

Use of Vapor Corrosion Inhibitor for Tank Bottom Protection

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Abstract : The use of Volatile Corrosion Inhibitors (VCI) to protect Aboveground Storage Tank (AST) bottom plates against soil-side corrosion is one of the emerging corrosion prevention methods, specifically for tanks constructed on oily sand pad. Oily sand pad and the presence of air gaps underneath the bottom plates lead to severe corrosion and high metal thickness loss. In such cases, the cathodic protection cannot be fully considered as effective due to Cathodic Protection (CP) current shielding. These situations sometimes result in serious failures on multiple fronts, such as; containment losses, system shutdowns, extensive repairs, environmental impact and safety concerns in case of flammable fluids. Recently, East West Pipeline Department (EWPD) of Saudi Aramco has deployed this technology to one of the crude oil storage tanks, which showed high metal thickness loss during its out of service inspection. Soil-side corrosion rustled in major repairs of bottom plates and ultimately caused enormous unplanned activities in term of time as well as cost. This paper mainly focuses on the methodology of VCI installation, corrosion monitoring system and the expected results of protection.

Keywords : Vapor Corrosion Inhibitor, Soil Side Corrosion, External Corrosion, Above Grade Storage Tank

Conference Title : ICACE 2023 : International Conference on Applications of Corrosion Engineering

Conference Location : Rome, Italy

Conference Dates : November 20-21, 2023