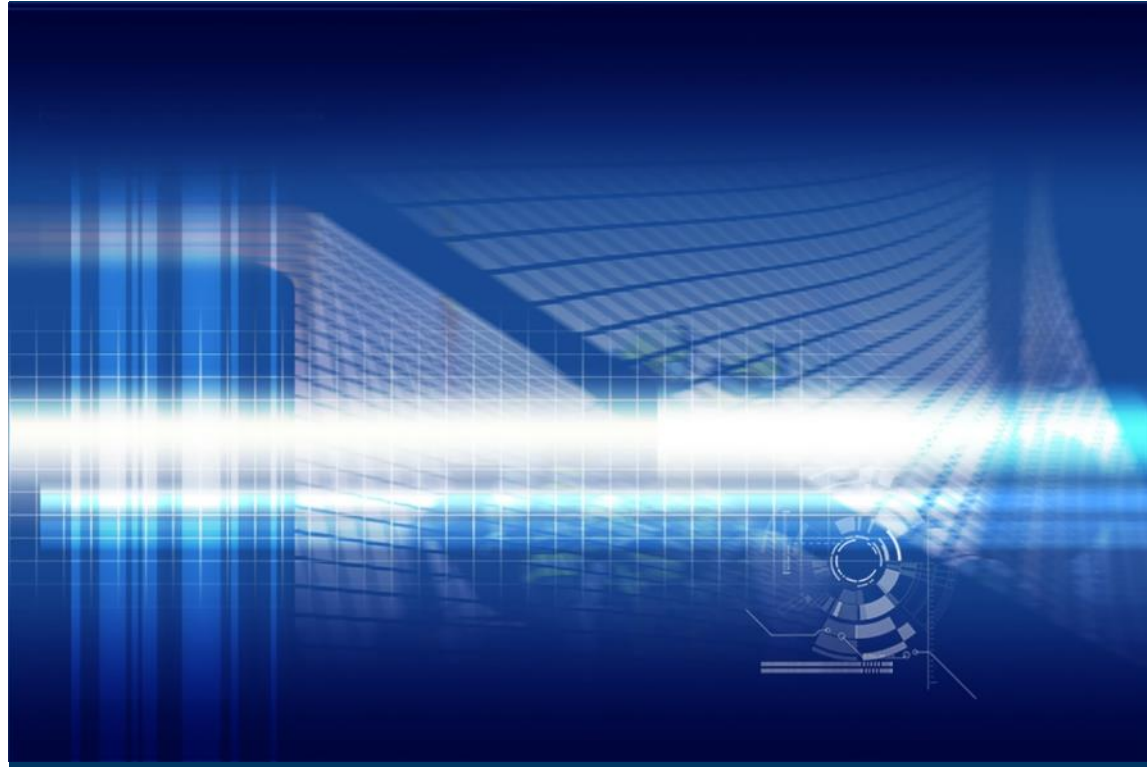


Attack of Stainless Steel Beam Line

Microbially- Induced Corrosion



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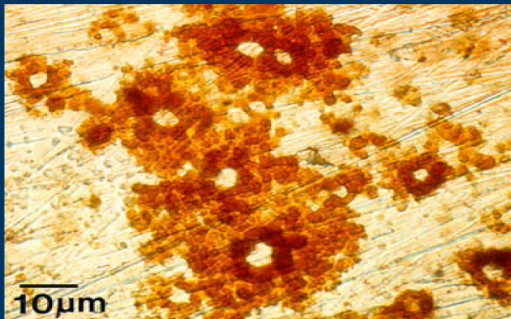
Principal Consultant

Denver Office

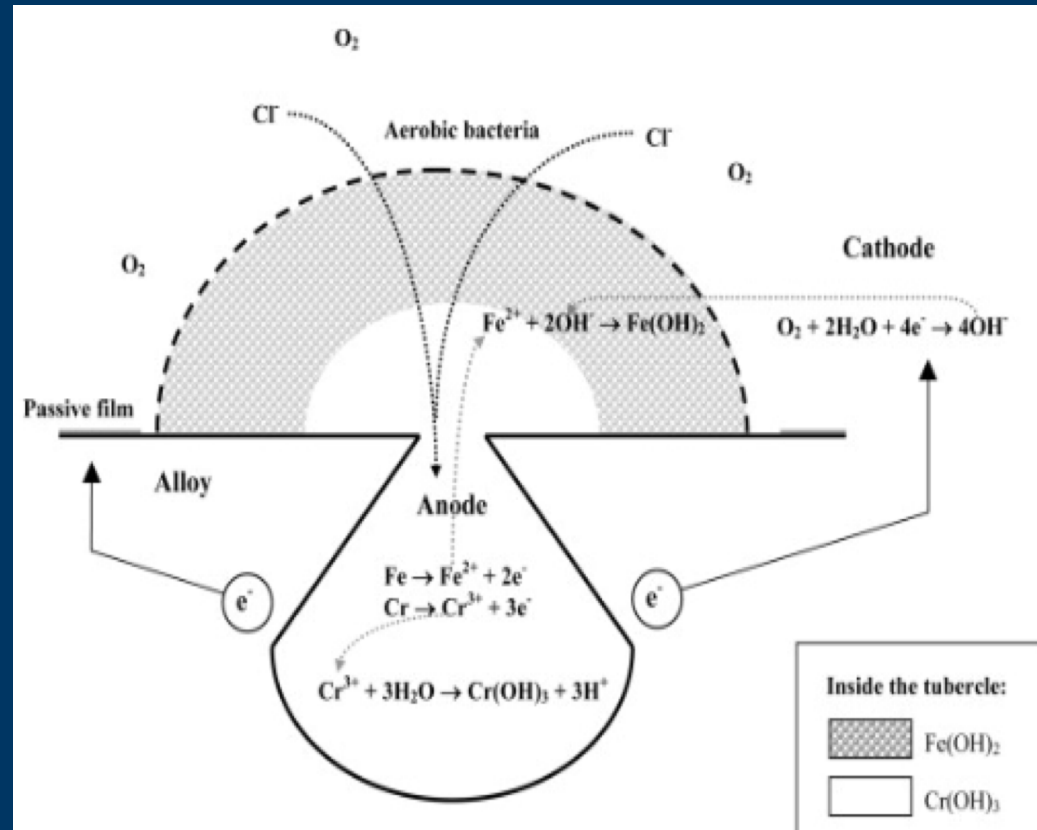
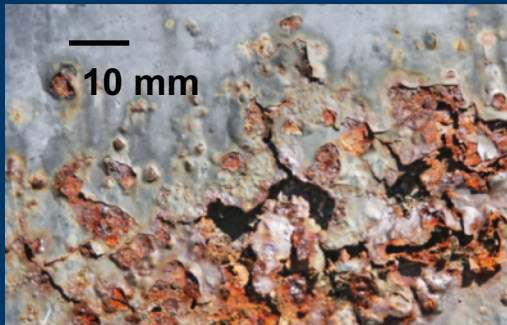


MIC Corrosion Mechanism

Exterior Wall



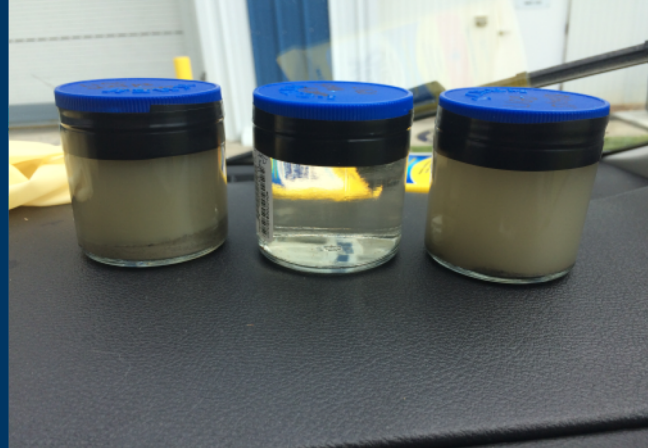
Interior Wall



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Bacteria in Local Waters

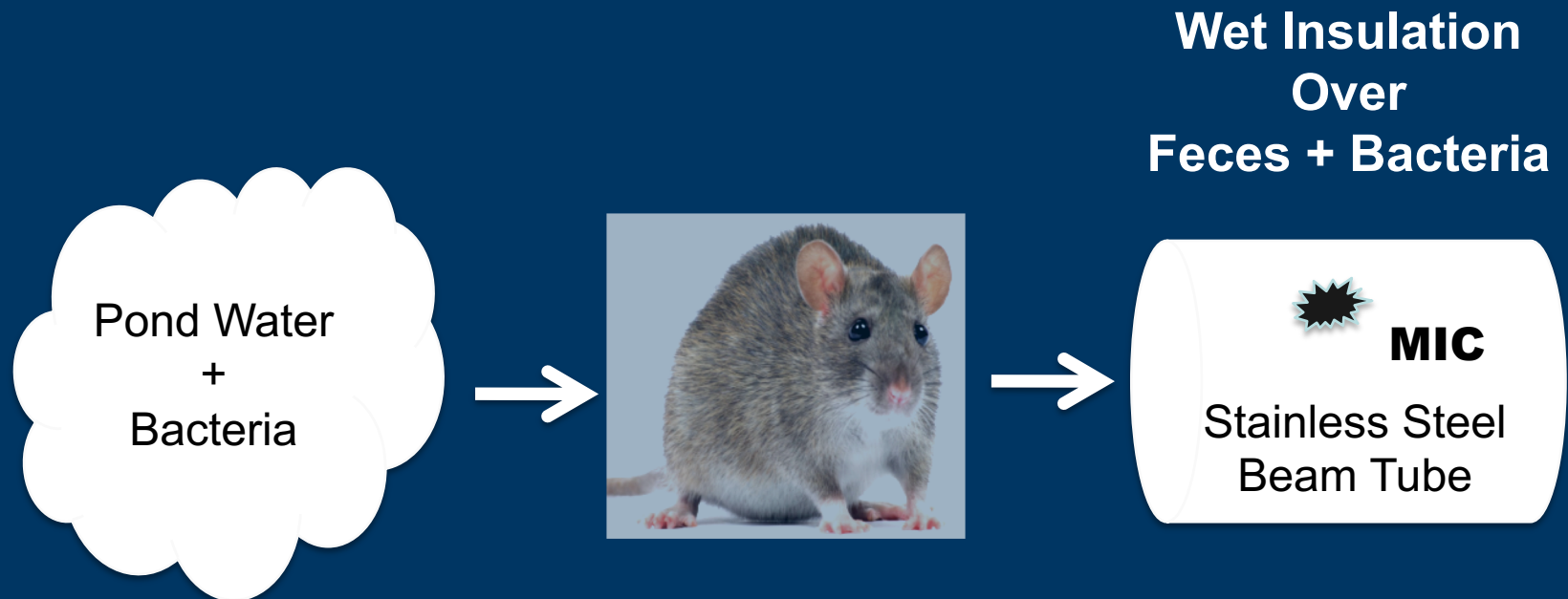


Iron Related Bacteria	Positive, enteric, iron-reducing bacteria 9,000 CFU/mL (High)
Acid Producing Bacteria	Positive 1,500 CFU/mL (Moderate)
Sulfate-Reducing Bacteria	Negative

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Bacterial Transfer to Insulated Beam Tube

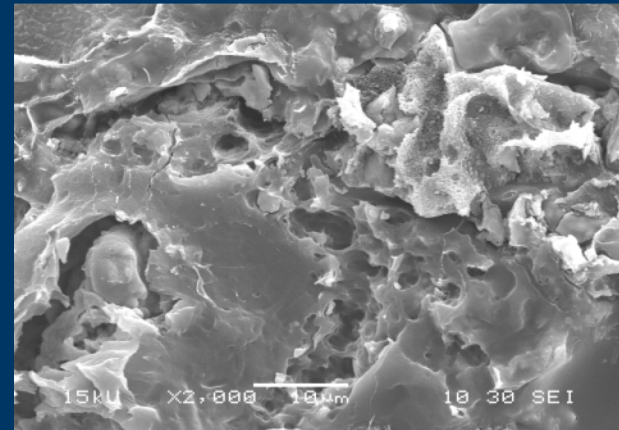
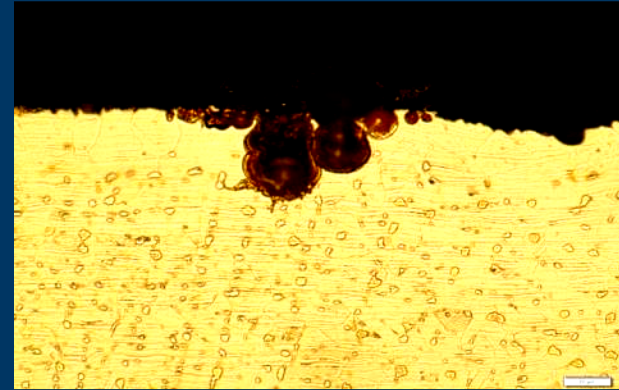


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Surface Pitting and Leak Path



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MIC on Un-Insulated Beam Tube Under GPS Outlets

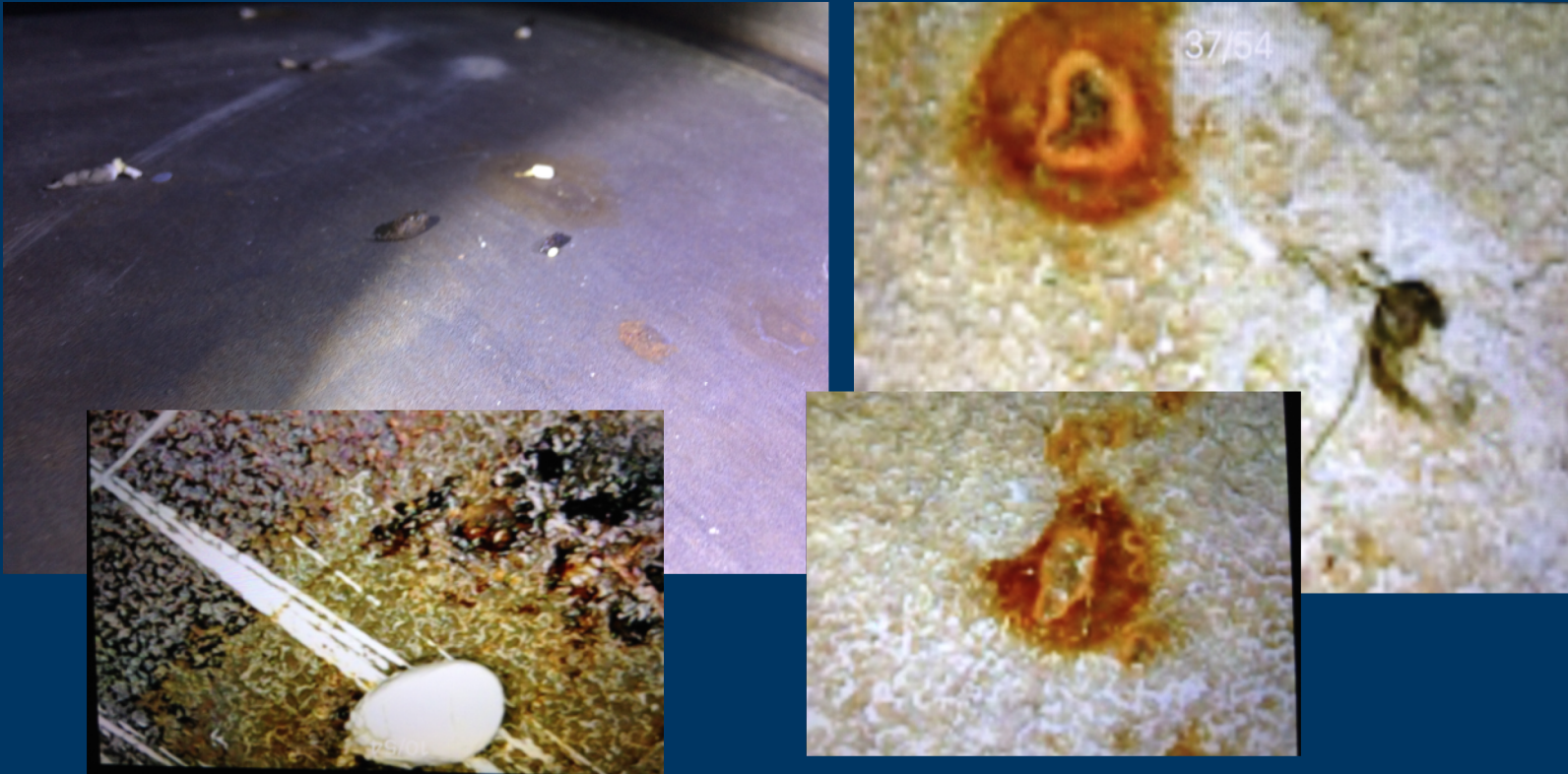


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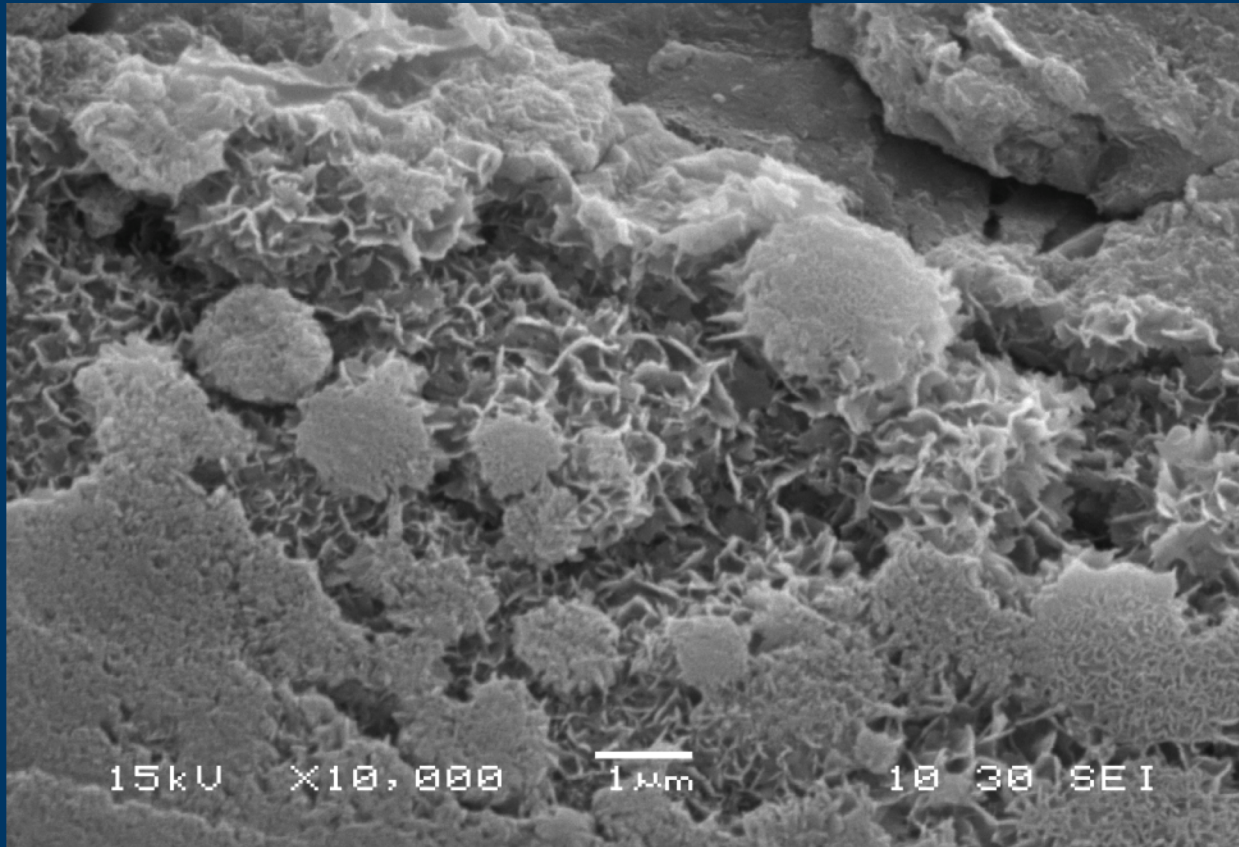
Active Corrosion Under Insect Debris



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Bacteria Producing Rust

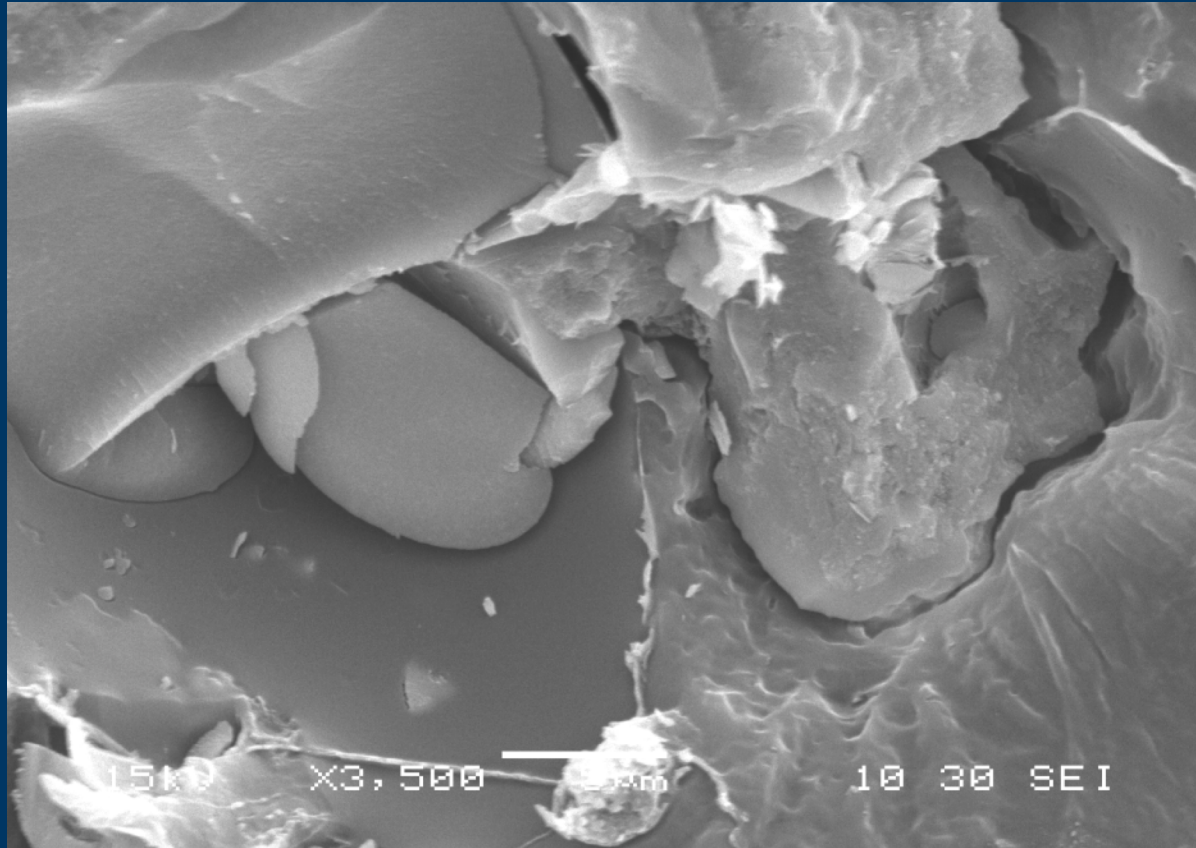


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High Mag Image of Bacteria Attack



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Preventing Further Corrosion

- Dry brush to remove any insect debris
- Do not rinse stainless tubes
- No chlorinated solvents inside tunnels
- Maintain less than 60% humidity
- Seal any leaks or drips onto beam tubes