

Innovative Solutions for Non Intrusive Inspecting of Insulated Objects

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Applus RTD

Applus⁺ **RTD**



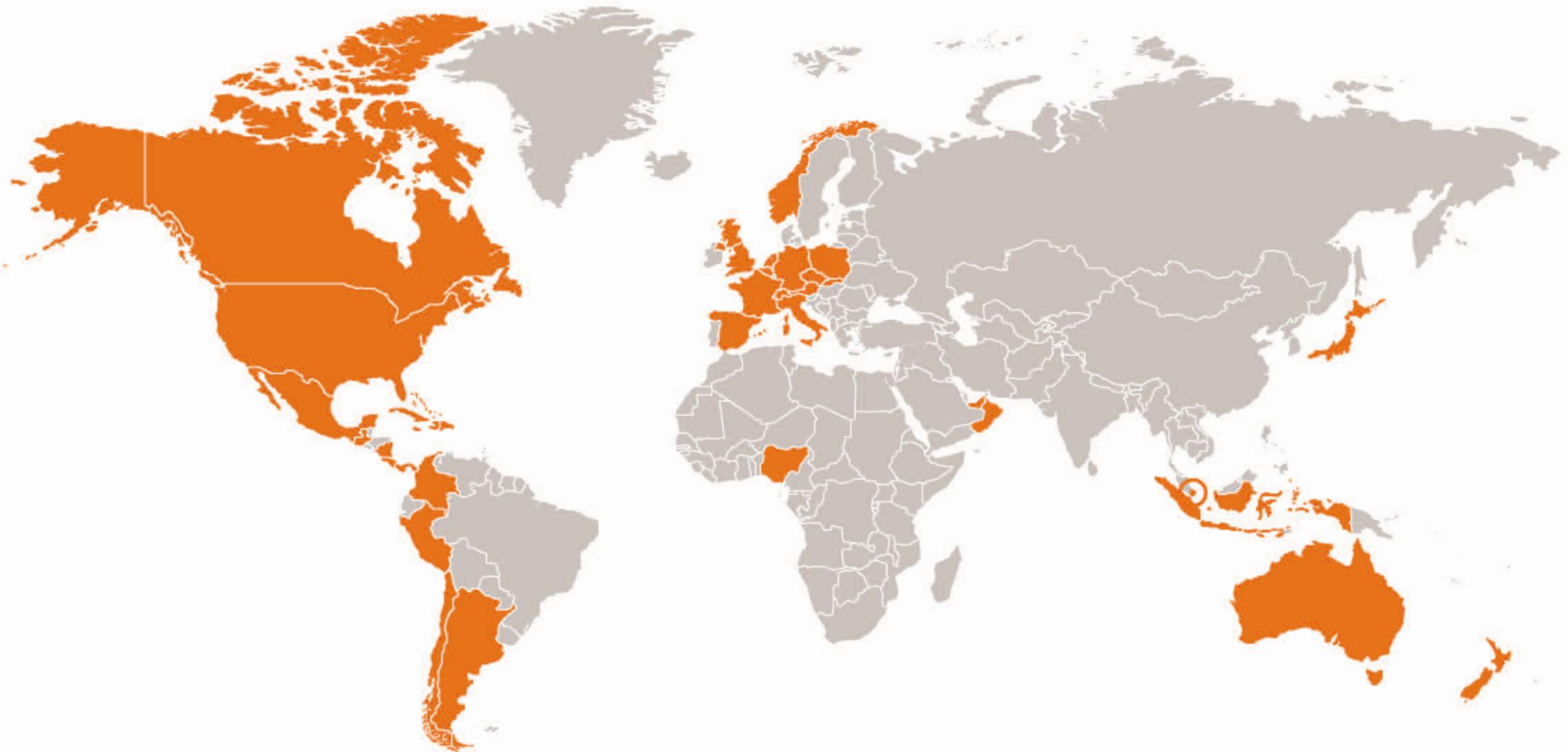
- ⊕ Introduction Applus RTD
- ⊕ Non Intrusive Inspection
- ⊕ Principle of RTD-INCOTEST[®]
- ⊕ Top 5 Applications

- ⊕ RTD was Founded in 1937 in the Netherlands
- ⊕ Part of the Applus Group in 2006
- ⊕ Specialized in Non-Destructive Testing (NDT) and Inspection Solutions



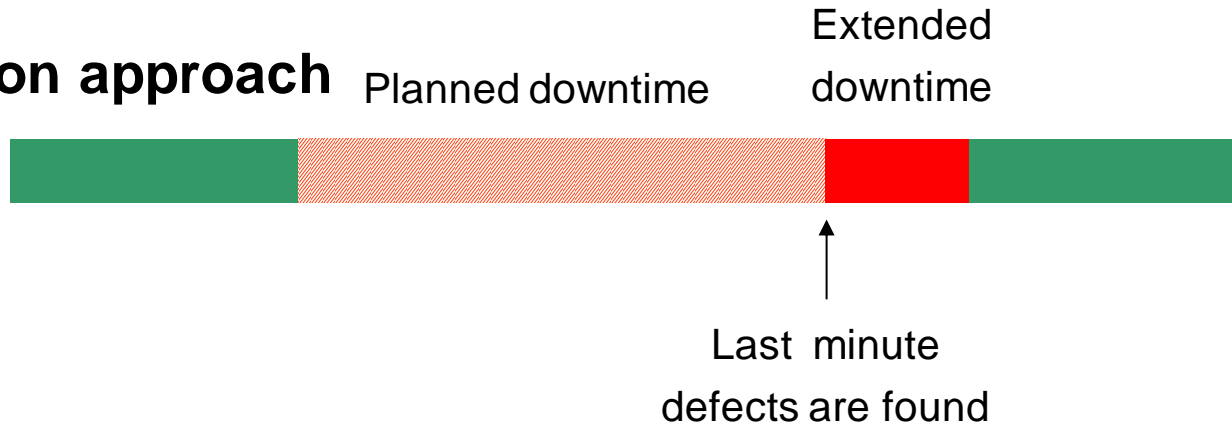
Applus RTD Group worldwide locations

Applus RTD has offices in 32 countries

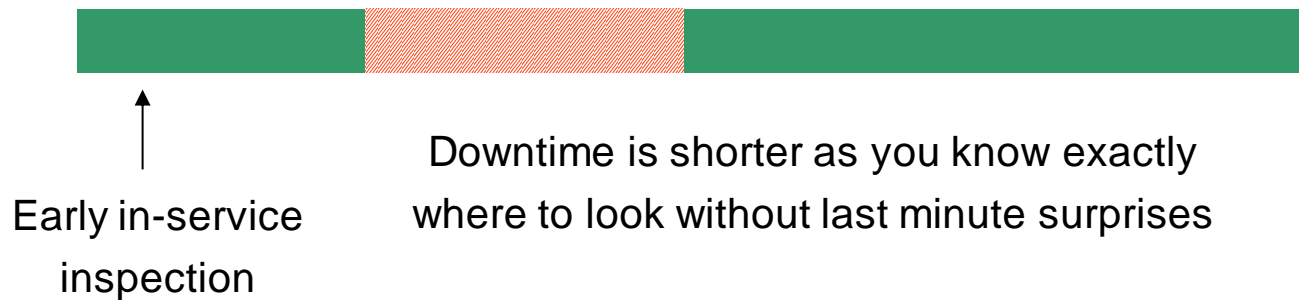


- ⊕ Examine installation parts whenever you want while in-service
- ⊕ No unnecessary destruction of insulation or other
- ⊕ Status on interior/exterior of equipment
- ⊕ Know what is happening before a maintenance shutdown

Common approach

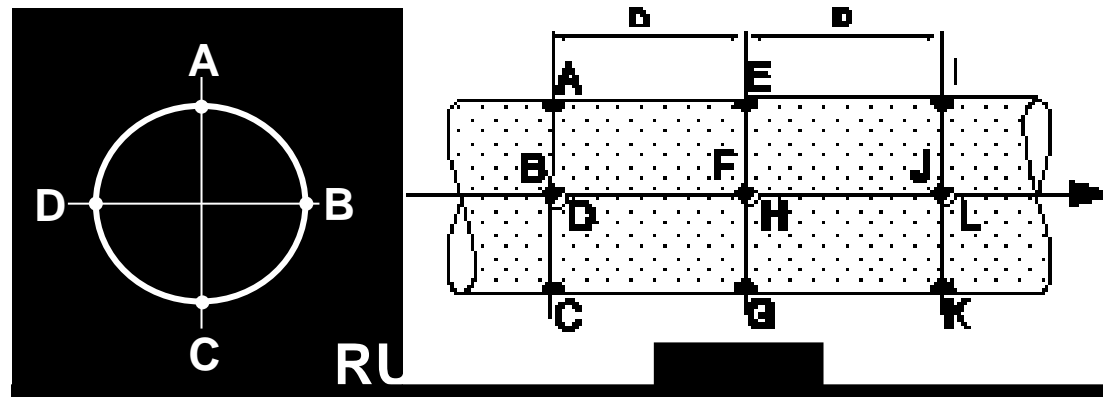


The Applus RTD approach



What is UT spot check?

- Wall thickness measurement at one single point
- Mapping according to grid
- Only global degradation; detection of local corrosion is sheer luck



Alternative RTD-INCOTEST[®]?

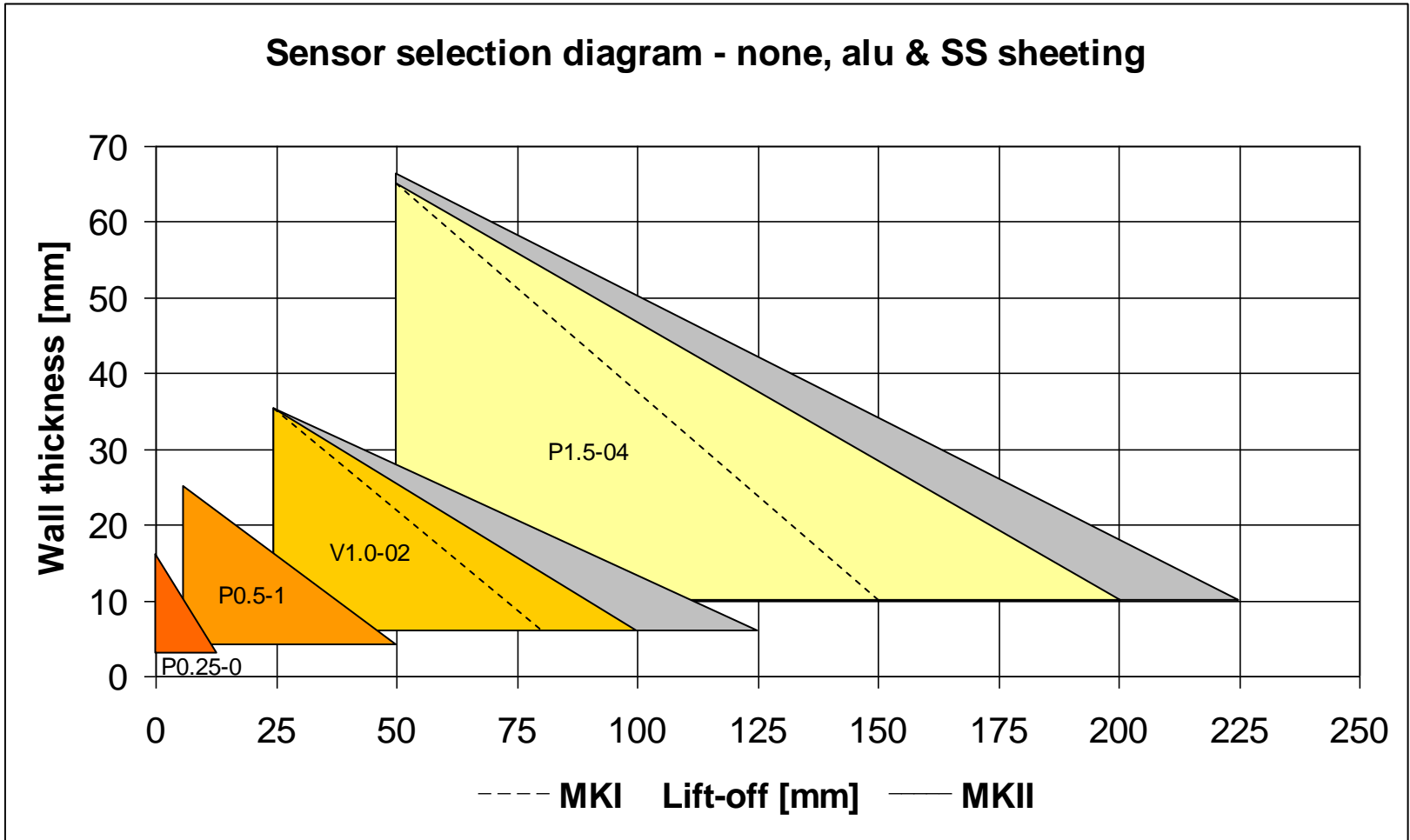
- Average Wall Thickness screening in one single area
- Mapping according to grid
- Only global degradation; detection of local corrosion is sheer luck

- ⊕ **INS**ulated **CO**mponent **TEST**ing,
by means of Pulsed Eddy Current (PEC)



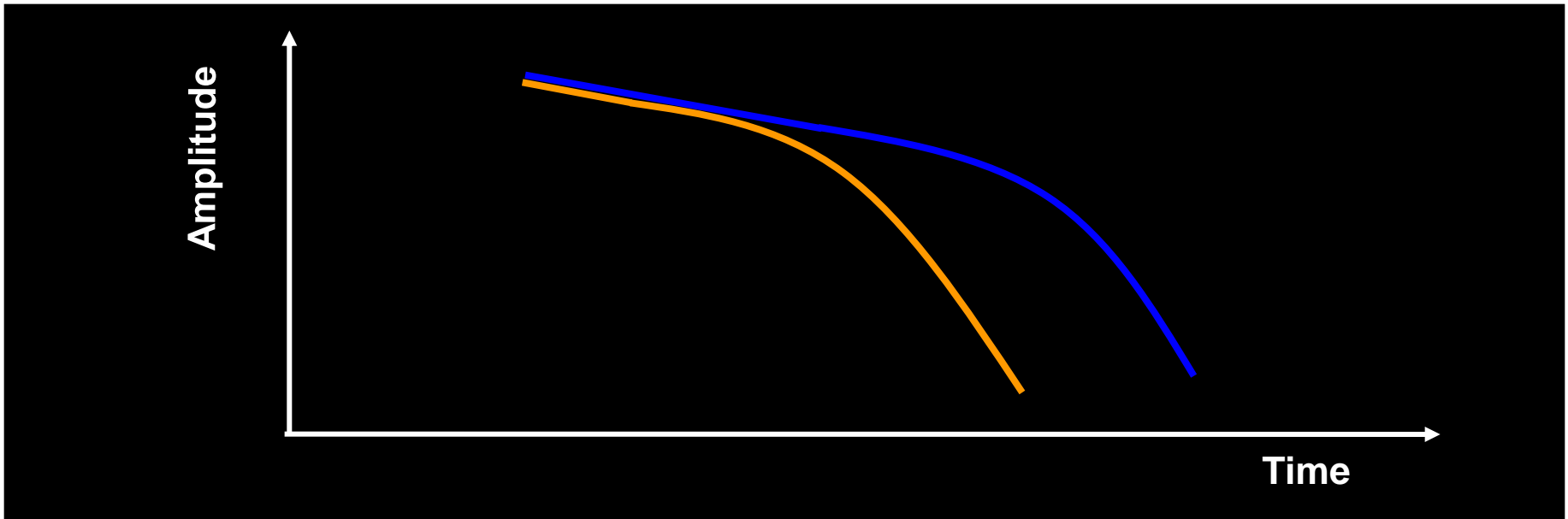
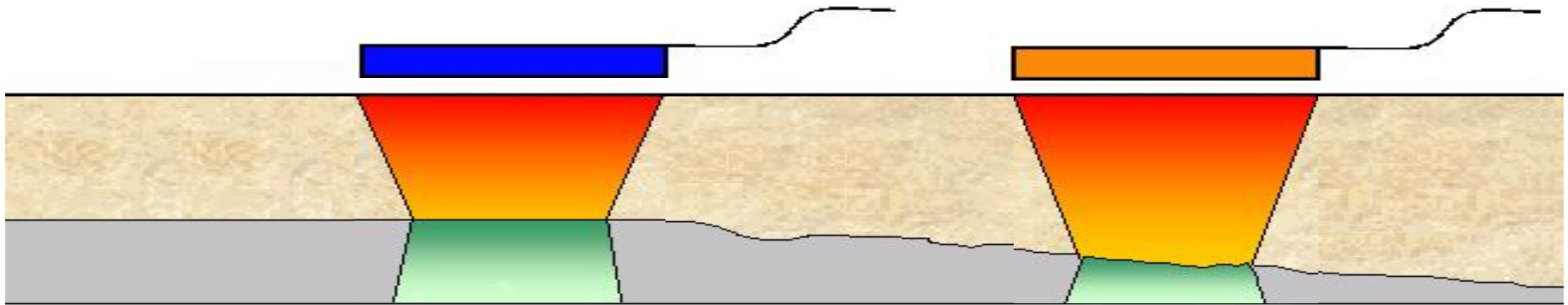
- ⊕ Low Alloy Carbon Steel (ferromagnetic)
- ⊕ Wall Thickness 6-65 mm
- ⊕ Insulation Thickness <200 mm
- ⊕ SS, Al or Fe Sheeting Types
- ⊕ Temp. -150°C to 500°C
- ⊕ Minimum Pipe Diameter 50 mm (2")

Note: certain combinations may limit application range

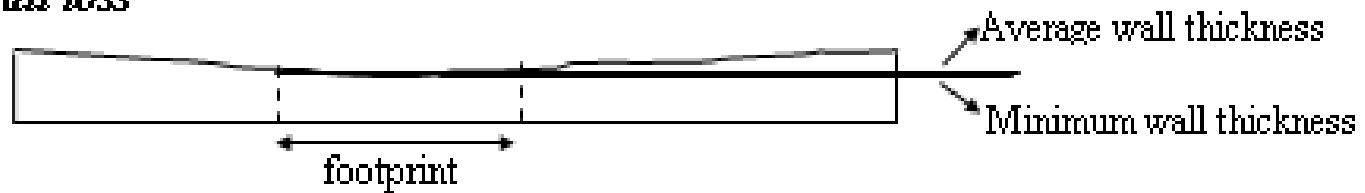


⊕ Standard probes





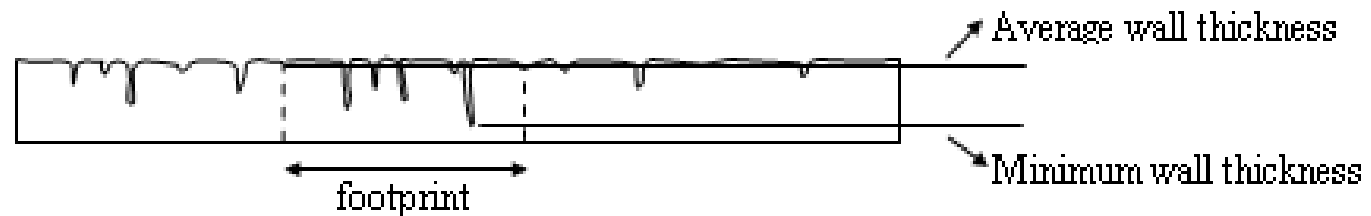
✓ *General wall loss*

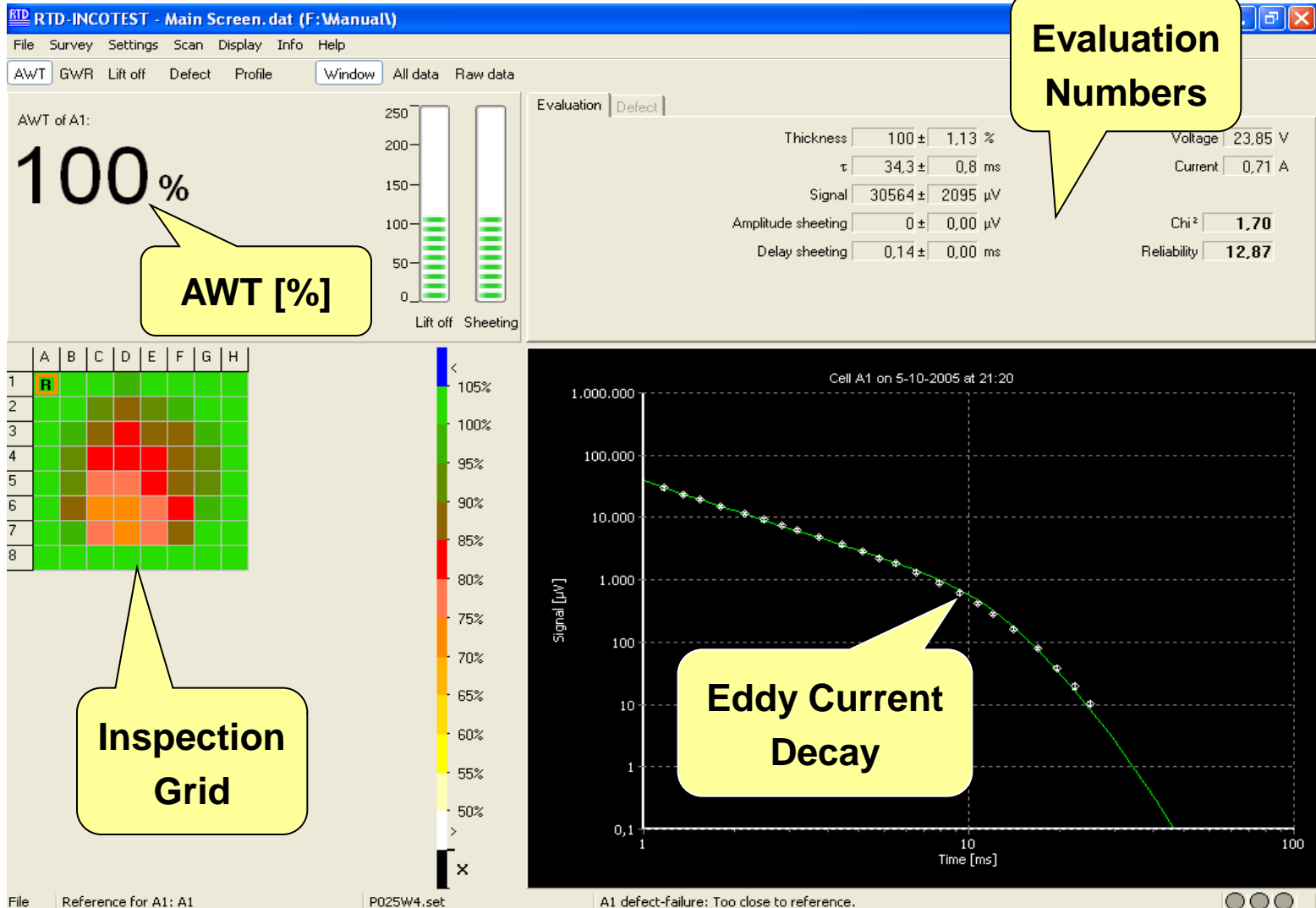


✓ *Irregular wall loss (like corrosion under insulation)*



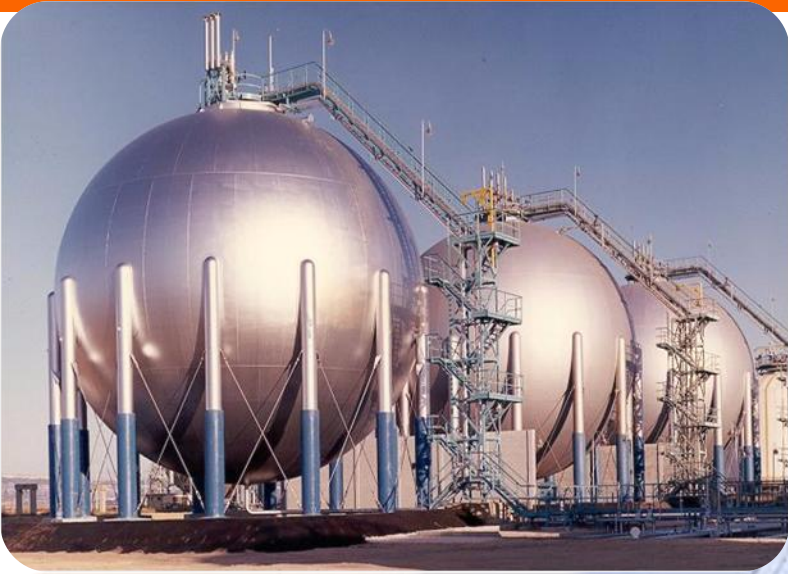
✗ *Very localised corrosion (like pitting)*





- ⊕ Sphere Legs
- ⊕ Piping
- ⊕ Vessels and Tanks
- ⊕ Columns
- ⊕ Sub Sea Applications

Top 5 Applications – Sphere Legs













Off-shore = On-shore for RTD-INCOTEST[®]

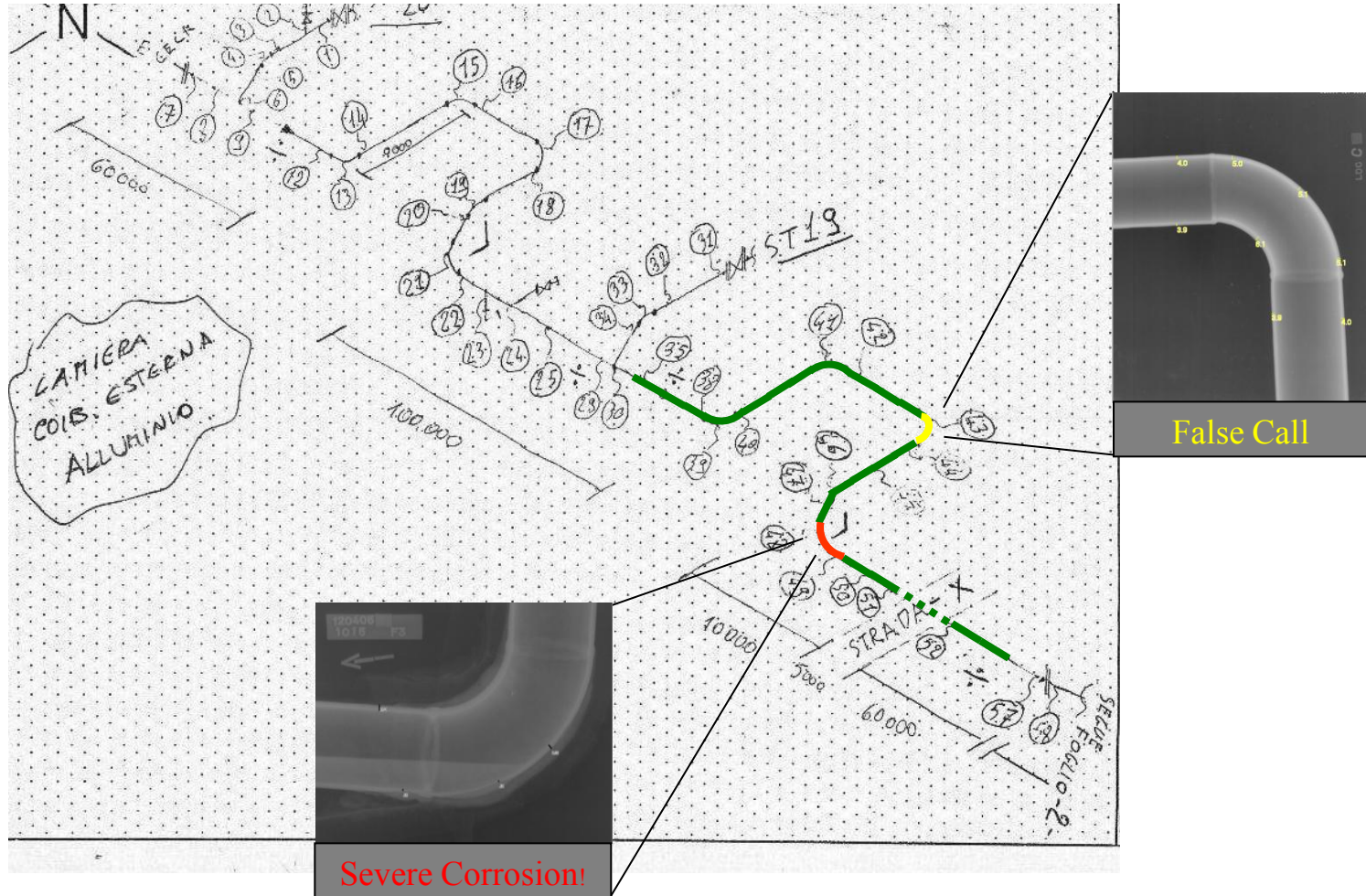


⊕ Conventional

- Down time
- Scaffolding
- Insulation Removal
- Surface preparation
- Inspection
- Apply Insulation

⊕ RTD-INCOTEST®

- On stream
- Rope Access or Extension Tool
- Directly on Insulation



Attachment 2
Site report

RTD-INCOTEST Inspection Results

Location 4 (worst scenario)

Nominal Thickness : 19.1 mm
 Sheeting Type : none
 Axial Grid : 50 mm
 Circ. Grid : 8 clock position cw
 Data File name : location 4 worst scenario.dat
 Ref. Point : E11
 Used Probe : Sub Sea P1.5
 Probe Setting : W90 10F
 Operator : D.Bellistri

Result in %								
AWT	A	B	C	D	E	F	G	H
1	86	85	85	86	85	85	86	88
2	85	86	86	87	86	87	87	88
3	84	85	85	87	86	86	86	88
4	84	84	85	86	87	87	87	88
5	85	84	87	86	88	88	87	84
6	85	86	88	89	90	90	89	87
7	86	88	90	92	95	92	90	87
8	85	87	89	94	97	93	90	86
9	85	87	92	95	100	94	91	85
10	81	82	92	97	99	95	92	85
11	81	82	93	98	100	96	90	85
12	82	86	92	97	100	97	91	85
13	81	85	94	98	101	97	94	84
14	81	84	93	95	101	98	92	83
15	81	86	93	98	100	98	91	84
16	84	85	94	98	101	99	93	83
17	80	85	94	98	100	99	92	83
18	80	85	93	98	101	97	91	83
19	80	85	94	99	100	97	92	83
20	80	85	95	99	97	94	92	83
21	81	85	96	95	95	98	92	83
22	81	86	94	92	91	95	92	83
23	81	86	95	93	89	96	91	83
24	81	85	97	89	87	95	92	84
25	85	87	94	88	85	94	92	84
26	84	87	94	86	86	90	92	87
27	87	87	91	86		88	91	89
28	89	90	87	83		87	89	90
29	88	87	87	84		87	89	89
30	86	86	84			86	87	89
31	84	84	83				87	86
32	85	83	85					85
33	84	84						

100% reference point

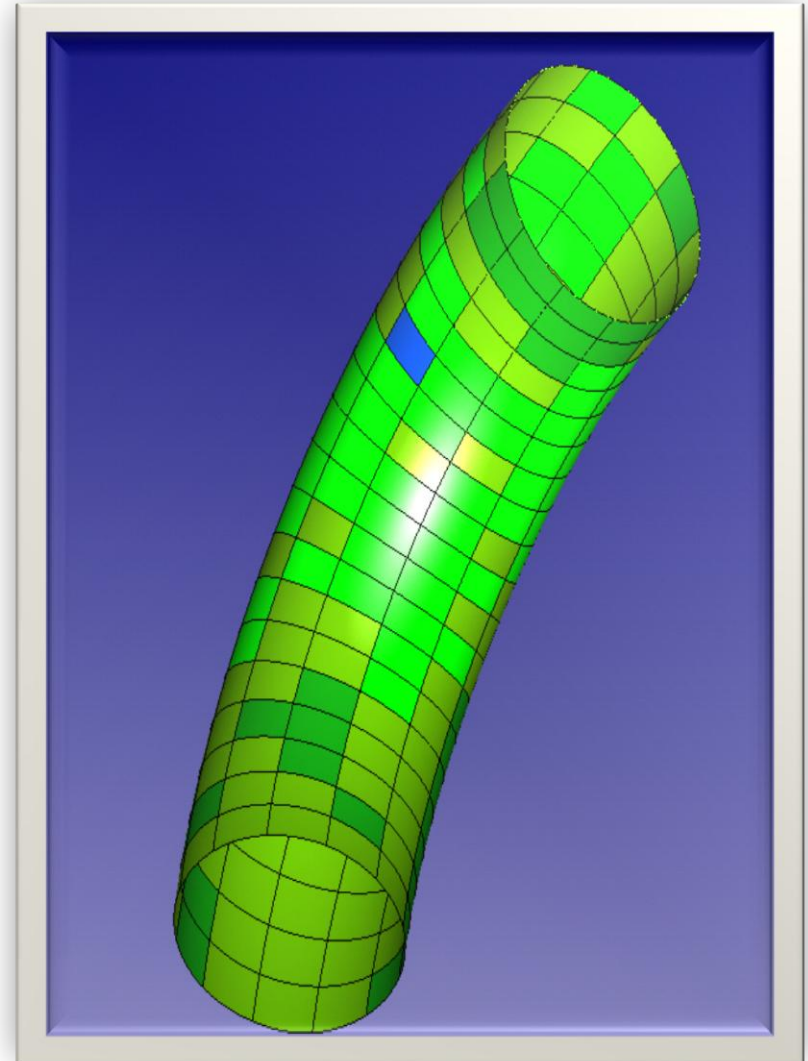
Comments:
A1 is 300 mm far from start of the bend

N.s. = Not scanned

Colors legend in %

N.s.	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100-104	>104
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Results are an interpretation of the inspection method, not a guarantee



The logo for Applus+ RTD, featuring the text 'Applus+' in white on a black background, followed by 'RTD' in white on a blue background.

Applus⁺ RTD

RTD-INCOTEST[®]

The cost saving alternative

Corrosion *Detection*

Screening Tool

No Direct Surface Contact Needed

No Surface Preparation Needed

On-Stream

Saves Time, Costs* and Risk

*NOTE: RTD-INCOTEST[®] examination is part of integral inspection approach, never stand alone.