



CSD simulator
in action

DEME's new dredge training centre in France features a state-of-the-art cutter suction dredger simulator and a training programme that gets beneath the surface, writes BERT VISSER



The Science Of Learning

On September 30, 2005, French national assembly delegate and mayor of Lambersart Marc-Philippe Daubresse opened a cutting edge training centre for dredging operators at his home town near Lille in northern France.

At the heart of the facility is an advanced cutter suction dredger (CSD) simulator built by IHC Holland Merwede for DEME subsidiary Société de Dragage International – an exact copy of the dredging desk aboard DEME's mega CSD *d'Artagnan*, launched in April last year.

Christened *Constance Bonacieux* after a character in Alexandre Dumas' famous series of novels about the Three Musketeers, this highly realistic simulator's an integral part of a new CSD training programme designed to give both aspiring and experienced dredger operators a better understanding of basic cutter processes, plus in-depth training

for actual operations in the field. On its first anniversary, we focus on the specific training programme developed for the simulator and how it's been implemented by DEME.

When it first placed the order for the simulator back in 2003, DEME requested that the unit should be incorporated into a training centre and that a comprehensive training manual should be produced to accompany it.

To develop the manual, which was later expanded into a full-blown training programme, IHC called on the expertise of its dredge training department the Training Institute For Dredging (TID). DEME and TID previously worked together in 2001 to produce the CD-ROM *Cutter Operator*, which had proved an extremely useful tool for explaining the processes behind cutter dredging. This was used as a platform for the training programme introduced at Lambersart.

DEME's major concern was that the training programme should provide much more than just operational instructions and that a major part of it should be devoted to demonstrating and explaining the elementary processes of cutter suction dredging. This would enable trainees to learn not just how something works, but why it works the way it does. DEME also emphasized that this theoretical approach should be taught in a very practical way.

BACK TO BASICS

Two CSD processes were considered fundamental to the training programme:

- 1). *Cutting processes*, including the ladder's swinging movement.

- 2). *Hydraulic transport* of dredged material through pumps and pipelines.

Also included in the programme, but given less priority, were secondary processes, like engine start-up, anchor handling etc.

The programme developers decided that once operators have successfully



Trainees put the simulator through its paces



Trainer Joost de Craemer at the controls



DEME trainer Geert Vanneste instructs trainees at Lambersart

completed the training, they should be able to visualize processes taking place at the cutterhead, in the pumps and in pipelines – ultimately enabling them to react more efficiently to changing conditions in the field. Obviously the CSD simulator would play a vital role in demonstrating the relationship between the theories behind the processes and reality itself.

Who's It For?

The first step in setting up the training programme was to identify the expertise of those to use it. DEME and TID found two major groups:

- 1). Young and inexperienced beginners
- 2). Experienced operators with field knowledge, but lacking an understanding of underlying processes.

Those in the first group of trainees begin their tuition with a six-month stay onboard a CSD deployed at one of DEME's projects worldwide. This familiarizes beginners with all aspects of life onboard a CSD and, once they've passed an evaluation, they can begin the training programme at Lambersart in earnest.

The first training level, 1A, aims to teach the basic principles of the dredging process, focusing on the 'how' and 'why'. And when this is successfully completed, trainees return to work on a real CSD for a further six-month period before beginning Level 2A, a one-week session that teaches them how to operate a CSD in simple, real-life dredging jobs.

Experienced operators, and those trainees now familiar with the practical side of CSD operation, can begin training at Level 2B, which aims to

provide a thorough understanding of cutting and hydraulic transport processes. Once this level is completed, both groups should have reached roughly the same degree of competence and can begin Level 3, which aims to re-explain all aspects of dredging processes according to the specific requirements of each trainee.

This level also includes further simulator practice, more complicated scenarios, plus training in how to respond to unexpected mishaps and calamities. The group typically comprises just two to four trainees to maximize the amount of simulator time for each one. The effectiveness of each training session is monitored using a short test at the end.

DEME's currently recruiting more French personnel, so the original Dutch language training programme has also been produced in French. Most French trainees already possess a solid nautical and theoretical background, but lack dredging expertise, so they follow a programme similar to the one for inexperienced crew, but adapted to their needs. An English language version of the programme is also available.

Working with DEME, TID produced several documents for use during the training sessions. A version of IHC Systems' detailed technical manual was developed for trainers, which provides a more user-friendly version of the theoretical models applied in the simulator. A second document for

Kitted Out

TRANSAS supplied a range of simulators for SIA Novikontas' new maritime training centre in Riga, Latvia – potentially the largest facility of its type in the Baltic

The facility includes a GMDSS TGS 4100 with eight workstations, an Engine Room Simulator 4000 with four expanded operator workstations, a Navi-Trainer Professional 4000 simulator with two instructor workstations, one bridge with three visualization screens and vessel management machinery, plus three bridges with two computers, each designed for radio location training.

The training centre will provide services to local and foreign crewing companies.

More info at www.novikontas.lv + www.transas.com

One of the simulators at Riga



trainers serves as a definitive manual and outlines how to work with the simulator.

Separate trainee manuals were written for each training level, which are divided by topic, feature inserts on different subjects and are all based on the 'Cutter Operator' CD-ROM. Lastly, another trainer document has been drafted that details every demonstration and exercise for each training level.

FINALLY...

DEME conducted its first training sessions in October 2005 and the centre's been in use ever since. Experienced operators have been particularly impressed by the realistic way the simulator reacts during training situations and some even confessed that the combination of displays, readers, sounds and vibrations was so realistic they forgot they were in a simulator at all!

For DEME, the positive effects are already apparent: operators who have completed the training are able to work more independently and are more confident to try new techniques, based on their improved knowledge of cutter processes. And that means more efficient dredging.

More info at www.dredgetraining.com + www.iholland.com + www.deme.be

Simulation Under The Spotlight



Conference delegates

Over 70 delegates from training institutes around Europe attended the KONGSBERG MARITIME EUROPEAN USER CONFERENCE 2006, which took place on the island of Vlieland in Holland from June 22-24

Co-hosted by the Maritime Institute Willem Barents at Terschelling, the forum was themed *Simulation and the Return On Investment* and included live demonstrations and a suite of Kongsberg simulators.

Day One – Featured a discussion on the new 'floating' licence for desktop simulators and a presentation by former Kongsberg Maritime simulation expert Per Branstad on the

evolution of maritime training. It ended with a technology briefing on the mathematical aspects of advanced modeling and high-end simulation.

Day Two – Began with in-depth presentations by Kongsberg Maritime simulator users on specific simulation areas, including fast ferry and tugs, plus a presentation on distance learning and separate product workshops – giving simulator users the chance to discuss the future of simulation in-depth.

Kongsberg Maritime will hold two more simulator user conferences in 2006, in Asia and the US.

More info at www.kongsberg.com

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