

We're back!



FACEPLATE

The Official Newsletter for the Divers and Salvors of the United States Navy
Volume 1, No. 1 / Spring 1995

SUPSALV Sends

FACEPLATE is back in business after last being published in 1984. The purpose of this newsletter is to provide Navy divers and salvors with the latest information on conducting safe, efficient, and effective underwater operations. FACEPLATE will provide information on the latest procedural changes and process information for diving operations. Each issue will also feature a "Command in the Spotlight" and "The Old Master," words of wisdom from one of our Master Divers.

This newsletter does not replace authorized policies and instructions but serves to explain and augment those policies and regulations by stressing the most important issues facing the diving and salvage communities. Even though the tenor is informal, the information presented here has been reviewed for technical accuracy. We will provide points of contact for each article so that you can reach the author or technical authority for more details.

For FACEPLATE to succeed, I need to hear from you. I encourage you to write and submit articles or provide me with recommended topics and comments on our format and content. I also encourage our sister services, the Air Force, Army, Coast Guard, and Marine Corps, to become active participants in the FACEPLATE process.

Smarter and better informed divers are better and safer divers. With your help, FACEPLATE can provide the information you need to do your job well.

CAPT R.S. McCord
Director of Ocean Engineering
Supervisor of Salvage and Diving



Introducing AUSS

An unmanned, untethered search system

By T.B. Salmon

All of you ARS sailors who have had the pleasure of conducting deep ocean search operations will be happy to hear that we are finally close to eliminating the cable from our search system. What does this mean? Those *loooooong* turns at the end of each search line will become a thing of the past.

Our current capability centers around the ORION search system, which includes the tow fish, a handling system, control van, and 35,000-foot cable. ORION is a high-tech sonar system using fiber optics to transmit data and computers to process and enhance the sonar images. Over the past five or six years we have used ORION on a number of very difficult search operations. Of note, we located a United 747 cargo door in 15,000 feet of water off Hawaii, a CH-46 in 17,000 feet off Wake Island, and a CH-46 in 5,000 feet off Somalia. While we have been very successful with ORION, our efficiency has always been limited by the tow cable. During the Wake Island search it took the ship about 17 hours to make a turn after completing a search line.

The Advanced Unmanned Search System (AUSS) was developed at the Naval Command, Control and Ocean Surveillance Center, RDT&E Division (NRaD) in San Diego, CA. AUSS is a free swimming, semi-autonomous, untethered search vehicle. All of the problems

Continued on page 2

In This Issue

Lessons Learned the Hard Way 3
SUPSALV at Your Service 3
Salvage Executive Steering Committee Report 4

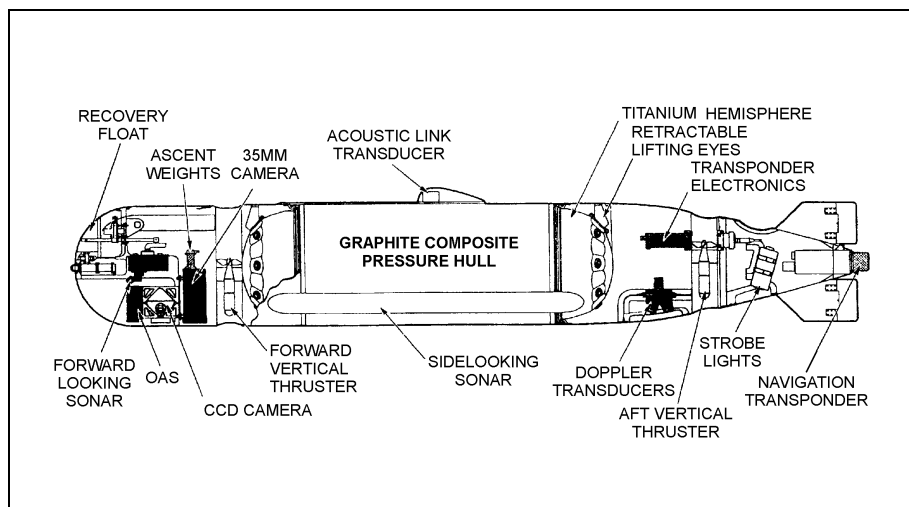
Working Divers Conference 5
Command in the Spotlight 6
The Old Master 7
Topside Technical Notes 8

From page 1

associated with towing a sonar, therefore, are eliminated.

Upon arrival at the search site, the AUSS is launched; it descends to the sea floor. Operators in the control van are able to communicate with AUSS via an acoustic link, through the water. Pretty amazing when you think about it — AUSS is thousands of feet below the ship, yet the two vehicles can talk to each other through the water column.

When it reaches the bottom, AUSS goes into a hover and awaits direction from the ship. Operators transmit a series of commands that define the search parameters and tell AUSS to begin the search. Using a Doppler navigation system, AUSS travels along predetermined search



The Advanced Unmanned Search System vehicle — profile view.

lines. Target information is transmitted to the control van, where search operators monitor progress. At the end of the line, AUSS makes a turn and lines up on the next programmed line. Because there is no tow cable, this evolution is completed in a matter of minutes instead of hours.

When the operators note a sonar target that looks interesting, they direct AUSS to divert to the target and inspect it. AUSS does just that. It turns and flies toward the target. When it gets close enough, a forward looking sonar detects the target and the operators can maneuver AUSS directly to the target. On command, the AUSS goes into a hover and photographs the object with its onboard digital camera. As with the sonar information, the digital photo is transmitted to the ship, where the operators determine if the target is the object of the search. If it's not, AUSS is told to resume the search. Using the Doppler, AUSS returns to the search line and proceeds.

At the end of the dive, AUSS releases a weight and does a free ascent to the surface. (How does a 12,000-foot "blow and go" sound?) Back on the ship, AUSS is serviced,

the battery is charged, and preparations are made for the next dive.

This all sounds great, but ...

There are obvious limitations with the free swimming system. The endurance of AUSS is limited to its battery life. Nominal dive time is 8 to 12 hours, depending on search speed, currents, and so forth. This news isn't all that bad, however. During a test dive AUSS was able to search 7.5 square miles in 8½ hours. With that kind of performance, recharging or changing batteries isn't too hard to take.

Before we received it, NRaD engineers successfully tested AUSS in 12,000 feet. We are currently planning to take the system out for sea trials later this year. If all goes well, we will put it on-line with a 12,000 foot capability. Over the next couple of years, we will try to push to the 20,000-foot design capability. ■

Tom Salmon is Head of Operations and Ocean Engineering (00C2). He can be reached at (703) 607-2758.

FACEPLATE is published by the Supervisor of Salvage and Diving to bring the latest and most informative news available to the Navy diving and salvage community. Discussions or illustrations of commercial products do not imply endorsement by the Supervisor of Salvage and Diving or the U.S. Navy.

Articles, letters, queries and comments should be directed to the Naval Sea Systems Command, 2531 Jefferson Davis Highway, Arlington, VA 22242-5160. (Attn: FACEPLATE)

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Lessons Learned the Hard Way

Read and Heed

Time is Money

On a recent underwater welding operation performed by contract divers, the divers' barge, loaded out with equipment and ready to start work, was brought alongside the ship. All that was needed to begin was an electric hookup by public works. Seven hours later, after a battle between the Readiness Support Group, ship's force, and Public Works over who would pay the \$500 hookup fee, power was supplied and diving commenced. The winner of the battle, of course, was the contract diving crew, who earned \$8,000 for standing around doing nothing while the Navy fought this internal battle. Remember, when working with civilian diving crews, *the meter is running*. Anything you can do to eliminate delays saves big bucks.

Never Assume

Recently, two "routine" propeller changes were performed, one on an LSD class vessel and the other on an LPD class vessel. In both cases, it was discovered after the job had begun that the hub lifting eye plug and dunce cap lifting eye plug were made of stainless steel instead of Navy brass. Because the lifting eye plugs were of a different composition than the propeller, they could not be removed. Many hours were spent in cold water attempting to remove the plug with no success. Several easy-outs were broken in the process. Although both dunce cap plugs were eventually removed, the propeller plugs were never loosened and both propellers eventually had to

be rigged using wire pendants wrapped around the blades. On the LPD class vessel, once the dunce cap fairing covers were removed it was also discovered that the webbing that houses the dunce cap stud nuts was filled with Belzona compound. Many extra hours were spent in cold water removing this compound with pneumatic chipping tools.

All of these items were "discovered" after the propeller removal equipment and personnel were on-site. If your locker is assigned a screw change on either of these class vessels, you could save a lot of unnecessary water time by checking the above-mentioned items before starting the job (that is, of course, unless you *like* cold water and two 12-hour shifts).

Check and Make Sure

Many times, NAVSEA logistic support messages never reach responsible parties in a timely manner. As a result, many hours of unnecessary down time are tacked on to jobs. Once you have a message in hand, you owe it to yourself to make sure that all addressees are aware of the parts they must play to get the job done in a timely matter. Don't take it for granted that because somebody is addressed in a message that they automatically know about it and the role they play. Unless you would rather stand around and do nothing, "check and make sure." ■

Michael Dean, who heads up the Division of Underwater Ship Husbandry, can be reached at (703) 607-2761.

SUPSALV at Your Service

A brief overview of SEA 00C

by Richard Asher

The Office of the Director of Ocean Engineering, Supervisor of Salvage and Diving (SUPSALV), or "00C" as it is known in the Fleet, reports to the Surface Ship Directorate of the Naval Sea Systems Command. SUPSALV is responsible for all aspects of ocean engineering, including salvage, ship repair, contracting, towing, diving safety, and equipment maintenance and procurement. SUPSALV was established in 1941 under ADM Sullivan. Since that time there have been 19 SUPSALVs, with CAPT McCord serving as the incumbent.

Our office consists of a small front office staff which includes an Admiralty Attorney. There are a total of eight military personnel, 45 civilian personnel, and one Royal Navy Exchange Officer. The five Divisions that support SUPSALV are described below.

The **Management Support Division** prepares and tracks contractual and financial documents and provides logistic support to other divisions in SEA 00C. Additionally, this division prepares our operating budgets.

The **Salvage Operations Division** handles salvage and oil spill control operations that are tasked to SUPSALV by CNO or the Fleet. It provides a "backstop" for the Fleet to fill in when other assets are not available. In addition, the division operates the Emergency Ship Salvage Material (ESSM) System with

Continued on page 4

From page 3

facilities at eight locations around the world. A new facility has recently been established in Alaska to support MSC and DFSC in oil spill control operations. (A future article will provide a complete overview of the ESSM System.) The Salvage Operations Division also operates three ROVs for deep water search and recovery. Current system capabilities permit operations down to 20K FSW.

The *Diving Program Division* is responsible for setting diving policy by publishing the *U.S. Navy Diving Manual* and promulgating diving AIGs. The division develops and procures initial issue diving equipment for the Fleet and issues the diving ANU list. The division also provides direct support to the Fleet by responding to diving questions and reviewing operating procedures. The Navy Experimental Diving Unit reports to the Diving Program Division.

The *Diving Certification Division* serves as the System Certification Authority for the Fleet. Division personnel review and inspect shipboard and portable diving systems on both a periodic basis and when system changes have been made, including overhauls. The division performs an important safety function by helping to ensure that high standards are maintained to protect Navy divers. Divisional personnel include several engineers and several retired Navy Master Divers.

The *Underwater Ship Husbandry Division* (UWSH) is chartered to develop techniques, procedures, and equipment to perform ship repairs waterborne. Its goal is to develop procedures and equipment for the Fleet to use. As in the Salvage division, UWSH provides a backstop for

the Fleet for the performance of certain tasks when other assets are not developed or available. The division maintains support equipment in an RFI status at the two CONUS ESSM Bases (Cheatham Annex and Stock-

ton). This division also administers the Hull Cleaning Contract. ■

Richard Asher is Deputy Director of the Office of Ocean Engineering, Supervisor of Salvage and Diving (00CB). He can be reached at (703) 607-2753.

Salvage Executive Steering Committee Meets to Formulate Navy Salvage Priorities

The Navy Salvage Executive Steering Committee (S-ESC) recently met to address issues facing the combat salvage forces. The S-ESC is made up of senior salvors from the Fleet, training command, and Washington, DC area commands and the resource sponsors who pay the bill for combat salvage forces. The S-ESC was chartered by the Vice Chief of Naval Operations (VCNO) in 1993 to provide organizational focus and to develop recommendations on priority Navy salvage issues to support the CNO.

The S-ESC originally met in 1993 to determine Navy salvage force levels needed to meet the threat in the next century. The S-ESC developed a model to predict combat salvage force levels and proposed a force level to the CNO. The Center for Naval Analysis then validated the model developed by the S-ESC and CNO obtained the Secretary of the Navy's approval for the recommended combat salvage force level. That force level is four ARS-50 class ships, three ATS-1 class ships converted to Military Sealift Command vessels, and two T-ATF 166 class ships. The ARS-50s are to be homeported in the Atlantic Fleet and the other five

ships will be homeported in the Pacific Fleet.

The S-ESC also developed a Navy Salvage Strategic Plan that was approved by VCNO in August 1994. The strategic plan contains two broad goals concerning the development of a long-range salvage strategy and a Navy salvage doctrine. Each of these goals is supported by shorter range and more specific enabling objectives, for example, required combat salvage force levels; developing a methodology to integrate salvage forces into Fleet, joint, and multi-national exercises and war games; and developing a plan for integrating combat salvage operations with other DoD agencies.

The S-ESC recently met in Washington to discuss, update, and modify the strategic plan and work on other issues facing the salvage forces. Some of the results are that the S-ESC recommended keeping and better defining the billets that should be Salvage Construction Demolition Diver (NEC 5375) and the establishment of a formal structured workshop for working divers to let policy makers understand their concerns (see the Working Divers Conference article on page 5).

For more information contact CAPT McCord at (703) 607-2753. ■



Pre-World War II U.S. Navy F3F-2 fighter aircraft ditched off Southern California in 2900 feet of water by First LT Robert E. Galer, USMC on 29 August 1940. Recovered by SUPSALV Remotely Operated Vehicle DEEP DRONE on 4 April 1990.

BEFORE and AFTER



Totally restored F3F-2 fighter aircraft on display at the Naval Aviation Museum, Naval Air Station, Pensacola, FL. Photograph is signed by Brigadier General Robert E. Galer, USMC (RET), who was awarded the Congressional Medal of Honor while serving with the Cactus Air Force at Guadalcanal.

Working Divers Conference

Annually, the Fleet sponsors a Salvage Symposium and NAVSEA sponsors a Diving Cross-Tell Conference as well as an Underwater Ship Husbandry Conference. This year, NAVSEA is combining the three conferences into one: The Working Divers Conference, to be held in July in Little Creek. NAVSEA is soliciting issues and point papers for this conference.

The conference goal is to collectively address and resolve issues pertaining to the working diver. Some of these issues are delegation of waiver authority, criteria for certification, new approaches to UWSH, and use of commercial equipment.

NAVSEA solicits your inputs on these and additional issues. The intent is to provide a forum that encourages input that will "Bubble Up From the Bottom" and resolve issues. This means input from the deckplate level and senior enlisted within the working divers commands is needed.

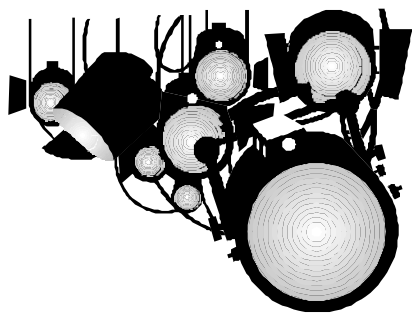
This year's conference will use working groups with *user participation* to resolve issues and make recommendations. Attendees will be assigned to working groups and will be expected to bring input and actively participate in their groups. Hopefully, individuals will leave this conference with the satisfaction of knowing that they made improvements for working divers. ■

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COMMAND IN THE SPOTLIGHT

Mobile Diving and Salvage Unit Two

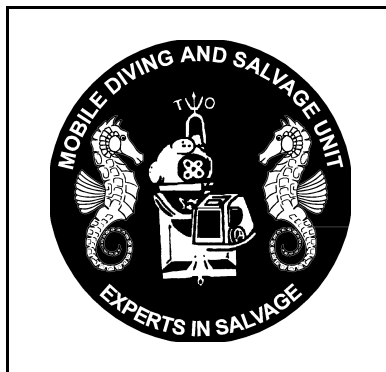
Mobile Diving and Salvage Unit Two, located at Naval Amphibious Base Little Creek, was established in October 1966 under the name Harbor Clearance Unit (HCU) Two. Patterned after the mobile harbor clearance units of World War II, HCU Two's mission was to provide diving and salvage services in the Atlantic, European, and Mediterranean operating areas. The mission has remained essentially the same over the years, with greater emphasis recently on rapid response with designated flyaway detachments and highly portable diving and salvage equipment.

In 1981 the unit's name was changed to Mobile Diving and Salvage Unit (MDSU) Two to more accurately reflect its overall mission. Since August 1994, MDSU Two has reported directly to Commander, Explosive Ordnance Disposal Group Two.

Since its establishment, MDSU Two has conducted missions running the entire gamut of underwater operations: ship salvage, underwater search and recovery, underwater ship husbandry, diving equipment test and evaluation, archeological salvage, criminal evidence recovery, humanitarian relief, and saturation diving. Its customers have been just as varied: all U.S. Military ser-

vices, U.S. State Department, Federal Aviation Administration, U.S. Customs Service, Federal Bureau of Investigation, State Marine Resources Commissions, Department of the Interior, and various foreign governments.

MDSU Two has been involved in many high visibility operations over



the years. Some of the more memorable were the recovery of Air Florida Flight 90 from the icy Potomac River in 1982, the USCG *Blackthorn* salvage in Tampa Bay in 1980, and the Space Shuttle *Challenger* recovery in 1986. During the early 1970s, HCU Two operated the MK 1 Deep Dive System, precursor of the MK 2 saturation systems, installed on the ASR-21 class submarine rescue ships.

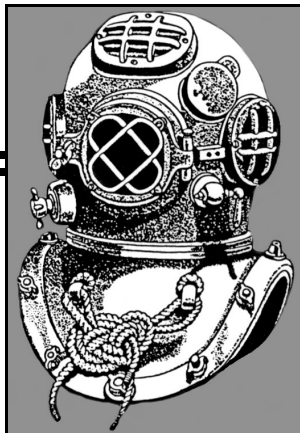
Along with all the operational missions, MDSU Two has also trained some the Navy's finest divers at the COMNAVSURFLANT Second Class Diving School. The school operated from the unit's early years at Naval Station Norfolk until April 1994, when all diver training was consolidated at the Naval Diving and Salvage Training Center in Panama City.

Recent operations, such as the harbor clearance of sunken vessels in Roatan, Honduras, and Massawa, Eritrea (Africa) illustrate the worldwide deployment capability for which MDSU Two has become recognized. Precedent setting continues to be MDSU Two's banner. The emergent deployment of a 32-man detachment onboard the USS *Apache* to Haiti, in support of Operation Uphold Democracy in September 1994, was the first major mobilization of Fleet divers into a potential war zone since HCU One deployed to Vietnam in the 1960s. In April 1995 a 15-man MDSU Two detachment embarks on the USS *Mohawk* to provide diving and salvage support for a six-month Mediterranean deployment, the first such scheduled T-ATF deployment made necessary by the decommissioning of the ARS-38 class salvage ships.

HCU/MDSU Two has seen many distinguished salvage luminaries cross the quarterdeck. Names like McCord, Delaplane, Radecki, Yatsko, Ryder, Gibson, and Starcher are but a few of the many Navy salvors who have graced the muster lists and done the business. Their skills and professionalism have made the MDSU Two reputation what it is today: "Experts in Salvage." ■

CDR Honey currently commands MDSU Two. He can be reached at (804) 464-7404.

The OLD MASTER



By ENCM(MDV) Don Roberts
(703) 607-2766

Now that the FACEPLATE is back in commission, allow us to take a few minutes of your valuable bottom time to bring you back up to speed. We at SEA 00C would like to take this opportunity to refresh your memory about our program and to remind those of you at the Fleet level that we are here to help you.

That help comes in many different forms. Our charter is to provide operational support to Fleet diving units and to acquire Divers Life Support Equipment Systems. Operational support may be as simple as a phone conversation or changes to Diving PMS, or as complex as rewriting the Diving Manual. The acquisition process, as you would expect, is extremely complicated. The Navy Diving Program has seen many changes since the last FACEPLATE was published. Fleet down-sizing has forced us to

do more with significantly less personnel and equipment.

All this has set the stage for streamlining of procedures and the introduction of equipment such as the MK3 Light Weight Diving System and the Transportable Recompression Chamber System. Almost to prototype is the FADS 3 (5000 PSI air) System and Fly Away Mixed Gas System. These configurations will utilize composite flasks that are lightweight and highly portable.

A wholesale revision to Diving PMS has been underway for almost two years now with significant progress. This has been possible be-

cause of the enormous amount of Fleet input we have received. It makes perfect sense that you, as the end user, should tell us how the maintenance business should be done.

We are currently revising Volumes One and Two of the Diving Manual. These manuals will be broken into five individual volumes. One volume will cover administration and training; the remaining four volumes will be operations manuals covering the types of diving and diving apparatus that we currently employ.

In closing, each and every piece of gear or information that leaves this shop is in support of your Fleet mission. Without your operator input, the process will not work. Keep our phones busy with your questions and your valuable input.

In Memory

TMCM(MDV) Robert C. Sheats passed away on March 9, 1995. Bob was known by all as a diver's diver, a man's man, and a friend. He was captured by the Japanese in Manila after the outbreak of WWII. He is particularly remembered for his series of articles about diving in Manila Bay for the Philippine silver. Bob was also the Master Diver on Sealabs One and Two. His passing ends an era. Bob will be sorely missed; they just don't make men like him anymore.

Coming Soon:

Topside Technical Notes

Starting this spring, be on the lookout for *Topside Technical Notes*, published by the NAVSEA Diving System Certification Authority (SEA 00C4). The purpose of this publication is to give deck plate diver technicians detailed instructions for maintaining their diving systems in certified condition.

Each issue will feature a particular diving system component or procedure. The information will be presented in such a way that you will fully understand the function of the component and the steps or procedures you need to take when replacing or repairing these components.

The first issue will focus on relief valves. You'll receive a new Tech Note every couple of months until all

topics are covered. Here's a partial list of topics to be addressed: filters, piping (intake, system and fittings), compressors, brazing, welding, moisture separators, flasks, receivers, valves, gauges, hoses, recompression chambers, testing, OPS/EPS, and system drawings.

As part of this effort a number of process instructions will also be written. These process instructions will be guidelines for accomplishing and documenting some of the more common maintenance and testing procedures required by a diving system. A list of the planned process instructions includes: recompression chamber interior painting, setup and testing of hydrostatic testing equipment, compressor efficiency testing,

system flow test, body strength test, intake piping leak test, system tightness test, and view port installation.

Along with the first issue of *Topside Technical Notes* you'll receive a three-ring binder for easy storage. This binder should be made available to all personnel involved with operation and maintenance of diving systems.

NAVSEA hopes that these Tech Notes will become an interactive effort between Headquarters and Fleet personnel. The topics listed above are not the only topics that could be addressed in this format. Anyone who would like to provide input on new topics or comments on any Tech Notes as they become available, feel free to call or write NAVSEA 00C4.

Joe Vicedomine can be reached at A/V 327-1570, COMM (703) 607-1570.

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