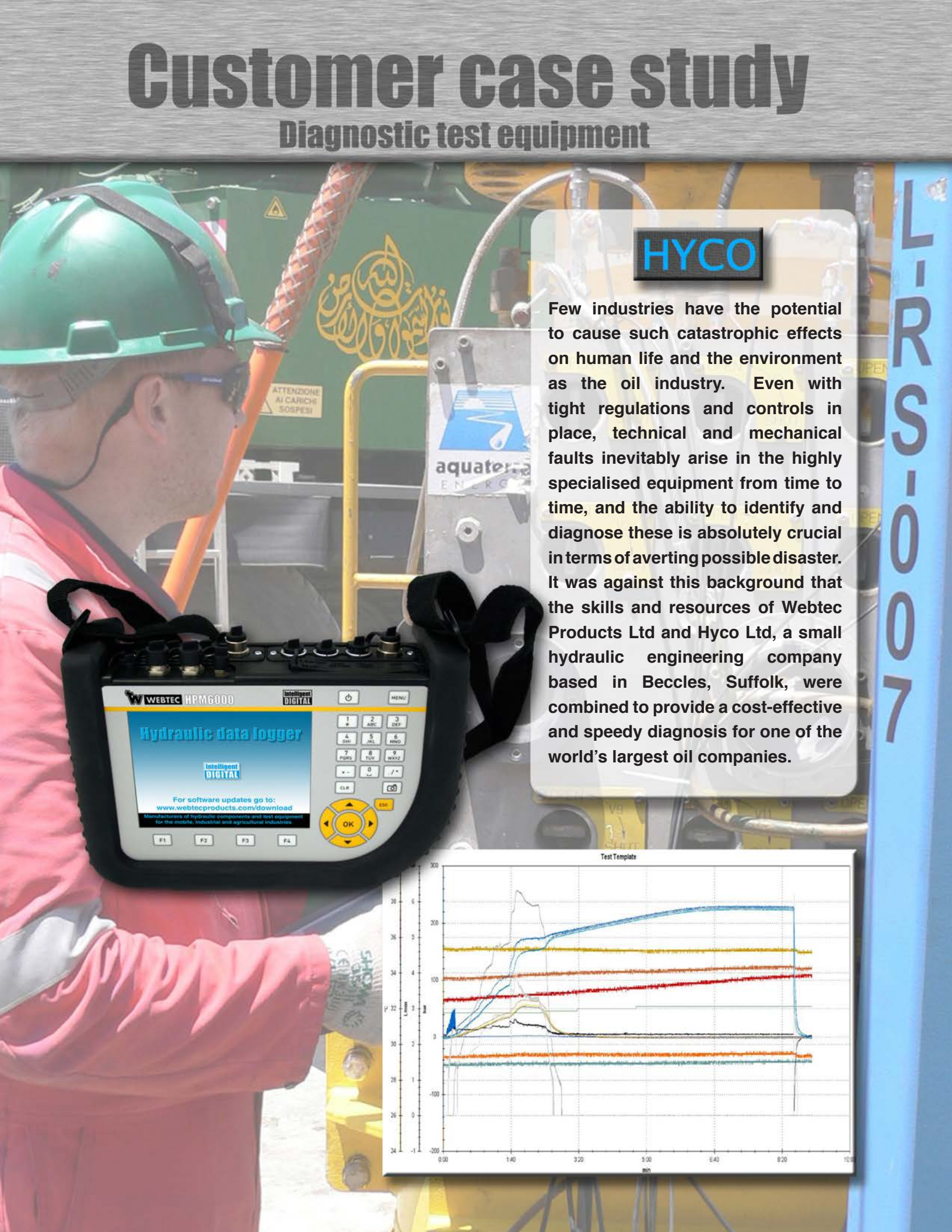
Customer case study

Diagnostic test equipment

L-RS-007

HYCO

Few industries have the potential to cause such catastrophic effects on human life and the environment as the oil industry. Even with tight regulations and controls in place, technical and mechanical faults inevitably arise in the highly specialised equipment from time to time, and the ability to identify and diagnose these is absolutely crucial in terms of averting possible disaster. It was against this background that the skills and resources of Webtec Products Ltd and Hyco Ltd, a small hydraulic engineering company based in Beccles, Suffolk, were combined to provide a cost-effective and speedy diagnosis for one of the world's largest oil companies.



When an H4 subsea connector being used off a BP contracted oil platform failed to lock into place during the early part of 2011, initial suspicions lay with four different components, amongst them the hydraulic power unit (HPU) used to power the locking mechanism and the H4 connector itself. As part of the offshore testing which was subsequently carried out, the original Hyco HPU was substituted with an alternative unit, the result of which was that the connector did lock successfully, but this was not considered sufficient to determine the source of the problem definitively. With no replacement connector on hand, however, the only solution was to return the original connector, power supply and umbilical to shore in Alexandria, Egypt for further testing.

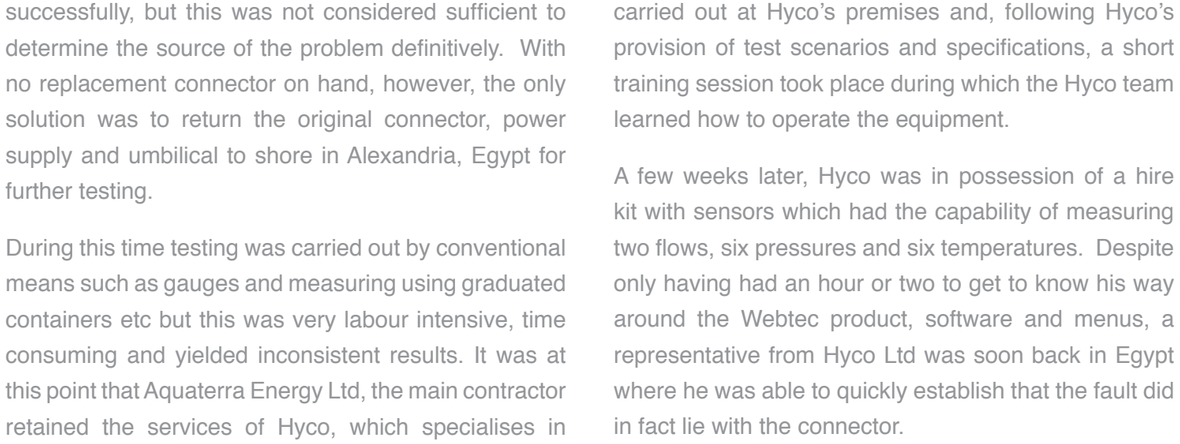
During this time testing was carried out by conventional means such as gauges and measuring using graduated containers etc but this was very labour intensive, time consuming and yielded inconsistent results. It was at this point that Aquaterra Energy Ltd, the main contractor retained the services of Hyco, which specialises in designing customised hydraulic solutions and power units for clients from a wide range of industries.

Initial tests conducted on location by Hyco on both HPUs proved to be inconclusive. The Hyco unit, which had initially failed to lock the H4 connector when offshore, Also failed to lock during the onshore tests, while the subsitute unit, which had been successfully tested offshore also failed to perform onshore, a fact which left all concerned feeling rather perturbed.

With the need to definitively test a whole range of different parameters, Hyco then contacted Webtec Products Ltd to discuss the use of their HPM6000 portable hydraulic data logger, designed for the diagnostic testing of hydraulic systems and showcased at the Hanover show in Germany in April 2011. Aquaterra Energy as a company are always receptive to new technologies and readily agreed to the use of this equipment. Just one week later, a demonstration of the HPM6000 was carried out at Hyco's premises and, following Hyco's provision of test scenarios and specifications, a short training session took place during which the Hyco team learned how to operate the equipment.

A few weeks later, Hyco was in possession of a hire kit with sensors which had the capability of measuring two flows, six pressures and six temperatures. Despite only having had an hour or two to get to know his way around the Webtec product, software and menus, a representative from Hyco Ltd was soon back in Egypt where he was able to quickly establish that the fault did in fact lie with the connector.

The HPM6000 turned out to be as simple to operate as the average mobile phone, the graph readouts were clear and simple to understand, the battery only needed to be recharged once in three days of testing and, despite the fact that the work was conducted in bright sunlight, the equipment screen was clearly visible.



HPM6000 in use

Hyco's Hydraulic Power Unit (HPU)

The H4 connector with test equipment attached

It wasn't just Hyco who were delighted with the usability and performance of the HPM6000 however. BP were not only happy to sign off the test as fit for purpose, but one of their own employees commented that "this could be a very powerful piece of kit". In addition, BP's main contractor, Aquaterra Energy, said that everyone was very impressed with the data logger and the graphs it can produce, mentioning that it very clearly identified that the H4 connector was at fault and that the hydraulic system (including the ROV panel, umbilical and HPU) were working as intended.

They added that they can now see the value of using such a system in the future during a site inspection test, (SIT), to provide a bench mark of how the system is performing before taking it offshore.

As a direct consequence, Aquaterra also indicated that they were keen to have Hyco Ltd return to carry out further testing using the HPM6000 once the faulty connector had been repaired. The cost of down-time in many industries can be crippling, but in the oil industry in particular it can be incalculable. Webtec's product could have saved valuable weeks had it been employed sooner, and all of those involved in this scenario were in unanimous agreement that "this equipment is the future".

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