

PIPING REPLACEMENT TO ASME-B31.3 IN THE WATER INDUSTRY? WHY NOT?

HOLGER ZIPFEL

Harrison Grierson - Mechanical Team Leader



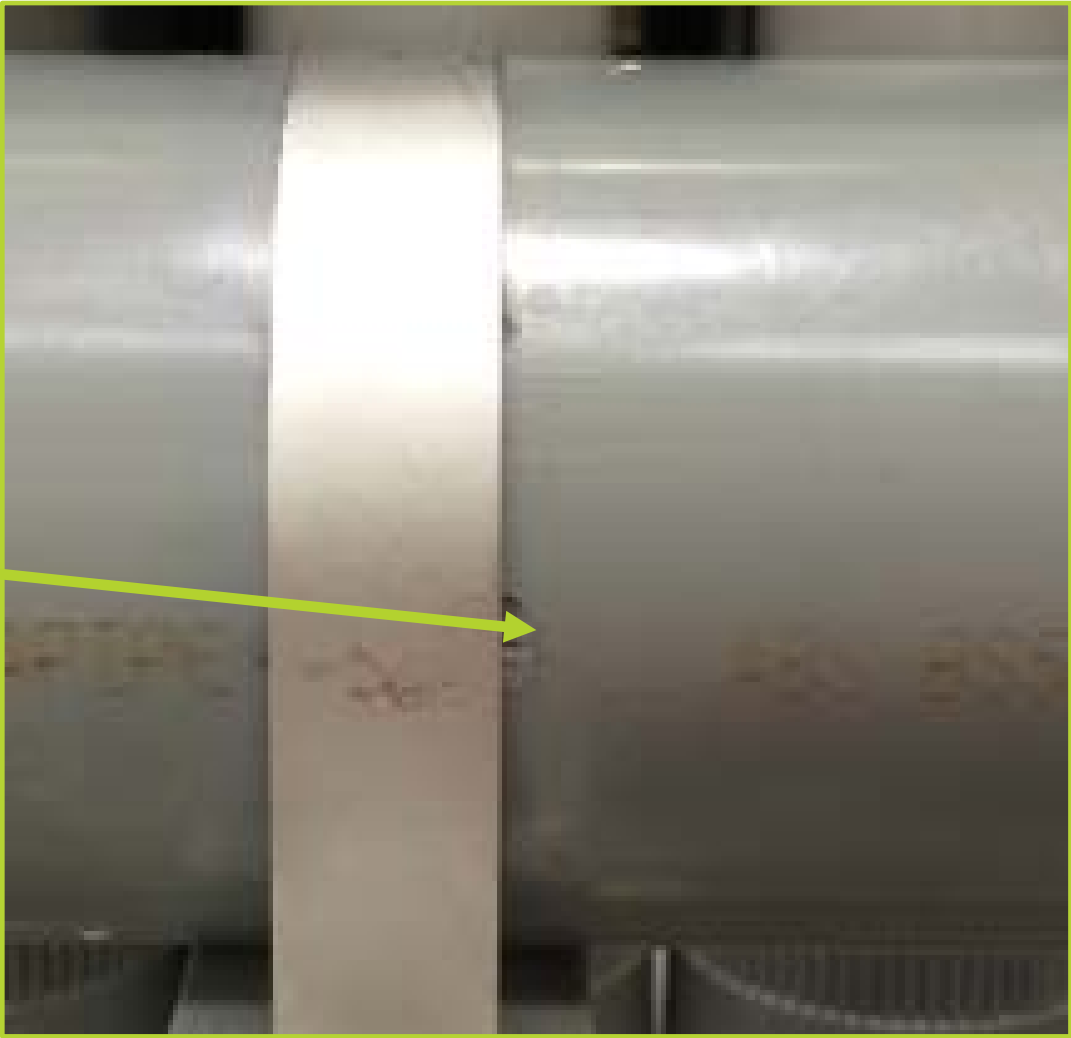
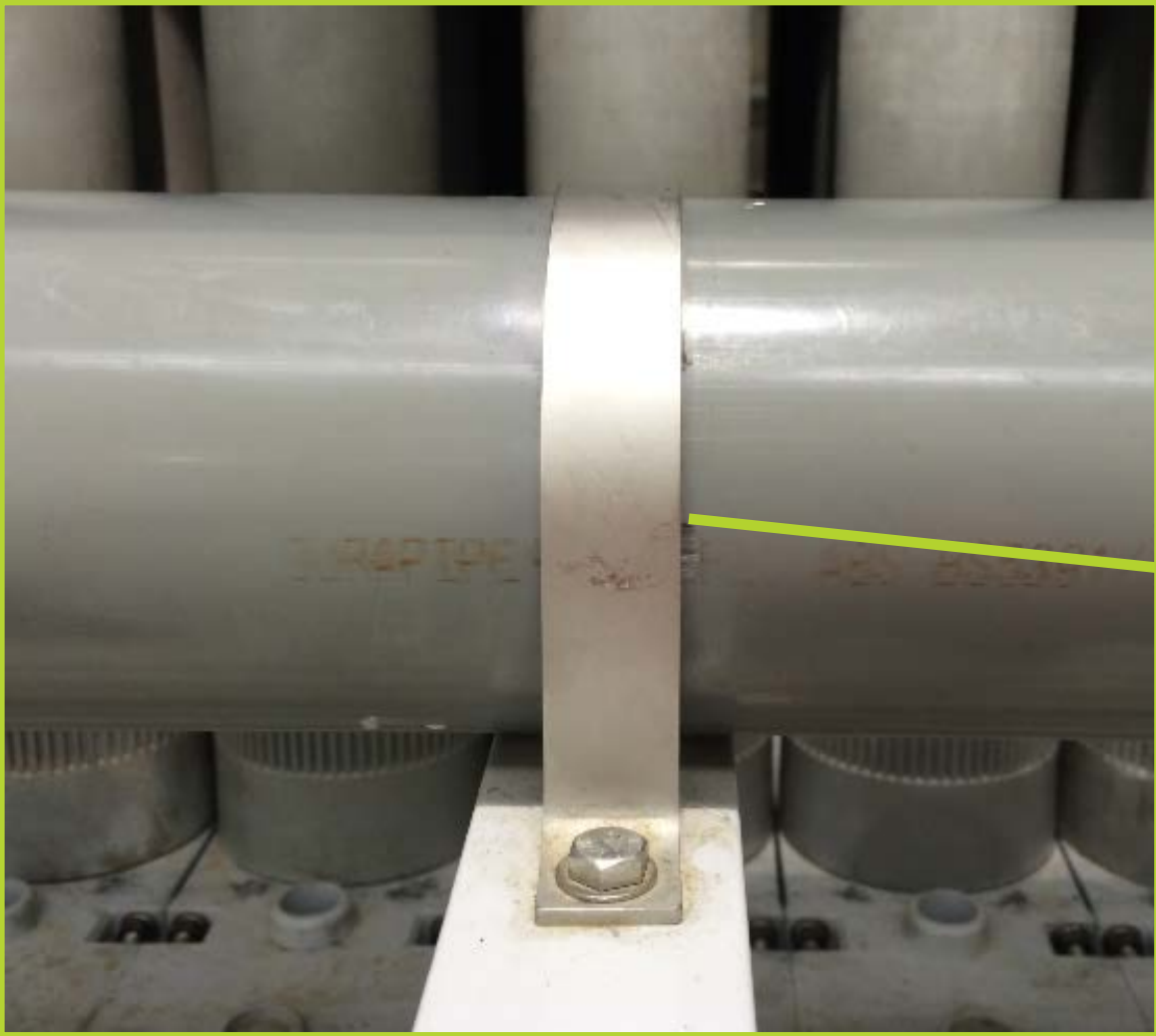
CATASTROPHIC PIPE FAILURE



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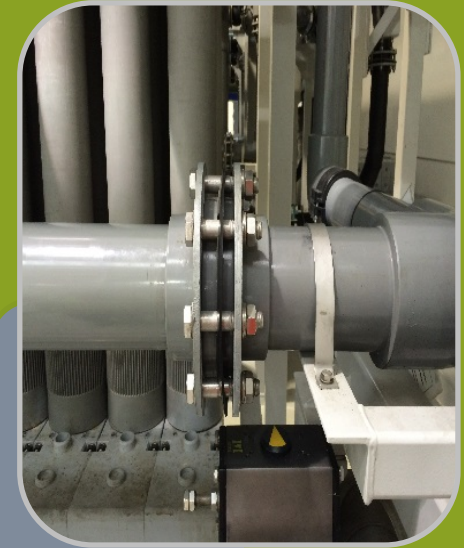
PIPE LEAKAGES





INSTALLATION TIME CONSTRAINTS

- Full plant operation
- Short CIP downtime cycles



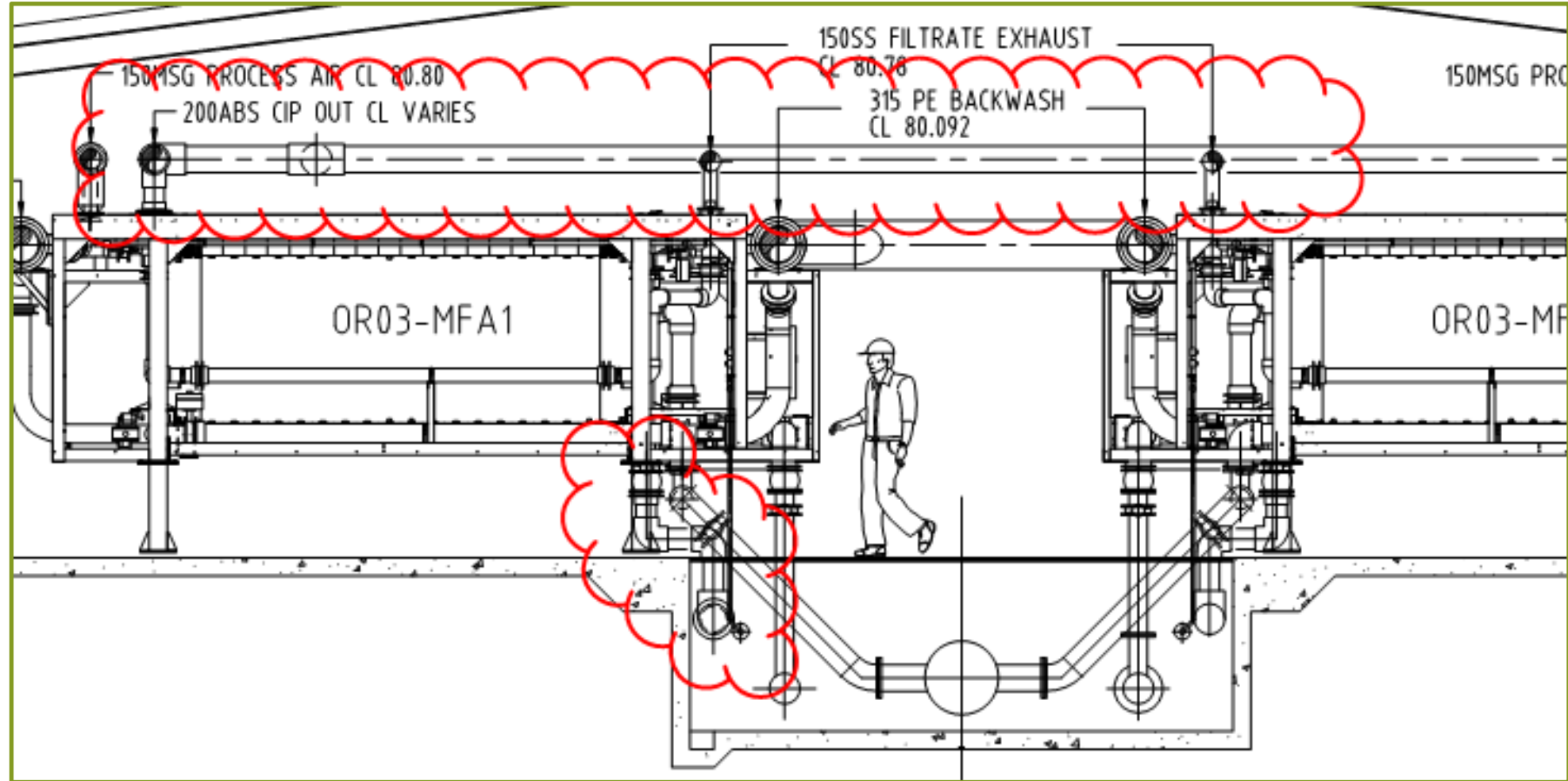


PHYSICAL INSTALLATION CONSTRAINTS

- Tight arrangement
- Working at height
- Confined space



DESIGN CHALLENGES - ARRANGEMENT





HAZARDOUS ENVIRONMENT

- ❑ Hazardous Chemicals
- ❑ Onsite assembly and testing
- ❑ Ongoing maintenance





- Safety in Design



- Stainless Steel Pipe



- Standard ASME B31.3

BENEFITS OF ASME B31.3



Clause 304.1.2 – Straight pipe under internal pressure

- Estimation of service life

INPUT PARAMETERS

- Pipe wall thickness
- Design Pressure
- Allowable Material Stress
- Corrosion allowance



BENEFITS OF ASME B31.3



Clause 344 and 345 – Types of examination and testing

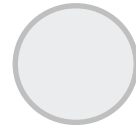
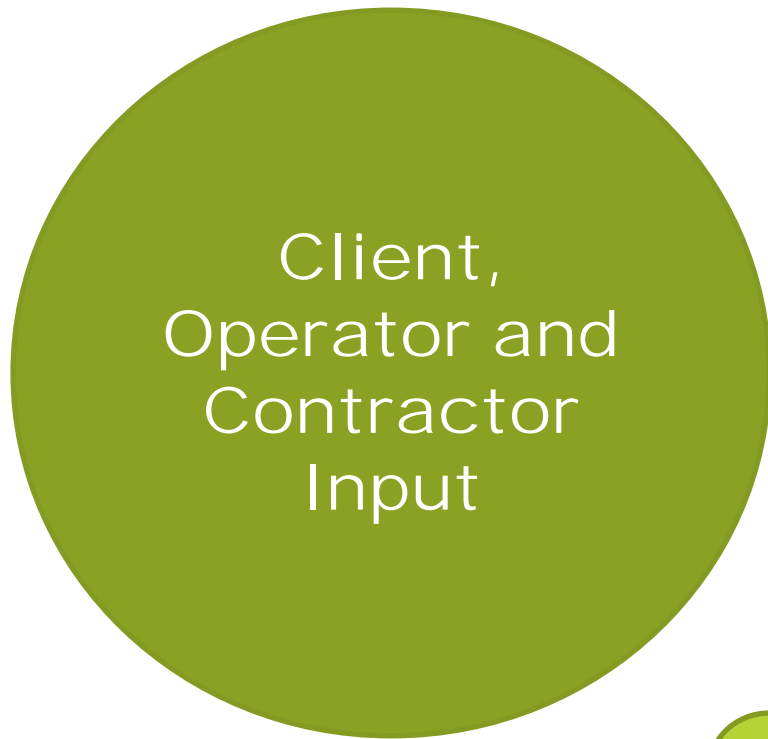
- Off site NDT
- Prefabrication
- In-service leak test



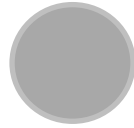
BENEFITS OF ASME B31.3



PROJECT COLLABORATION



Contractor selection



Site Kick-off Meeting



HAZOP and Safety in Design



Client Inspections

PROJECT OUTCOMES



Safe pipe replacement – excellent H&S record of the contractor



Site installation ahead of schedule



Project under budget

HC 