Case Study: Electrical Bridging

EVOLUTION® Isolation Kit

PROBLEM

A problem that is becoming more and more common place in industry is electrical bridging. For years, this customer has battled losing isolation across the flange isolation kit, not because of a gasket failure or mis-installation, but instead because of the media itself but instead due to the media itself going through the line. In these lines, solid conductive deposits build up at the flange intersection, allowing CP current to take this path, jumping the isolation kit, and continuing to the next flange. This in essence mitigates the effect of using the kit, as CP is being lost. No matter what isolation gasket they installed the issue persisted.

SIGNIFICANCE

When current is lost through an isolation flange, there can be a need to install additional, supplemental CP systems to properly protect all the assets, and these can cost up to $50,000. When these supplemental systems are not put in place, and CP can no longer protect what it is intended to, this can lead to very high rates of corrosion in the lines and flanges. High corrosion rates lead to material damage, and leaks can be the result. In some cases, the deposits created a path for galvanic corrosion to take place, which lead to extremely high rates of corrosion in the anode metal.

OPERATING CONDITIONS

Temperature:	N/A
Pressure:	N/A
Media:	Natural gas (High Sour Content)
Size:	Multiple sizes ranging from 6” - 12”

SOLUTION

Customer conducted many trials of different solutions, all working unsuccessfully. The traditional GRE based gasket was not able to overcome the bridging, so a metallic cored isolation gasket was installed. Next, both gaskets were installed ensuring that the gasket ID matched the pipe bore, so there was no chance of a gap between the flanges. This significantly reduced the current that was able to pass, but not entirely stopping it. There was still leaking current, not allowing the CP system to protect what it was designed for.

After having success with EVOLUTION® in other applications experiencing similar issues, EVOLUTION® was recommended. This resulted in successful isolation, with no current passing into different lines . EVOLUTION® is the first solution that has blocked the current from passing through the deposits in the form of electrical bridging. EVOLUTION® utilizes an ID seal, which is the differentiator from all the other gaskets that were attempted. This ID seal does not allow the deposits to stick at the interface, where isolation would be lost. This also increases the effective Isolating distance by not allowing any metal core to be exposed to the media. Lastly, this ID seal matches the pipe bore, preventing any media build up between the flanges for a bridge. It has been seen that even protruding the ID slightly into the bore can have a positive impact on electrical bridging. The effective isolating distance is also increased

This solution is continuing to be in service and has achieved results that haven’t been seen in these lines previously ensuring the CP system is protecting what it was designed for, reducing corrosion in the pipeline and flanges.

For more information, please visit: http://www.gptindustries.com

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