# CASE STUDY

*EMERGENCY VESSEL INSPECTION LEADS TO ALL HANDS ON DECK FOR LARGE-SCALE EMERGENCY REPAIR*

## THE CHALLENGE

ABEC received an emergency call from a client regarding a potential leak in one of their 25,000L stainless steel vessels that they self-inspected from the manway. The client wanted ABEC to perform a full vessel inspection and repair the leak.

During the ABEC Vessel Inspection, the customer was alerted to the emergency occurring inside the vessel. The sidewall and top head of the vessel around the leaking fitting had been severely corroded to the point that saving the vessel was in question. After the customer realized the lead time on new vessels, they asked ABEC to tailor a solution that would get them up and running in the shortest possible time.

Within 24 hours, ABEC tailored a solution that could save the vessel and mobilized to the site the next day over the US Thanksgiving Holiday.

## THE SCOPE & FINDINGS

The scope of work called for the vessel inspection of the 25,000L vessel with the ferrule leak and two additional vessels, a 5,000L and 2,000L vessel. All three vessels utilized the same process.

ABEC technicians inspected the 25,000L vessel and found extreme pitting and corrosion near the 6" ferrule in the top head, and down through the sidewall to the liquid level. The 5,000L vessel was in slightly better shape than the 25,000L, but also had very bad pitting and corrosion around the 6" ferrule, mixing baffles, and the shell.

A corrosive solution was being added to the vessel directly through the 6" ferrules without the use of a dip tube. To prevent this in the future, ABEC recommended utilizing a dip tube. After the inspection, ABEC called an emergency sit down with the customer to review the vessel findings and issues.

The initial thought was that the 25,000L vessel would need to be replaced, however, the lead time for a new vessel was an amount of time the customer could not afford. Pictures of the findings were sent back to ABEC's vessel team in Springfield, MO and ABEC began turning this problem into a solution.

## THE SOLUTION

After reviewing the problems internally and consulting third parties to verify, ABEC developed the following solution.

- Removed the corroded 30" x 30" top head section of the 25,000L vessel and sent it to ABEC's Springfield facility as a template for a new duplicate piece. Installed new 6" ferrule in-house to save field time.
- Cut out the corroded sidewall section and peeled back the external dimpled heat transfer material.
- Welded in the new sidewall piece and restored the external heat transfer.
- Fit and welded the new top head with ferrule pre-installed.
- Third-party inspection team X-rayed all welds.
- After verification, third-party inspector approved the repair and witnessed a hydro test of the vessel and heat transfer jacket.

***"I wanted to extend my eternal gratitude to the ABEC team for helping us through this situation. As long as I am sitting in this chair, ABEC will always have a seat at the table"***
***- Site Capital Lead***

*Image Details: 25,000L vessel corrosion and pitting on the top and shell seam*

*Image Details: ASME repaired 25,000L vessel*

## THE RESULTS

With over 45 years of experience, ABEC designed, engineered, and modified the customer's existing vessels to deliver a complete solution from concept to completion. The 25,000L retrofit saved costs and months of downtime compared to installing a new vessel, providing a strong long-term ROI. ABEC's rapid response, expertise, and resources enabled full repair and retrofit of both the 25,000L and 3,000L vessels with Authorized Inspection approval, all completed in under 12 days.

## THE BENEFITS

- ABEC saved the customer significant costs of a new vessel, shutdown, and lost output
- ABEC's vessel inspection and repair services provided the customer faster uptime and continued productivity
- ABEC The fast-tracked ABEC Turn Over Package (TOP) included the Vessel inspection report detailing all findings and repairs critical for regulatory reporting Service Technicians met all safety, quality, and regulatory requirements

### *Maximizing Customer Productivity, Controlling Costs, and Reducing Risk*

ABEC's service team is highly trained and experienced, working for customers to maximize productivity, control operating costs and mitigate risk. In every way, we strive to eliminate unscheduled shutdowns, while bearing in mind all factors associated with maintaining and improving bioprocess production operations and equipment. Our expertise and capability to address your specific requirements, in line with your schedule, make us the first choice for bioprocess services, no matter the location, the scale of the task, or the original manufacturer.