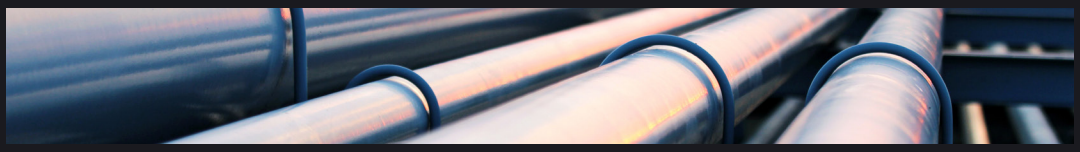
CASE STUDY

Whittaker Engineering streamlines vessel design workflow using Octave Aspect Pressure Vessel



Key facts:

Company: Whittaker Engineering

Website: whittakereng.com

Industry: Energy

Country: United Kingdom

Octave Products used: Aspect Pressure Vessel *(PV Elite)*

Key benefits:

- Reduced design time by up to 75% with built-in code compliance checks
- Easy to use with minimal training or setup required
- Delivered reliable, structured outputs for third-party verification
- Offered strong functionality at a competitive price point

Whittaker Engineering is a family-owned engineering firm based in Stonehaven, Scotland, with a subsidiary in Ciudad del Carmen, Mexico. Established in 1983, the company has grown to employ approximately 140 professionals in Scotland and 60 in Mexico. Whittaker specializes in delivering comprehensive engineering solutions to the energy sector, including oil and gas, renewables and marine industries. Its integrated services include design, fabrication, machining, installation and repair, allowing it to manage complex projects from start to finish. With a commitment to precision engineering, Whittaker continues to uphold Scotland's tradition of manufacturing excellence while investing in the next generation through apprenticeship programs.

Identifying goals

Whittaker Engineering was given the job of replacing two old air receiver vessels on an offshore platform in the North Sea. Though small, these vessels had been in service for decades and played a key role in powering crane operations. The challenge was to design and manufacture a modern, code-compliant vessel that precisely matched the footprint and connection points of the original installation.

However, the new vessels had to meet today's pressure vessel standards while keeping to the original dimensions and connection points. There was no room to redesign the surrounding setup and no option to shift things around. Every bolt, nozzle and flange had to match the exact position of the original installation.

It was also a one-off project, not part of a production run, which meant there was no off-the-shelf solution. Every detail, from material grades to design verification, had to be worked out from scratch and the vessels had to get third-party approval from Lloyd's Register, a leading provider of classification and compliance services to the marine and offshore industries. Whittaker's goal was clear: deliver a safe, certified design that would slot right in with minimal disruption. It needed software that could handle complex calculations, support modern codes and produce the clear, structured output required for verification.

"When it comes to getting a code-compliant solution and running through the necessary calculations, Aspect Pressure Vessel has made a big difference. It's straightforward to use and we're easily saving dozens of hours for certain design tasks. That kind of time back really adds up."

Glenn Summers,
Engineering Manager,
Whittaker Engineering

Overcoming challenges

Whittaker Engineering operates in a demanding environment. With oil production declining in the North Sea, there's constant pressure to deliver high-quality, reliable solutions but at lower costs and with tighter schedules than ever before.

One key thing Whittaker does differently from other companies is its ability to self-certify much of its vessel and piping work. It holds a 2014/68/EU – Module H certification, meaning it can internally verify many projects without always involving external inspectors. This saves time and reduces overhead, keeping projects leaner and more efficient.

However, the air receiver vessel project was different. The vessels fell under Category 4 under the Pressure Equipment Directive (PED). This represents the highest hazard level and requires the most stringent conformity assessment procedures, meaning the vessels require external verification from Lloyd's Register.

Updating legacy designs

The original vessels were built long ago using outdated materials and manufacturing methods. Whittaker needed to find modern alternatives that met today's standards but matched the old vessel's footprints exactly.

Adapting to updated codes

There has been a significant change in the regulatory requirements, such as the PED, since the original vessels were created. Whittaker had to align the old designs with today's strict regulations without complicating the solution or creating delays.

Maintaining accuracy and practicality

The new vessels had to match the existing connections and interfaces precisely. There was no margin for error – every bolt, flange and connection had to line up perfectly with equipment installed decades earlier.

To address these complex challenges, Whittaker chose Aspect Pressure Vessel to streamline the verification process. The software enabled accurate design validation, supported smooth Lloyd's approval, and helped reduce the risk of delays or expensive redesigns.

Realizing results

Aspect Pressure Vessel added significant value to Whittaker's engineering workflow.

From a smooth onboarding process to cost effectiveness, the software offered a practical alternative to other tools the team had used in the past, without compromising functionality.

The tool integrated well with existing processes, allowing engineers to jump in and start working with minimal disruption. For the vessel design team, Aspect Pressure Vessel became a valuable solution for running code compliance checks and detailed calculations without the manual back-and-forth they'd grown used to. The software proved intuitive enough to pick up quickly, even for those using it for the first time.

"We've had a couple of detailed questions and it's great to know we can reach out to the support team when needed. We can scale this across more of our projects."

Glenn Summers,
Engineering Manager,
Whittaker Engineering

Some of the key benefits the team experienced included:

- **Significant time savings** during design and compliance checks, reducing manual design time by up to 75%
- **Built-in warnings** for code deviations, helping engineers quickly spot and resolve issues
- **Structured outputs** that streamlined third-party approval from Lloyd's Register
- **Minimal onboarding needs,** allowing new users to get up to speed through hands-on use

Moving forward

Whittaker sees strong potential in continuing to use Aspect Pressure Vessel across its future projects. While the current vessel replacement was custom-designed, the team is looking to expand the tool's use across other business areas because of its ease of use and cost-effectiveness.

While overall adoption has been smooth, the team did encounter a couple of areas where Whittaker would like more flexibility, such as attaching pipework directly to nozzles or adjusting the orientation of pads on vessel heads. These are the opportunities for improvement as the team deepens their usage.

To explore these points further, Whittaker seeks to engage with Octave's support team through the Smart Community Portal, which has already been set up with free video training resources to help troubleshoot and train new users.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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