

Seven Seconds

The **EMERGENCY LANDING OF A HELICOPTER** is a dangerous maneuver—especially if this scenario occurs over water. Passenger training, including theory and practical exercises, significantly increases the chances of survival for the occupants. Vietnam Oil and Gas Corporation—PetroVietnam—offers training courses designed precisely for this type of emergency situation.

AT MIDDAY THE AIR is humid and the temperature is 32° Celsius. The scorching sun shines through a thin veil of clouds over Vung Tau, a peninsula about 120 kilometers southeast of Ho Chi Minh City, the former Saigon. Jumping into the blue pool seems like the most refreshing thing imaginable right now. But the faces of the 12 men in blue overalls appear subdued and concerned rather than delighted. Assembled at the edge of a pool four meters deep, they put on their safety helmets. It's time for them to face a very serious task, a challenge for which they have just received hours of meticulous preparation: escaping from a helicopter forced to land in water.

"This is scary," says instructor Hoang Van Manh. Earlier today he gave a gripping presentation to the course participants that lasted nearly three hours, teaching them how to overcome fear by means of strict training and mental control. His lesson included an explanation of the six categories of emergency landings: "Controlled, half-controlled, and uncontrolled landings—and each category includes landings with windows that have either been smashed or remain intact." The instructor gives examples of landings, shows videos of helicopter accidents, poses review questions and gives hands-on demonstrations, of the life vest for example: "If you inflate the vest while you're still in the helicopter, you'll probably barely fit through the narrow emergency exit!"

Watching and listening to his instructions leaves you convinced that this type of Helicopter Underwater Escape Training (HUET) should be mandatory for

everyone who travels over water by helicopter—not only for those who shuttle between land and drilling platforms, as is usually the case here at PetroVietnam. But in practice things are sometimes different, as Jo-Frey Valenzuela from the Philippines, who works for the Tanker Pacific company, found out. "I took part in a similar kind of training, but it was all dry theory," he says. Neither Valenzuela nor his employer were satisfied. So he booked a place in Vung Tau's course, which calls for realistic, hands-on practice. A participant who successfully completes the training has his qualifications documented with a stamp entered in a personal "Safety Logbook."

Don't lose your orientation!

PetroVietnam claims to be one of the biggest companies in the petroleum and natural gas sector in Asia to have invested in this combination of theory and practice. Concern for people's well-being is what made this service imperative, says Trinh Hai, Deputy Director of all the company's training centers, in the interview on page 19. At the edge of the pool, the men in blue overalls are ready to begin. The instructor familiarizes them with the enclosed unit that simulates the interior of a Super Puma, which PetroVietnam uses in addition to the Russian Mi 17 and the Eurocopter EC155B for transporting personnel. The unit features two seats in the front for the pilot and co-pilot, and six in the rear for passengers, who face one another. The grate floor allows water to immediately rush in during a simulated emergency landing at sea, and the windows >



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Ditching a helicopter is a highly dangerous maneuver. Survival is often dependent on performing a few critical actions that need to be practiced in realistic training sessions.



Head-over-heels: The simulated helicopter cabin can be rotated. Escaping requires a lot of concentration.

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Trainer Hoang Van Manh explains what the participants will shortly have to do: Escape from a ditched helicopter.

> can be easily installed and removed for the various training stages. The blue simulator hanging from a single-girder comes with a traveling six ton crane. The suspended unit can not only be moved clear across the training pool but also tilted at a wide range of “off angle” orientations—these functions are controlled electronically from the poolside. “When it’s turned upside down,” the instructor knows from experience, “many occupants quickly become disoriented.” He has already made that clear in the classroom by asking the participants whether a passenger sitting on their left before the simulator turns over on its longitudinal axis (known as “roll”) will be sitting on their left or their right after the roll. “On the right” was the incorrect answer from most of the participants, demonstrating that intuition alone can’t be trusted in such a situation and that practical training is a must.

The first six participants make themselves as comfortable as possible on the

Aluminum seats and fasten their seatbelts—and then evacuate the simulator. They don’t realize it yet, but they’ve all just passed the first test: “controlled emergency landing on land.” After they climb aboard again, the crane takes them out to the “high seas” of the training pool, which is comparable to a large swimming pool, except for its depth. The simulator’s occupants try to hide their jitters, but they are clearly in a state of suspense, some of them fidgeting with their overalls. Two divers with diver’s flippers and scuba tanks are standing by, of course, as is a doctor. But it’s only the skills they have acquired that can really ease the participants’ minds—after the training exercise.

The simulator is resting on the surface of the water, and the water inside is up to the occupants’ ankles. Each of them calmly proceeds to a life raft floating alongside. What they failed to notice amid the excitement was that the trim system of the simulator wasn’t quite right

when they climbed out, and the simulated helicopter was at risk of turning over. The instructor points this out to them. Next time everything will not only be better, it will also be more difficult. In the next phase, the simulator won’t just be resting on the water—it will sink. Everyone counts to seven. Slowly. The way they were trained to do. That’s how long it takes for the helicopter’s main rotor to stop turning. The spinning rotor is the greatest danger when leaving the machine—on land, too. The videos showed the dire consequences this can have. No-one who has seen it will ever forget how long a rotor can keep on churning up the water.

Making an impact

That had an impact. “Standing at the edge of the pool, seven seconds go by fast; under water it seems to take forever,” snorts Cao Van Tuan, one of the participants. The poolside observers applaud when the occupants all come to the surface—each giving a big thumbs up. Meanwhile, divers are installing windows into the simulator’s air frame. The instructor had previously explained in detail that the windows can most easily be removed by hitting them at one of the four corners, rather than in the middle. “And keep your seatbelts buckled at first! The water that rushes in will be like a whirlpool and spin you around, causing you to become disoriented!” Everything goes smoothly.

Now the participants are ready for the biggest challenge: getting out of the simulator after it has turned 180 degrees on its longitudinal axis. They are amazed that

the excellent training is enabling them to leave the simulator so rapidly although they’re gradually running out of breath. Not long before, they had sat together over chicken soup with chili, fried crab on coriander, and sautéed beef strips with garlic spinach, all prepared by the training center’s own kitchen staff. But after completing the training course, they will also be able to apply their new skills on an empty stomach. Underwater, however, the trained safety divers are already installing the windows. The participants take their seats again, fasten their seatbelts, and hit the water. The capsule turns over and they slowly count to seven before smashing out the window while hanging upside down, then release their seatbelts and swim to the surface, one after the other. Applauding along with everyone else, the next six participants have nearly forgotten that it’s their turn next. They also pass the tests with flying colors.

“I could hardly imagine different results,” sums up the instructor, who has three years of experience, even with older equipment. Only one in 300 participants fails the course. This new system was completed by Dräger in August 2008. “It was fun! And thanks to the practical training, I feel prepared should an emergency arise,” says Cao Van Tuan. While no serious accident has ever occurred in the petroleum and natural gas industry off the southern coast of Vietnam, it’s better to be safe than sorry. **Nils Schiffhauer**

Further information online:

www.draeger.com/97/dss



“Our employees are in demand worldwide”

TRINH HAI, Deputy Director, PetroVietnam Manpower Training College, is convinced that this is due in large part to their outstanding training.

How important are training programs at your company?

We employ more than 10,000 people, and all of them are working in an industry with a high level of risk. So we have to prepare them well. This is why we set up our center for all types of safety training in Vung Tau back in 1993. And we are continuously ensuring that it measures up to the very latest technological standards.

In this regard PetroVietnam is really setting the pace, and not only in Southeast Asia...

That’s right. We have, for example, offered a training program that teaches the participants how to escape from a helicopter that has been forced to land in the water. The safety of our employees is well worth the related investment. Participants have been completing the course with great success since August 2008—and today they come from all over the world.

Why did you award the contract to Dräger?

We were aware of the company’s reputation, especially for reliable respiratory protection products and gas detectors. And for the training aspect we found highly qualified and personable employees who understand exactly what we want. Their work also allows us to take part in a fair exchange of the most modern safety technology. And Dräger satisfied all the criteria for being awarded the contract—including our budget.

Is PetroVietnam’s need for safety technology likely to grow in the future?

Definitely. After all, we want to post higher turnover and expand our areas of business. In addition to oil, we have been extracting natural gas since 1981, and alongside new deposits off the coast of southern Vietnam we want to tap into deposits in the waters off northern Vietnam.

Will the focus remain on exporting crude oil and importing refined products?

No, our first refinery in Dung Quat began operation in February 2009. Two or three more should follow. We are already training people here how to manage refineries.

How do you find qualified employees?

That has become more difficult since the government began granting permission for foreign companies to operate in Vietnam—these offer very attractive salaries, for example. We have to offer comparable remuneration. And in terms of further training, we’re trying to set standards. This too enables us to recruit employees with excellent qualifications, for whom there is strong demand at many other oil fields worldwide. This demand shows us that we are also on the right course when it comes to training.

PetroVietnam—A company in the fast lane



PetroVietnam was founded in 1975 with the aim of extracting crude oil from deposits off the southern coast of the Southeast Asian nation. Five years later, Vietnam and the former Soviet Union transformed the company into a joint venture. Since 1981 it also has been extracting natural gas. In 2008 the company’s earnings were over \$16 billion, an increase of more than 30 percent compared to the previous year.

PetroVietnam’s crude oil exports account for 18 percent of the country’s entire export volume, and the earnings from the oil exports finance nearly one third of the country’s budget. The search for further offshore oil fields also is a success story: PetroVietnam tapped into five more fields in 2008. (www.petrovietnam.vn)