



CUI strategy at Neste Rotterdam

17-10-2025
Jos de Visser

History CUI Line Inspection Strategy

- Plant in operation since 2011
- First line inspections, not focussed on CUI
- ~2018 first CUI leakages and damages found
- 2020 - Area based CUI inspections on 3 areas with expected high risk
 - 100% insulation removal on all lines
 - High costs, with very few findings.
- 2021 - Risk based CUI inspections started
 - CUI procedure developed based on industry practice
 - Risks based on available data
 - CUI Inspection and maintenance practices
 - Seperate High risk CUI inspections executed
- 2023 - Medium and Low risk CUI inspections executed with scheduled periodic inspections (with special CUI attention)

Risk = Probability * Consequence

Based on available data

CUI probability based on weighting factors, like

- Pipe material
- Operating temperature
- External environment
- Insulation type
- Tracing type

CUI consequence weighting factors on weighting factors like:

- Operating temperature
- Operating pressure
- Process medium

Risk based categories of lines + Strategy

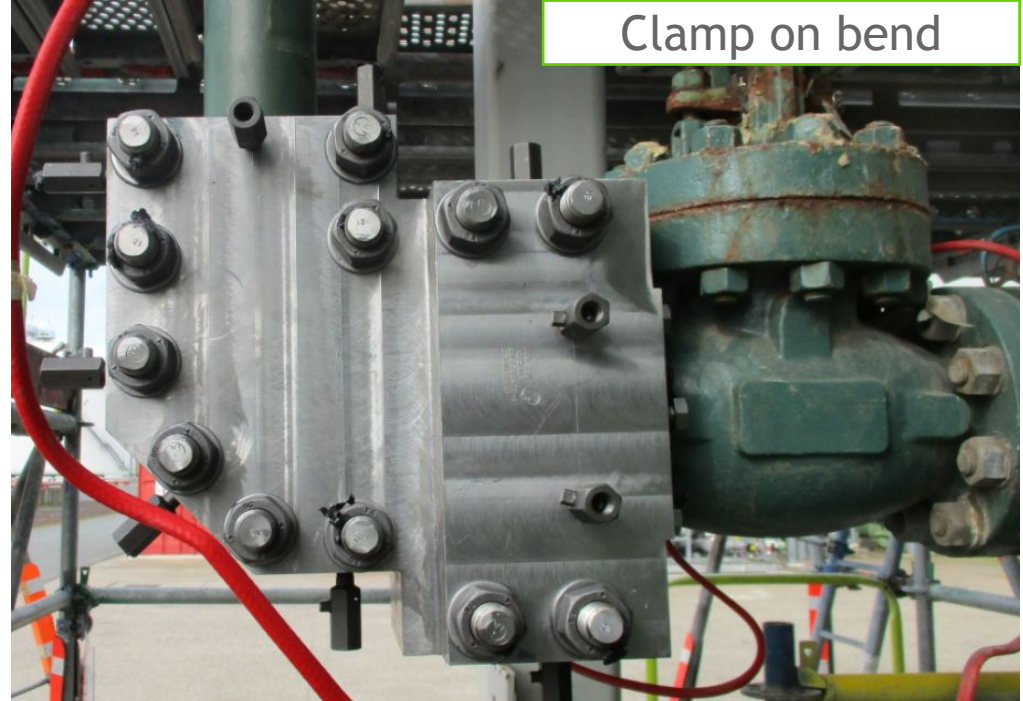
Consequence \ Frequency	Very minor	Minor	Serious	Very serious
Frequent	3	2	2	1
Occasional	3	3	2	2
Seldom	4	3	3	2
Unlikely	4	4	3	3
Very unlikely	4	4	4	4

Cat 1: Few lines, inspect thoroughly within 3 months

Cat 2: ~100 lines, inspect thoroughly within 2 years

Cat 3 and 4: Most remaining insulated lines, inspect specifically for CUI during periodic inspections.

Example Inspection results - CUI inspection



Example Inspection results - CUI inspection



Example Inspection results - CUI inspection



Risk based strategy compared with Area based strategy

Advantage risk based strategy:

- Prioritization according to procedure
- Clear scope
- Communication easier
- Work planning per line - low effort
- Execution possible even with minimum availability of maintenance resources (insulation, scaffolding, tracing, coating, NDE)

Disadvantages risk based strategy

- Execution of line-by-line will extend the duration of the CUI-project considerably
- Scaffolding throughout the entire plant
- Set-up times for blasting and coating, low efficiency and increased duration
- Extended periods of time for lines not being insulated or traced (more difficult to schedule with Operations)
- No clustering of lines in pipe-racks

- **Focus on Quality of Inspections**
 - Inspector training for CUI - on the job.
 - Prepare for visual inspection (check data, drawings)
 - Define suspicious areas for insulation removal
 - Define well chosen Thickness Monitoring Locations
 - Good inspection report
 - Good recommendation for maintenance

- Focus on Quality of Maintenance

- Execution of surface preparation
- Execution of painting
- Execution of re installation and improvement of insulation sheeting



A large, powerful blue ocean wave is the central focus of the image. The water is a deep, vibrant blue, with white foam and spray visible at the crest of the wave. Above the wave, a white line graphic is drawn, consisting of a curved line that starts on the left, arches over the wave's peak, and then transitions into a horizontal line that extends to the right, ending in a vertical line that drops down. This graphic appears to be a stylized representation of a wave or a path.

Thank you