



Case Study



Helium Leak Detection

Swagelok® Evaluation and Advisory Services

Executive Summary



The Challenge

With a product gas cost of \$210 per 1000 cu.ft., the potential for fluid system leakage was becoming a critical concern for the customer.



The Solution

We deployed our evaluation and advisory specialists who, while auditing the first facility, were able to find several critical process gas leaks that had previously gone undetected by their maintenance team.



The Result

Tens of thousands of dollars in cost avoidance, decreased impact on the environment, and a conservatively estimated 1200% ROI on the service.

Helium, despite being abundant in the universe, is relatively scarce on Earth due to its low concentration in the atmosphere. Further, there are no artificial or manufacturable replacements; its unique properties make it indispensable for various industrial applications. While historically extracted as a by-product of natural gas processing/separation, helium exploration and production requires specialized knowledge and techniques due to complex technical challenges. And, due to the small molecule size of helium – density of 0.166 kg/m³ for helium versus 1.21 kg/m³ for air – leakage is a significant concern in generation and storage.

In discussion with our customer, a leader in exploration and production of helium, our understanding of the criticality of various process, and our experience in fluid system analysis for the purpose of optimization and cost avoidance, identified the need for a facility leak detection audit.

The Solution and Results

In 2022 we approached our customer with a proposal; let us come to your facility, conduct a leak detection audit of process and instrumentation connections, and provide a full engineering report on leakage and loss of product, including cost avoidance.

Our first site evaluation – using our specialized equipment – resulted in finding several critical process gas leaks that had previously gone undetected by their maintenance team. Based on these results, we were invited to audit four additional facilities that same month.

In the fall of 2023, we surveyed all five facilities again as part of an annual preventative maintenance program and assisted in post-commissioning of a sixth facility during startup.

With the aforementioned product gas cost of \$210 USD per 1000 cu ft., we have conservatively estimated an annual gas savings / cost avoidance in the hundreds of thousands of dollars, or an ROI on services of over 1200%.

To learn more about Swagelok Evaluation and Advisory Services, complete our Service Request Form.

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