



Two Seabees assemble split pipe with a hydraulically powered impact wrench.

Interesting
Not much
punch (B)

A Watery Classroom for Seabees

By **LT G. N. SNIFFIN**
CEC, USNR

P. E., Pa.
Director, Special Schools Dept.
Naval Construction Training Center

● Port Hueneme, Ca.

Folks in Southern California associate "UCSD" with the University of California, San Diego. But Port Hueneme now has a UCSD of its own. It is the Underwater Construction Schools Division of the Naval Construction Training Center (NCTC).

The seven "majors" offered at NCTC continue to prepare Seabees for early usefulness in the construction ratings. And the construction skills of the Seabees continue to be the primary assets of the Naval Construction Force units, including the Underwater Construction Teams (UCTs).

So what's this about the "Seabee College" offering "minors?" Yes, it's true. Since October 1976 NCTC has been teaching courses in disaster recovery (see Navy Civil Engineer Summer 1976). A second minor was added to the Seabee college programs in October 1977 when NCTC began offering courses in underwater construction.

What does it take to enter the underwater construction field? First and foremost you must be an experienced Seabee. Usually a battalion tour is required before consideration for the underwater construction program. Another necessary skill is diving. This is acquired by attending one of the Navy's diving schools. Diving is *not* taught at NCTC. What is taught is the combination and extrapolation of construction and

diving skills in order to accomplish projects on, in and near the ocean.

Although NCTC began offering the basic and advanced courses only last fall, development started some years ago. Back in the early 1970s, when UCT-2 was a department of the 31st Naval Construction Regiment, a ten week course of instruction was developed leading to qualification as a basic underwater construction technician. The first class of four students graduated in March 1973. Following commissioning of UCT-2 as an independent fleet unit in November 1973, increased workload forced the training program to the background. It became apparent that a separate organization dedicated solely to training was the answer.

In July 1975 such a group was established at the 31st Naval Construction Regiment. The concept was to refurbish the basic course to meet current requirements, develop the advanced course, conduct each course several times for validation, and finally transfer both courses to a designated training command. The development effort proceeded on schedule, ending with the transfer of the basic and advanced courses to NCTC.

The Basic Course

The basic course is six weeks in length. During this period many of the skills routinely required of junior UCT members are learned. The course begins with individual seamanship skills, such as small craft

operation and daily maintenance. Rigging and deck seamanship are important skills learned by the basic student. Various aspects of terrestrial and underwater surveying are learned, including use of the surveyor's transit and recording fathometer.

Many underwater skills are learned as well. These include use of hand tools, hydraulic tools, rock drills, cutting and welding, excavation, material transport and underwater vehicle operation.

Exposure to project operations is gained in the latter portion of the course. The basic students participate in four field projects designed to realistically simulate typical UCT operations.

The hydrographic survey project entails conducting a detailed topographic survey of the ocean floor. Water depth is determined using the recording fathometer, mounted on a LARC V amphibious vehicle. The position of the LARC as it records depth readings is determined by using surveyor transits on shore. With the skill and teamwork learned, the class is able to take dozens of depth readings and produce a detailed bathymetric chart in short order.

The chart produced in the first project is used to select routes for the next two projects. One is the installation and stabilization of a submarine cable. The cable is pulled to the beach from an offshore platform

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using inflatable float ballons for support. When the desired length has been pulled ashore, swimmers cut the floats free, allowing the cable to sink to the bottom. Interlocking half sections of cast iron pipe (split pipe) are bolted around the cable to increase its weight and protect it from surf damage.

The pipeline project simulates the installation of a sewer line. The PVC pipe sections are bolted together on shore and floated out to sea. The seaward end of the pipe is capped and the air in the pipe provides adequate buoyancy. Once the line is floating in position it is carefully flooded, allowing it to sink gently to the bottom.

The fourth project is to construct a concrete anchor to secure the seaward end of the pipeline. A form is constructed around the pipe and concrete is placed using gravity flow through a tremie pipe.

The Advanced Course

The advanced course is four weeks in length. The intent is to prepare senior petty officers to function as independent detachment leaders. The emphasis is on the planning, supervision and safety aspects of project accomplishment. Advanced technical training is also provided. Where the basic student learns how to properly tie knots, use shackles, sheaves and pelican hooks, the advanced student learns how to size line and rigging components and design rigging layouts to minimize hazards.

The advanced course commences

two weeks after the start of the basic course. The field projects accomplished by the basic class are entirely planned and supervised by the advanced class. Each advanced student is given the opportunity to plan and direct a project. He also feels the full responsibility of directing project operations.

The school has three enlisted instructors assigned. These are E-6s and E-7s with UCT experience. The Department Director/Company Commander also has UCT experience and participates in the course offerings by instruction portions of the advanced course and taking part in the field projects.

Equipment outfitting required to teach the basic and advanced courses has been provided to NCTC by NAVFACENGCOM through CESO. In addition to the rigging equipment, diving equipment and tools necessary, the school has a LARC V amphibious vehicle, an inflatable boat and outboard motor, and a small barge equipped with a winch and hydraulic boom. Planned facility improvements include the construction of a classroom and a training tank at the school site. An AMMI pontoon will be converted into a self-propelled construction barge. Completion of these projects will allow the school to function without external support, such as port services pusher boats.

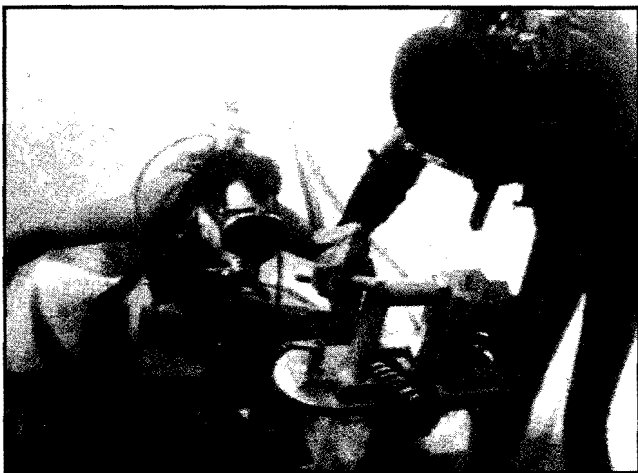
What's Ahead?

The establishment of the basic and advanced courses does not satisfy all

of the underwater construction training requirements. The list of specialized skills that must now be acquired through UCT in-house training is long. There are also skills presently taught only at costly factory schools. These training requirements are currently under review to determine which ones can be better met by developing Special Construction Battalion Training (SCBT) courses.

The underwater construction school is also developing special waterfront training for offering to NMCBs. A pilot course has been developed and presented several times to units deploying to Diego Garcia. This course provides instruction in basic seamanship, rigging and other waterfront skills required for pier construction and cargo ship offload operations.

Will underwater construction ever become an eighth construction rating? No. The UCTs don't need just divers; they need *Seabee* divers. Diving provides only a means of working underwater. It's the Seabee training, construction skills, and experience that gets the work done. Don't let the accompanying pictures fool you. Diving Seabees spend most of their time topside. And they must be highly skilled in their basic rating, be it equipment operator, construction electrician, steelworker, etc. Without these skills the Underwater Construction Teams would not possess the unique blend of construction skills and capability they now provide the Fleet Commanders. □



A Seabee cuts armored submarine cable with a hydraulically powered bandsaw.



A Seabee practices using a hydraulically powered rotary percussive rock drill.