Petrofac Training Services

**Client:** Petrofac Training Services

Petrofac Training Services is part of the Petrofac Group, a leading international service provider to the oil & gas production and processing industry with around 18,000 employees. The Group’s customer portfolio includes many of the world’s leading oil & gas companies.

Petrofac Training Services provides competence consultancy, training and assurance services. Its 500 technical experts deliver over 200,000 training days globally each year, spanning exploration and production, drilling, refining, petrochemicals, gas, LNG and renewables. The operational platform for this worldwide capability takes the form of specialist training centres in Europe, the Americas, the Middle East, Africa, Central Asia and Asia Pacific. In the UK alone, Petrofac Training has around 450 client companies, including major oil & gas operating and service companies.

**Petrofac’s Simulator Training**

A key element of Petrofac Training’s service portfolio is MEM (Major Emergency Management) training. As the prime foundation for this service, the company’s training centres around the world use control room simulator systems developed by Pisys.

Of the 287 courses offered by Petrofac Training, seven involve MEM simulator training. The simulator based courses use almost 40 control room configuration models, enabling simulation of command & control environments as diverse as oil terminals and semi-submersibles, wind farms and FPSOs. Over 2000 delegates are accredited annually from this training.

**The Pisys Training Simulator**

The Pisys training simulator features a set of computer screens that visually mimic the “real world” screens found in the control room of any oil rig or platform. Individual screens show continuously updated graphical representations of key systems and processes. They also feature aspects such as power generation and fire & gas monitoring.

By simulating the various types of emergency that might arise, the system provides staff with the competencies they require in order to co-ordinate the appropriate responses. Trainees in the simulation control room direct operations by talking directly to individual members of the emergency response team in a mock-up of the physical plant environment. Simultaneously, CCTV simulation enables the trainees to watch events in real time as they unfold through to a successful conclusion.

Ray Allen, Pisys’s Director responsible for the Petrofac relationship, explains the benefit of this approach to training: “Simulation delivers much more effective learning than classroom-style training. That’s due to the higher degree of interactivity, but also the realistic scenario playing you get from re-creating environments such as offshore platforms, FPSOs, jack-up drilling rigs and semi-submersible drilling rigs”.

www.pisys.co.uk
Birth of the Simulator

When the forerunner of Petrofac Training approached Pisys in the late 1990s, control room training for oil & gas sector operations was largely paper-based. As a means of preparing staff for dealing with life-and-death situations, it was shockingly primitive.

Fortunately, Petrofac’s legacy business saw a better way. Trevor Riley, Head of Quality, Competence & Standards for Petrofac’s Emergency Response & Crisis Management operations, recalls: “Working with bits of paper as your training media might be cost efficient but it isn’t really acceptable nowadays. Back in the 90s, however, there wasn’t much of an alternative and it occurred to us that there was a gap in the market. The opportunity was to provide training with a situational awareness element that wasn’t available on a cost effective basis in the oil & gas industry at the time. But as a training company, we needed a partner specializing in IT systems to realize our vision. So we asked around locally, and the path of recommendations led us to Pisys”.

He continues: “As part of our research we visited RAF Leuchars and observed the Tornado flight simulator there. It met all our needs but there was one catch - simulation was still a mainframe game. A system like the Leuchars simulator was a major capital investment – a non-starter for our purposes. So we told Pisys we wanted real-time event simulation at an affordable price. And we worked together from there to crack the challenge”.

Ray Allen takes up the story: “As far as I know, the system we developed was the only PC-based simulator on the market at the time. It was a quantum leap, and it provided what the offshore guys wanted: something easy to use, easy to read, and specific to companies’ own operations – e.g., raising flow valves on a particular rig”.

Improved Flexibility, Usability and Features

In 2012, Petrofac upgraded to Pisys’s new generation simulator. The benefits? Greatly improved flexibility of operation and enhanced media capability – such as the ability to run videos. Complementing the enhancement of the simulation engine was the process of migrating Petrofac’s 40-strong suite of simulation models - replicating the features and appearance of operational assets such as gas terminals and jack-up rigs.

According to Trevor Riley, Pisys’s new simulator is an improvement on its predecessor: “The system is robust. I can’t think of a single MPTS system crash. It was also designed to be simple to modify, and the new drag and drop facility makes it easy to modify. On top of that, the Pisys system is cost effective to operate in comparison to a full scale process simulators. There are many aspects to that – just one small example is its use of a standard QWERTY keyboard”.

Trevor is also keen to emphasize the business efficiency benefits of the simulator: “The beauty of the Pisys system is that everything is instantaneous. That’s because it contains the cause & effect database for each of our client companies. So you don’t have to look up other sources mid-training session to find out, for example, in what situations you have to hit the shutdown button. And having the cause & effect database embedded in the simulator also saves the instructor’s time getting to know the client’s system”.

The Petrofac / Pisys Relationship

Petrofac now operate around 14 Pisys simulator systems round the world, with Pisys providing 24/7 technical support from Aberdeen. Ray Allen comments: “We get support calls from as far afield as Kuala Lumpur and Louisiana, and from time to time these turn into requirements for new simulation models”.

He expands: “Our close relationship with Petrofac makes it very easy for us to respond to requests for new models. By the nature of these things, for example, there are sometimes gaps in the material we’re supplied with – such as details of inputs and outputs relating to temperature and pressure indications. But because the two companies know and trust each other, we’re able to make reasonable assumptions and continue developing the model. In a situation where the customer and supplier were less well aligned, it would tend to be a case of sitting and waiting for the missing detail. But we simply don’t need to do that”.

“Pisys have been really good”, adds Trevor Riley from Petrofac’s perspective. “They are straightforward to work with, and they stick at it when necessary. Also, to ensure that we keep on track with regard to things like ongoing developments, upcoming requirements and support call patterns, we hold diarised meetings every few months. All in all, it’s an arrangement that works very well”.

Proof of the Pudding

When Trevor looks back on the Pisys relationship and the decision to deploy Pisys training simulators worldwide, what are his thoughts? “The proof of the pudding is that the Pisys simulators are still being used 16 or 17 years after they were first introduced. They are still being operated to the same level of fidelity, but there is also continued development. One of the strengths of the Pisys system is that it is easy to change it, add to it, and improve it.”