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Corrosion and Mitigation Techniques for Fire Protection Piping Systems

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Foreword

AMPP technical reports are intended to convey technical information or state-of-the-art knowledge regarding corrosion. In many cases, they discuss specific applications of corrosion mitigation technology, whether considered successful or not. Statements used to convey this information are factual and are provided to the reader as input and guidance for consideration when applying this technology in the future. However, these statements are not intended to be recommendations for general application of this technology and must not be construed as such.

Scope

This report explains different types of corrosion phenomena and contributing factors of corrosion that can occur in fire protection systems (FPS), such as water corrosivity, MIC, trapped air (wet systems), residual water (dry systems), and pipe weld corrosion. The basis for selection of corrosion mitigation strategies for corrosion mitigation and management of FPS are also discussed.

Rationale

Corrosion that results in pipe leakage or obstruction is the most significant issue for owners of water-based FPS or fire sprinkler systems, in terms of both cost and system reliability. Corrosion damage/products and mineral deposits can impair the effectiveness of sprinkler systems, leaving facilities vulnerable to uncontrolled fire loss even though they are equipped with fire protection systems. This report describes practices that have been successful in mitigating FPS corrosion.