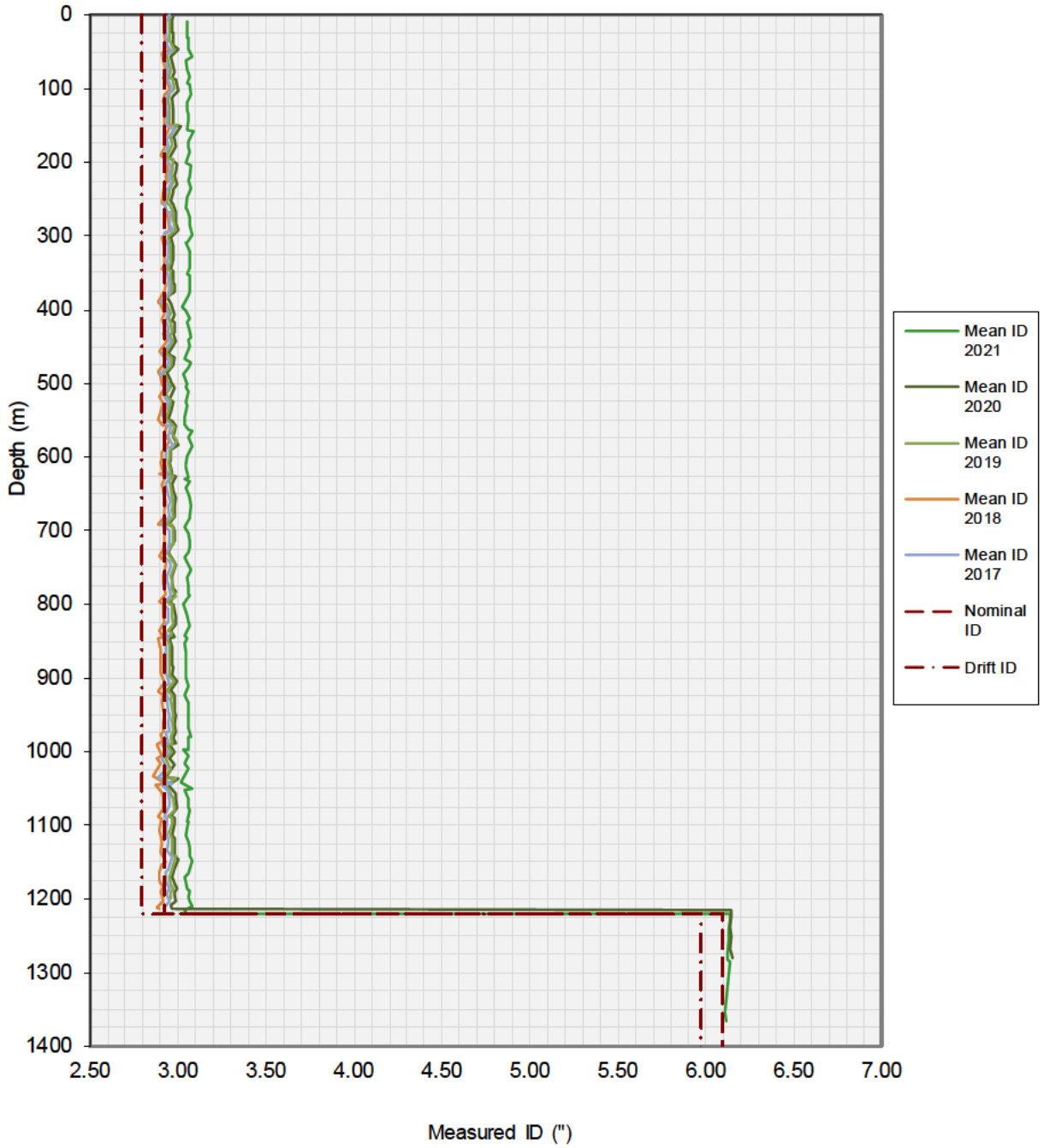
Time-lapse Maximum ID per Joint vs. Depth Plot



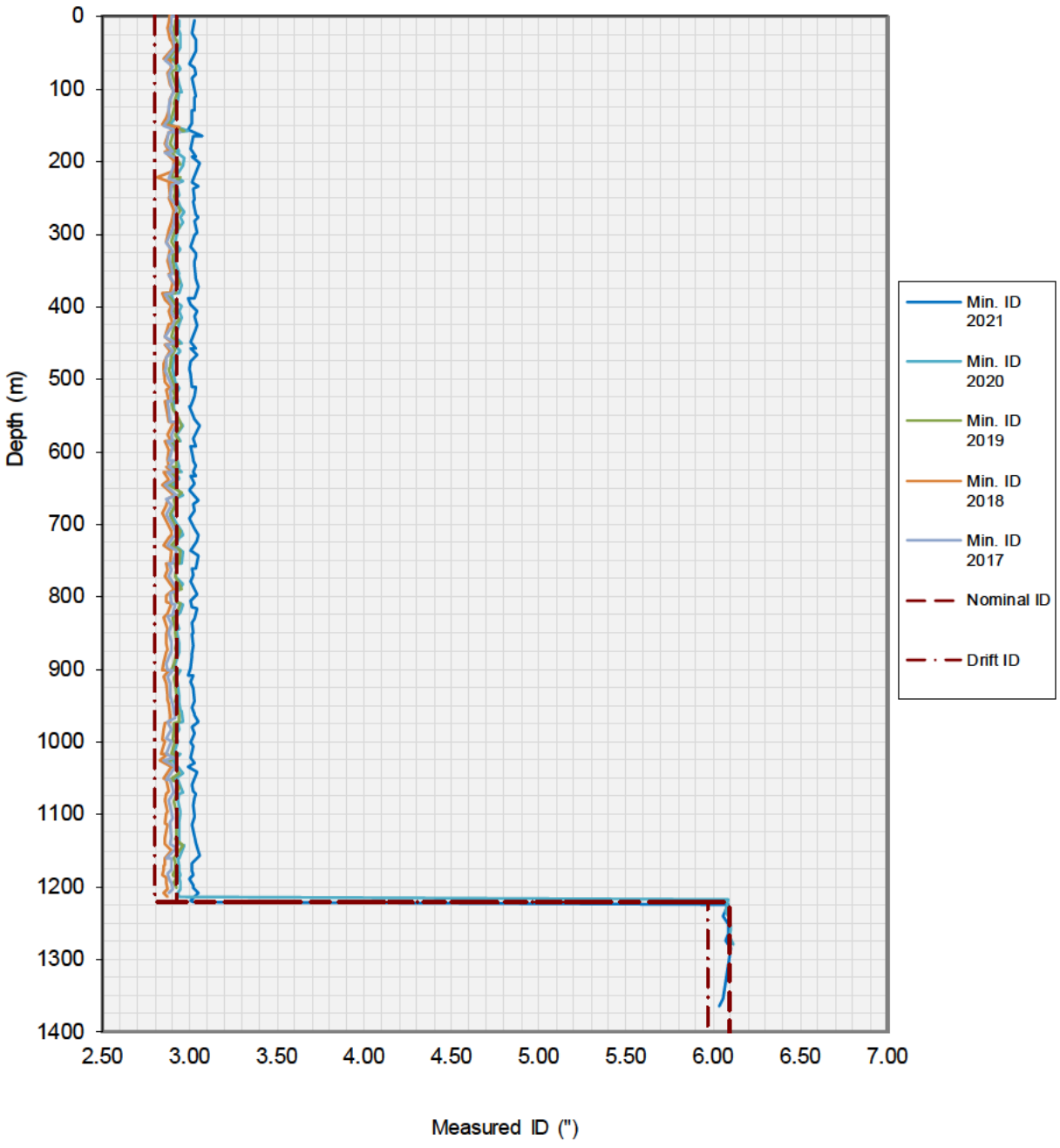
Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
Survey Date:	21/06/2020	Survey	MFC-24 Extended	Job ID:	DAC710

EXPRO

Time-lapse Mean ID per Joint vs. Depth Plot



Time-lapse Minimum ID per Joint vs. Depth Plot



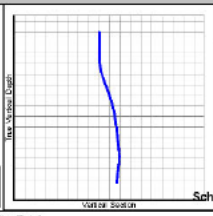
5. Well & Survey Information

ROW- 4

UWI: 110000740764
Site: ROSSUM-WEERSELO-3
Well Type: Development
Completion Type: Single
Well Fluid Type: Water
Lift Type: No artificial lift
Original Spud Date: 20/04/1971
Kick Off Date: 20/04/1971
H2S Present: Y
For more info see OpenWells/iWellfile
All depths Top unless followed by "b" indicating Base

Common Wellbore Name: ROW- 4
MD KO: 0.00m
TVD KO: 0.00m
MD Bottom Hole: 2,193.00m
Reason:
Tree Cap Connection: 6.875" 4G ACME
Working Press: 344.7372bar
Event Start: 20/04/2021
End Date: 23/04/2021

Lat: 52° 21' 5.286 Nong: 6° 54' 35.349 E
North: 485,817.05m East: 258,692.37m



Wellhead Make: Cameron

Component Ref	Install Date	Removal Date
STAN	04/03/1987 04/03/1987	

MAASP A: 192.0000bar MAASP B: 13.0000bar
MAASP C: 4.8000bar MAASP D:
Ground Level: 25.88m
Max Dev: 21.78° Max Dogleg: 1.69°/10m
Schematic RDL: DFE @ 31.72m (Drill Floor Elevation)(default)

Casing Scheme

Description	Top(m)	MD(m)	TVD(m)
	7.12	23.22	23.22
	8.62	265.24	256.21
	8.62	817.00	796.16
	5.89	1,452.00	1,413.95

Hole Section Details

Description	Top MD(m)	Base MD(m)	Date
18.5	23.22	257.00	21/04/1971
12.25	257.00	819.00	02/05/1971
8.5	819.00	2,193.00	21/05/1971

Tubing Data

Description

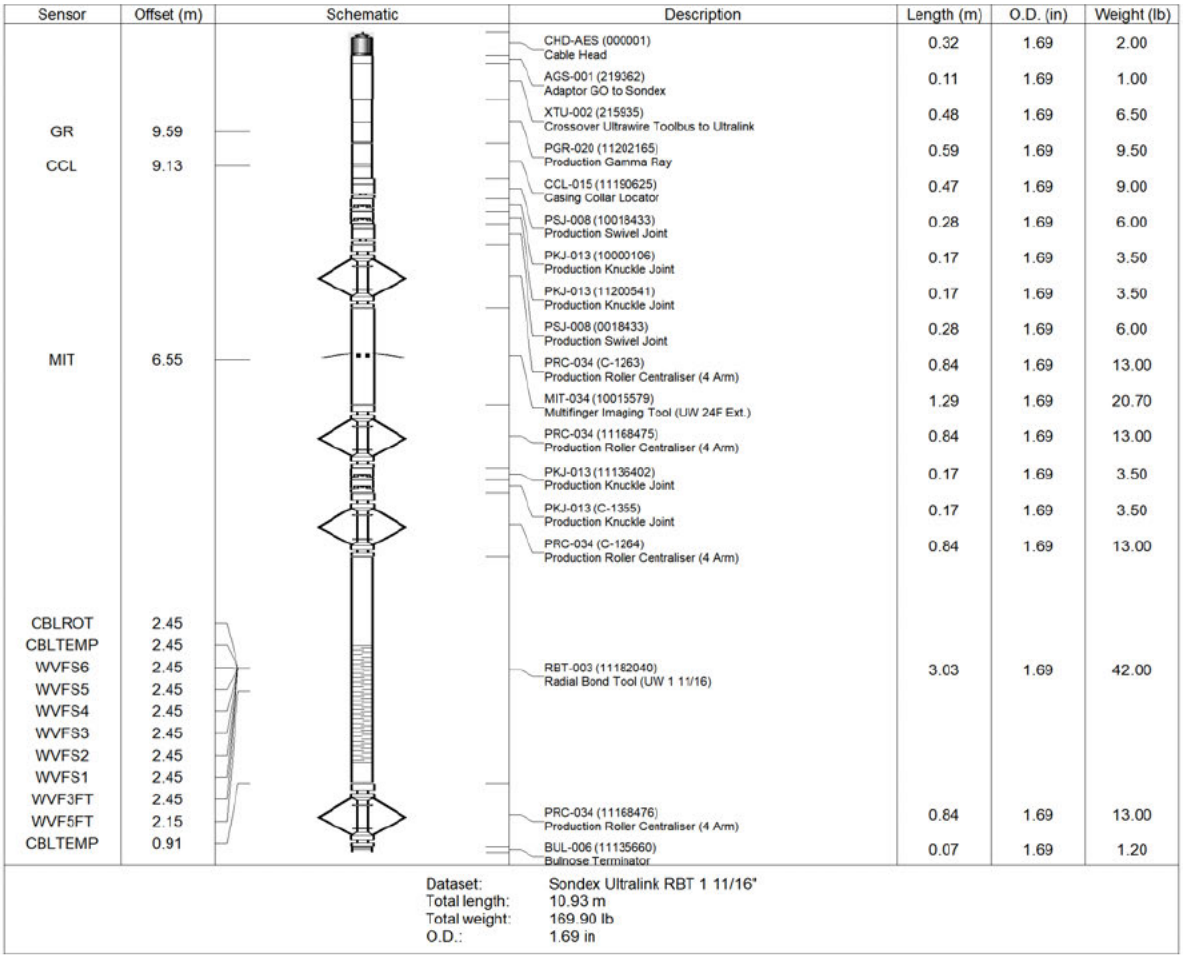
MD (m)	TVD (m)	Dev (°)	Schematic	min ID (in)	max OD (in)	Drift (in)	Length (m)	Description	Comments	HUD / Retrievables
4.27	4.27	0.01		2.875	6.812		0.560	LDO TENTION TBG HGR, 2.87" S4-PROFILE, 3.1/2" - 10.2# VAM, 5.0" RAMS, CL, H1U		
4.27	4.27							TOC, Casing		
4.28	4.28	0.01		1.750	2.874	0.000	0.010	WLLM, 2.87,KAMPEN,SX,5000/5000,STD	WLLM,2.87,KAMPEN,SX, 5000/5000,STD	
4.29	4.29	0.01		0.000	2.680	0.000	0.010	WLSF,2.750,17-BPV-0068-ISLB,BPV,9600,H2S,N, 6 x 2mm EQ holes	WLSF,2.750,17-BPV-0068-ISLB,BPV,9600, H2S,N	
5.89	5.89							TOC, Casing		
5.89	5.89	0.01						CAN3 OA 7.0" CSNG x 11.0" CSG,BOWL		
6.62	6.62							TOC, Casing		
6.62	6.62							TOC, Casing		
6.62	6.62	0.01						CAN3 OA 9.5/8" CSNG x 12.5/8" CSG,BOWL		
23.22b	23.22b	0.04						CONDUCTOR SHOE, 24.0" x 0.5" WT		
51.69	51.69							CSGO 13.3/8" - 72.0# BTC x 13.3/8" - 68.0# STC, K55		
255.24b	255.21b	1.24						FLOAT SHOE, 13.3/8" - 68.0# STC, K55		
270.02	269.99							TOC, Casing		
629.42	623.32	20.05		2.812	3.980		1.820	FLCP, 3.1/2" - 10.2# VAM, 9CrMo		
631.25	625.08	21.02		1.750	2.750	0.000	0.010	WLLM, 2.75,910X00750S,X,5000/9900, H2S	WLLM,2.75,910X00750S,X,5000/9900, H2S	
631.29	625.04	21.02		1.500	2.730	0.000	0.010	WLSF,2.75,22-FXE-22502,FXE,10K,2300FT,STD,E, + O-RINGS, DPD4130, FULL@150, CL=45 bar	WLSF,2.75,22-FXE-22502, FXE,10K,2300FT,STD,E	
631.34	625.09	21.02		2.750	3.980		0.810	LNBV, 2.750" XXO-PROFILE, 3.1/2" - 10.2# VAM, 9CrMo		
631.85	625.59	21.04		2.812	3.980		1.830	FLCP, 3.1/2" - 10.2# VAM, 9CrMo		
710.02	698.52							TOC, Casing		
817.000	798.18b	20.73						FLOAT SHOE, 9.5/8" - 43.5#/53.5# LTC, N80		
1,181.84	1148.99	11.49		2.750	3.500		1.080	SLSD,2.75" XA-PROFILE, 3.1/2" - 10.2# VAM, 9CrMo, SHIFT UP TO OPEN		
1,187.29	1152.33	11.37		2.875	5.313		1.980	SPMA,3.1/2" - 10.2# VAM, KBUG, SOUR, 4130, BxB		
1,187.39	1152.43	11.37					0.500	Camco Dummy Valve E, 1 inch		
1,198.66	1163.49	11.04		2.875	5.313		1.960	SPMA,3.1/2" - 10.2# VAM, KBUG, SOUR, 4130		
1,198.76	1163.59	11.03					0.500	Camco Dummy Valve E, 1 inch		
1,205.25	1169.96	10.90		2.750	3.980		0.920	LN, 2.750" X-PROFILE, 3.1/2" - 10.2# VAM, 9CrMo		
1,210.41	1175.03	10.80		3.250	4.750		1.040	ANCHOR SEAL, SNAT, 80DA40, KBH-22, 3.1/2" - 10.2# VAM, BU, 4140		
1,210.85	1175.46	10.79		3.250	5.468		1.460	PACKER 7.0", 62DNB40, 5.0" - 15.0# VAM, BD, 4140		
1,214.53	1179.07			2.921	5.563		0.220	TGCO 5.0" - 15.0# VAM x 3.1/2" - 10.2# VAM		
1,219.00	1184.06	10.62		2.812	3.980		0.830	FLCP, 3.1/2" - 10.2# VAM, 9CrMo		
1,220.43	1184.87	10.61		2.750	3.980		0.920	LN, 2.750" X-PROFILE, 3.1/2" - 10.2# VAM, 9CrMo		
1,221.05b	1185.48b	10.60		2.750	3.917		0.300	ENTRY GUIDE 2.75", 3.1/2" - 10.2# VAM, 9CrMo		
1,408.00	1400.06							TOC, Plug		1,410.62m, H, 2.75" dummy + baker, 1,410.62m, H, 2.75" dummy, 1,410.62m, H, C-SPG, ref. X-ln @ 1214m (TBF), 1,410.62m, H, top X-1, 1,410.62m, H, top X-1 op 1212 min, 1,410.62m, H, 1,410.62m, H, 1,411.62m, H, 1,411.62m, H, Ref. X-LN at 1213 min, 1,411.62m, H, 1,411.62m, H, Ref. to X-LN at 1213 min, 1,411.62m, H, ref. X-ln @ 1213.8m, 1,411.62m, H, 2.75" dummy, ref. X-LN @ 1214m (TBF), 1,411.62m, H, 2.75" dummy, C-SPG combined = Caliper survey, ref. X-ln @ 1214m (TBF), 1,412.62m, H, Performed SPTG run, 1,412.62m, H, 2.75" dummy, ill HUD, 1,412.62m, H, 2.75" dummy, ref. X-LN @ 1214m (TBF), 1,412.62m, H, 2.75" dummy, ref. X-LN @ 1214m (TBF), 1,412.62m, H, 1,414.62m, H, Counter depth, 1,416.62m, H,
1,902.00b	1412.90b	6.75						FLOAT SHOE, 7.0" - 32.0# VAM, C75		
1,462.00	1423.88							TOC, Plug		
1,600.00	1560.71							TOC, Plug		
1,900.00	1859.85							TOC, Plug		
2,193.00	2,150.33							WELL TD		

Current User:
Date Generated: 03/05/2021
Data QA/QC'd by:
Date QA/QC'd:

Notes:

CSWI v3.0

Client:	NAM	Well No.:	ROW-4	Field:	ROSSUM-WEERSELO
Survey Date:	21/06/2020	Survey	MFC-24 Extended	Job ID:	DAC710



Sensor	Offset (m)	Description	Length (m)	O.D. (in)	Weight (lb)
		CHD-AES (000001) Cable Head	0.32	1.69	2.00
		AGS-001 (219362) Adaptor GO to Sondex	0.11	1.69	1.00
		XTU-002 (215935) Crossover Ultrawire Toolbus to Ultralink	0.48	1.69	6.50
GR	9.59	PGR-020 (11202165) Production Gamma Ray	0.59	1.69	9.50
CCL	9.13	CCL-015 (11190625) Casing Collar Locator	0.47	1.69	9.00
		PSJ-008 (10018433) Production Swivel Joint	0.28	1.69	6.00
		PKJ-013 (10000106) Production Knuckle Joint	0.17	1.69	3.50
		PKJ-013 (11200541) Production Knuckle Joint	0.17	1.69	3.50
		PSJ-008 (0018433) Production Swivel Joint	0.28	1.69	6.00
MIT	6.55	PRC-034 (C-1263) Production Roller Centraliser (4 Arm)	0.84	1.69	13.00
		MIT-034 (10015579) Multifinger Imaging Tool (UW 24F Ext.)	1.29	1.69	20.70
		PRC-034 (11168475) Production Roller Centraliser (4 Arm)	0.84	1.69	13.00
		PKJ-013 (11136402) Production Knuckle Joint	0.17	1.69	3.50
		PKJ-013 (C-1355) Production Knuckle Joint	0.17	1.69	3.50
		PRC-034 (C-1264) Production Roller Centraliser (4 Arm)	0.84	1.69	13.00
CBLROT	2.45				
CBLTEMP	2.45				
WVFS6	2.45	RBT-003 (11182040) Radial Bond Tool (UW 1 11/16)	3.03	1.69	42.00
WVFS5	2.45				
WVFS4	2.45				
WVFS3	2.45				
WVFS2	2.45				
WVFS1	2.45				
WVF3FT	2.45				
WVF5FT	2.15	PRC-034 (11168476) Production Roller Centraliser (4 Arm)	0.84	1.69	13.00
CBLTEMP	0.91	BUL-006 (11135660) Bullnose Terminator	0.07	1.69	1.20

Dataset: Sondex Ultralink RBT 1 11/16"
Total length: 10.93 m
Total weight: 169.90 lb
O.D.: 1.69 in