



Veiligheidsdag

**Veilig samen
werken in
de keten**



Gebruik van nieuwe technieken om risico's in de keten te verlagen

Workshop 5

Gebruik van nieuwe technieken om
risico's in de keten te verlagen



Network for Smart Maintenance

Veiligheidsdag 22 juni 2023



Rijksinstituut voor Volksgezondheid
en Milieu
Ministerie van Volksgezondheid,
Welzijn en Sport

Ir. Paul van Kempen
Operational Director





The leading Corrossion Under
Insulation Partner for the
process industry

CUI – a major corrosion problem



Column dia 2 m, length 36 m
Repair costs 500 K€





Corrosion under Insulation is a serious risk for companies looking at health, safety, environment and reputation.

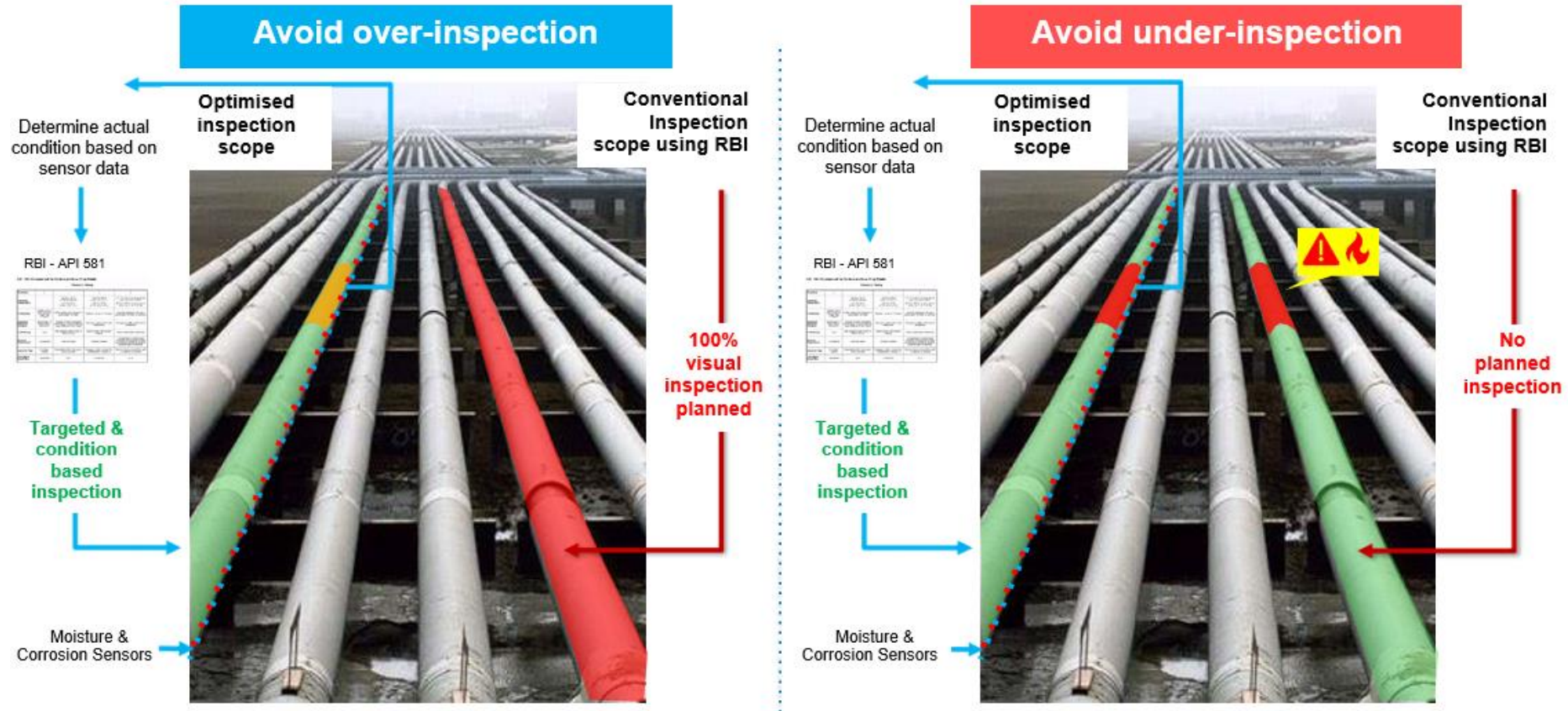
Wouldn't you like to be in control?

- Being in Control limits risks of unexpected events.
- Being in Control will help prevent uncontrollable damage
- Being in Control will avoid the risk for unpredictable cost.
- Being in control will help You being a thought leader towards your management, stakeholders and within the Industry. It will strengthen your brand.
- Being in Control will make You an example in the CSP community, even with the local government.

Sitech offers an opportunity to adopt the tools of change, not just follow along with the trends.



Most common practise of CUI detection.



Optimisation of CUI Risk and Inspection Scoping



Site
Survey

Select assets with
High risk



System
Installation

Hardware and
Software



Remote
Monitoring

Detection and
Localisation



Risk
Analytics

Software

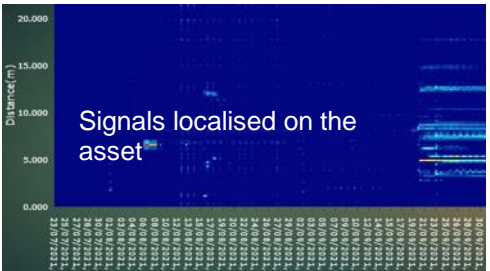


Inspect and
Repair

Proactive

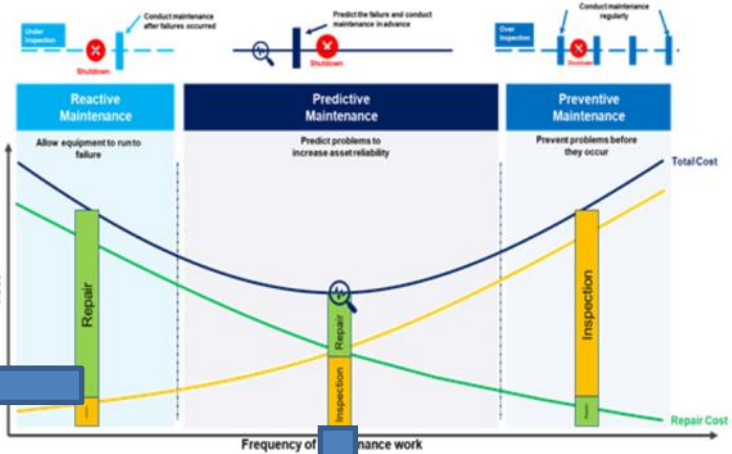
Overall CUI susceptibility

Number	Tag No.	Process Unit	Component	Classified Rating / Status
1	99-900-F-12001	Delayed Cooler	Cold drums	Very Low
2	99-900-F-12002	Delayed Cooler	Cold drums	Low
3	99-900-F-12003	Delayed Cooler	Cold drums	Low
4	99-900-F-12004	Delayed Cooler	Cold drums	Medium
5	99-900-F-12005	Hydrotreating	H2S Absorber	High
6	99-900-F-12006	Isomerization	Feed drums	Very High
7	99-900-F-12007	Isomerization	Feed drums	Very High
8	99-900-F-12008	Isomerization	H2 drums	Very High
9	99-900-F-12009	Isomerization	H2 drums	Very High
10	99-900-F-12010	Isomerization	Feed drums	Very High

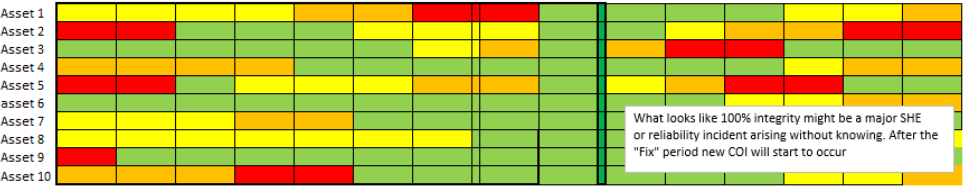


Risk

SHE	Last Change	Business	Last Change
H	09/11/2021	H	09/11/2021
M	15/01/2021	M	15/01/2021
M	23/02/2021	H	23/02/2021
L	05/04/2020	L	05/04/2020
M	11/10/2020	M	11/10/2020
M	01/09/2020	M	01/09/2020
L	09/08/2019	L	09/08/2019

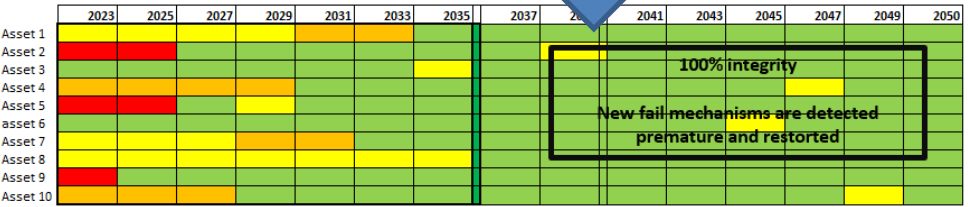


Traditional Approach



What looks like 100% integrity might be a major SHE or reliability incident arising without knowing. After the "Fix" period new COI will start to occur

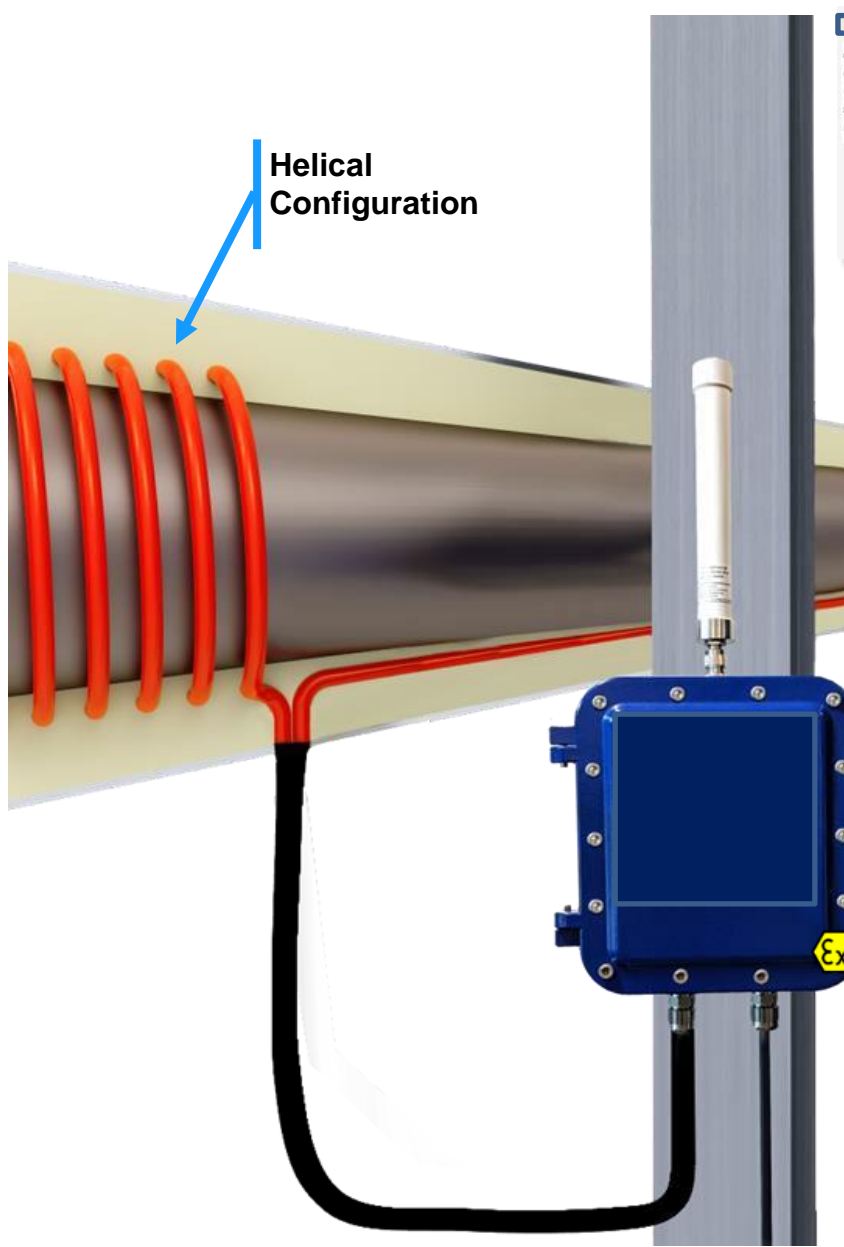
Our Solution




100% integrity

New fail mechanisms are detected premature and restarted

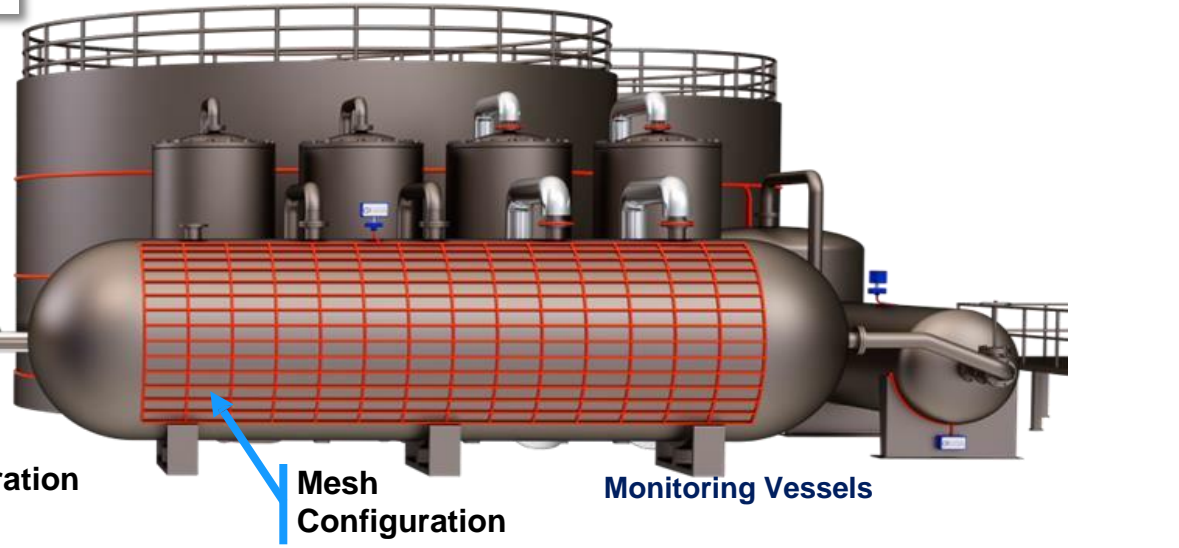
Greenfield: CUI Risk Monitoring with Moisture and Corrosion Sensing



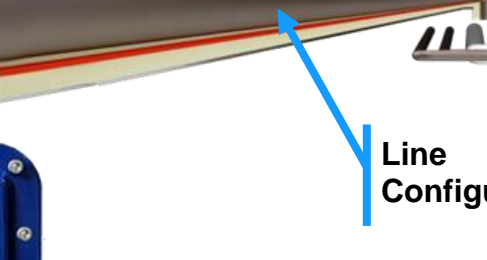
Helical Configuration



Cloud / On-Premise Visualisation & Analytics Dashboard



Mesh Configuration



Line Configuration

Monitoring Vessels

Unique benefits:

- 1. Long Range / Spatial coverage
- 2. Flexible & Easy Deployment
- 3. Decision management

Node (electronics)

ATEX/IECEx Certification	II 2 GD Ex db IIB+H2 T3-T6 Gb Ex tb IIIC T85°C - T150°C Db
Ingress Protection	IP66
Power Source	Mains (24 VDC) / Long life Battery
Communications	Wireless: WiFi/Cellular/WirelessHART/LoRa Other options: USB Data Logger
Approx. Dimensions (mm):	284H X 245W X 169D (Without Antenna)
Approx. Weight	11.2 Kg

Sensors

Sensor Types	Corrosion Moisture
Sensor Length	Up to 100 m
Temperature Range (°C)	- 190 to +300 °C

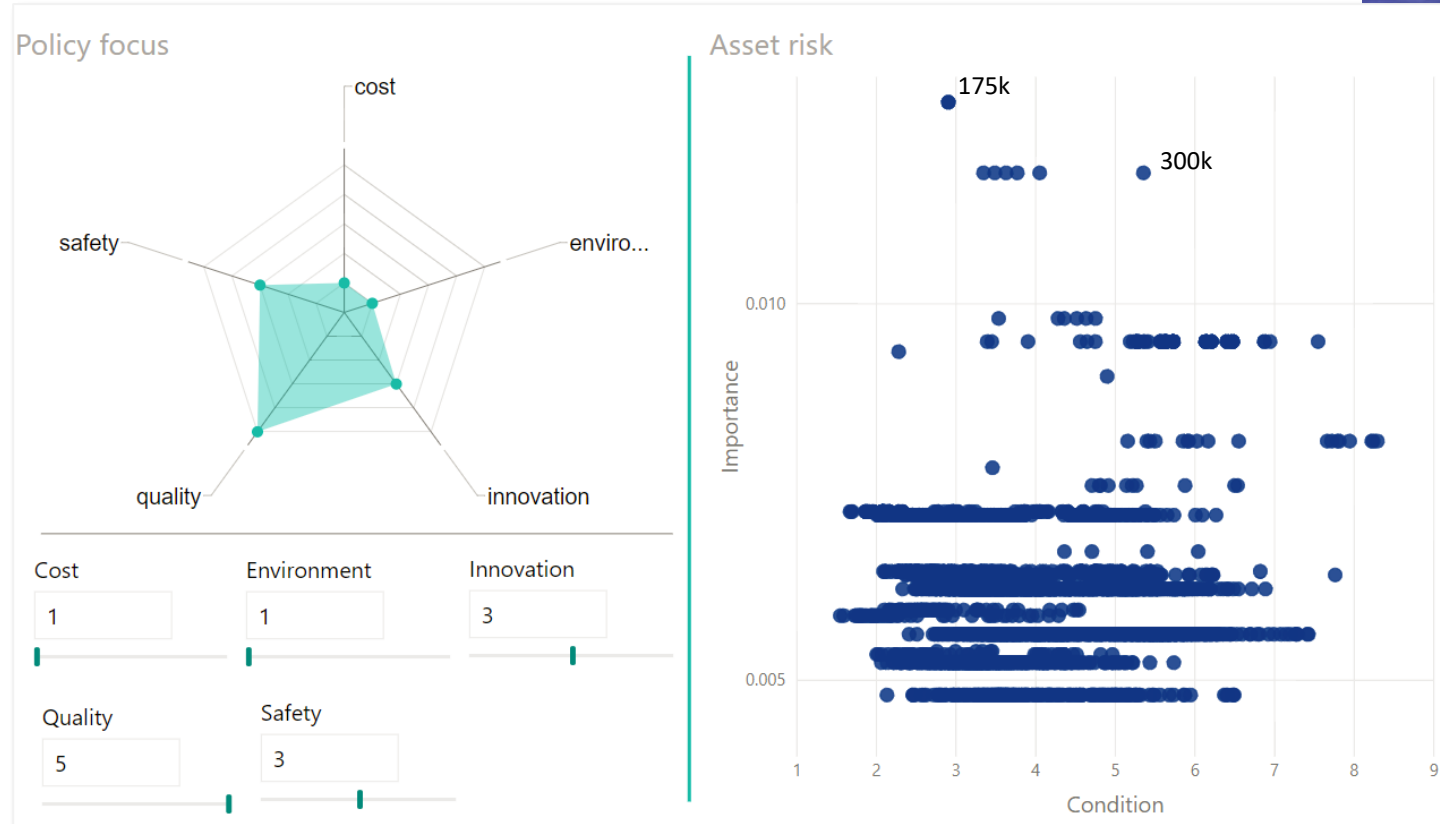


How can **risks** in CUI management be quantified and compared?

Strategy and **policy** have impact on the value matrix, applied to assess risk on asset level.

The risk-model allows **line-of-sight** between **strategic** and **operational** layers of the organization.

A shift in company values is carried forward to the risk assessment on individual asset level.





analyze • optimize • maximize •

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VOLBERDA

(2007/2011)



fase van innovatie

**NIEUWE
KENNISCREATIE**



type van innovatie

**TECHNOLOGISCHE
INNOVATIE**

- R&D en ICT
- TECHNOLOGIE

**HERKENNEN
VERWERVEN
INTEGREREN
en TOEPASSEN
VAN KENNIS**



**SOCIALE
INNOVATIE**

- MANAGEMENT
- ORGANISATIE
- ARBEID

R&R
social innovators



Wat weerhoudt ons om nieuwe technieken in te zetten tbv veiligheid?

Wat is er nodig om tot actie over te gaan?