Nuts & Bolts

Orphan Industries' L&R System

by Andrew Safer

In a 20,000 sq. ft. fabrication shop in St. John's, Newfoundland, Canada, Orphan Industries Limited's 50 welders, pipefitters, millwrights, and electricians work 12-hour shifts around the clock, building ROV launch and recovery systems (LARS) and other subsea equipment, primarily for the offshore oil and gas industry. In Orphan Industries' test facility outside, the LARS that has just been built is picking up a 40,000-lb. load weight to simulate an ROV and manipulating it back into position. Once the tests are complete, this unit will be loaded onto a tractor trailer and shipped to Dynacon Inc. in Bryon, Texas where the winch will be added and the complete system tested before it is transported to a location offshore Africa where it was designed to operate. The LARS are deployed on offshore supply vessels and rigs around the world. Dynacon builds its own LARS but contracts Orphan Industries to handle the overflow. In addition, Orphan Industries is a major supplier of LARS for Houston-based Oceaneering International, Inc. which pairs the LARS with its own ROVs. Dynacon and Oceaneering are major suppliers of LARS for the offshore oil and gas industry.

Orphan Industries' A-frame LARS are fabricated from low-temperature, high-impact steel. The units range in weight from 42,000 to 58,000 lbs., are nearly 11 ft. wide, 24 ft. deep, and extend to a maximum height of 29 ft. Its lifting capacity is 30,000 lbs. and in the overboard position it is capable of putting the ROV into the water 13 ft. from the edge of the vessel. The company's test facility incorporates a concrete pad that weighs 260,000 lbs. which enables them to do static A-frame load tests up to 56,000 kg.

In addition to LARS, Orphan Industries also builds subsea well temporary guide bases (TGBs) and permanent guide bases (PGBs) for Cameron International Corporation (Houston), spooling for Transocean (Houston) and Atlantic Towing (St. John's), winches for Dynacon, and shipping containers for Harvey's (St. John's). Jobs on the fabrication shop floor on this day include: the base and part of the crown of a DT 4400 LARS for Oceaneeering, a gas uplift pipe for the dehydration structure at Hibernia, a flexpipe for a winch platform at Hibernia, drill collars requiring maintenance work for Schlumberger, and tubular steel, which will be fabricated into a container.

DFB Group, a St. John's company that manufactures, fabricates, services and repairs offshore, marine and industrial equipment, established Orphan Industries, a wholly owned subsidiary, in 2005 to manufacture LARS. "We're not steel-bashing machinists," explains DFB Group's Chief Engineer Torfi Thorarinson. "What we build has gears, belts and hydraulics, as opposed to just welding steel together." He recalls that Orphan Industries competed with 25 bidders worldwide for the first contract to build five DT4400 LARS for Oceaneering. Orphan Industries and one other bidder in Singapore were awarded contracts to build three, with the promise of another two if they maintained the schedule and quality. "We won the contest, got the next order for 10, and have continued to build for them ever since," Thorarinson said. To date, the company has built 57 LARS which are being used by all of the major oil companies on offshore supply boats and rigs in various locations around the world including Newfoundland and Labrador, Singapore, Norway, and Africa. The number of LARS shipped has increased sharply from 10 in the first three years to 47 in the last three years. Sean Power, DFB Group Vice President Business Development, attributes much of that growth to Orphan Industries' inroads in improving plant efficiencies. The company initially enjoyed a 20 per cent competitive advantage internationally due to a favorable exchange rate between the US dollar and Canadian dollar. When they lost that advantage, they started looking for ways to streamline production. "We hired one of the best lean

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(Credit: Andrew Safer)

Orphan Industries Chief Engineer Torfi Thorarinson beside a structural component of LARS. The white spray paint indicates where a weld has been inspected.

manufacturing experts in the country three years ago," Power says. Since then, the time it takes to build, paint, and test one LARS has dropped from 4,000 hours to under 2,000 hours, reducing delivery time from two months to one. One example of eliminating wasted man hours is not having to spend 10 minutes a day looking for a tool, which saves 2 hours and 15 minutes a week per person in lost time. Profit sharing provides an incentive for employees to participate in the process. Thorarinson and Power emphasize that safety is priority number one. Before starting work, the employees rate the risk of each job using field level risk assessment cards and then figure out how to mitigate the risk. That could mean using a full harness with double lanyards to weld eight feet in the air, erecting scaffolding, or calling on someone with lifting experience before moving a heavy piece of equipment. "What we're most proud of is our safety record," said Thorarinson. "Safety isn't something you shove down someone's throat. It's a culture we've built here," pointing to a sign on the wall in the front office that reads: "1,115 days without a lost-time accident."

Drilling and exploration activity in the Gulf of Mexico is still slow following the Macondo Blowout and as the economy recovers from the recession, says Power. "But business has been picking up," he adds. "Permits are being issued. I'm pretty optimistic about LARS over the next 12 months."

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