FACEPLATE

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Inside this issue: EMORY S. LAND DIVERS repair submarine damage, page 7.

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SUPSALV SENDS

"Are our last salvage ships REALLY gonna get transferred to MSC?"

That's the most frequent question I hear around the salvage Fleet today. And it is not surprising. The U.S. Navy salvage force has continuously included commissioned salvage ships since before WWII. During the last two decades, however, the Navy has reduced the number of active duty salvage ships from greater than twenty ships all the way down to the four ships of the USS SAFEGUARD (ARS 50) Class. As of this writing, CFFC and OPNAV are in the midst of determining whether ARS 50s remain commissioned vessels or are converted for Military Sealift Command (MSC) operations.

Those discussions principally involve two issues: (1) what are the U.S. Navy's wartime requirements for afloat salvage platforms, and (2) what is the most cost-efficient means to meet that wartime requirement?

WARTIME SALVAGE SHIP REQUIREMENTS – Due to the classified nature of this issue, not everything can be summarized in FACEPLATE. What I can say is that the official campaign analysis used to address future force requirements for salvage ships makes assumptions about the number of battle-damaged surface ships in need of salvage/rescue towing. And it omits completely a second critical role of salvage ships – harbor clearance and opening of blocked navigation channels – an Achilles heel of our reliance on "rapid strategic logistics" supplied by U.S. and allied shipping. Until the SEA POWER 21 vision is no longer dependent on access to channels, ports, harbors, and berths, a capable salvage force is still required. What's missing is a quantification of the near-simultaneous, wartime requirement for both (a) battle damage recovery/rescue towing of surface combatants, and (b) harbor clearance/channel clearance permitting rapid throughput of strategic logistics.

COST EFFICIENCY – Careful examination confirms that converting the SAFEGUARD Class salvage ships to Military Sealift Command operations will be less expensive to the U.S. Navy than retaining them as commissioned vessels. And there is little doubt that if MSC recognizes these specialty ships are **not** simply smaller ships of the logistics force, but are purpose-designed and built for the hazards of combat-salvage, then MSC could develop, fund, and implement a "salvage ship master" training program to ensure civilian mariners are trained as professional salvors to competently operate our salvage ships. But the greatest unknown remains determining the critical size of the uniformed salvage force aboard salvage ships for actual wartime salvage.

For years, our T-ATFs have been manned by 16-person Mobile Diving and Salvage Unit detachments. However, the recent experience of USS GRAPPLE (ARS 53) supporting the DDX Weapons Effects Tests (WET) on EX-USS PETERSON (see related article) revealed that every member of GRAPPLE's 100-person crew was required (directly or indirectly) to control and contain fires and flooding on EX-PETERSON after intentionally exploding a warhead – and even with careful limitations on hull damage to keep this test ship from severe flooding. The EX-PETERSON operation was a wake-up call to an increasing demand on our afloat salvage force manning, especially as our warship crews become much smaller - even with the advanced, autonomous damage control and fire fighting systems demonstrated on EX-PETERSON.

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Military Sealift Command
in the Future of Shipboard Diving and Salvage

By: CAPT Mike Freeman, Navy Harbor Pilot, and CAPT Mike Herb, USN

Towing, salvage, and diving is a challenging profession requiring unique knowledge and an extensive skill set. This business comes with inherent operational risks that add greatly to the challenge. Long lists of lost or flooding tows, parted lines and wires, Diver accidents, etc., can make for entertaining barroom sea stories or tragic reading in investigative reports.There has been much speculation why these types of accidents happen, and to what extent they were attributable to inexperienced officers in executive and command positions. We can also debate how much experience and training is enough. While experience does not guarantee accidents will not occur, data does show a clear correlation between safety and experience. Regardless of the arguments, experience counts, and the Navy must keep it a manning priority.

In this article we will try and stay away from the debate of "intangibles" and stick to presenting a case for transitioning the ARS 50 Class salvage ship to Military Sealift Command as the best way to ensure the Navy maintains its organic towing and salvage capability. Simply stated, Military Sealift Command, with the appropriate Mobile Diving and Salvage Unit (MDSU) augmentation, can operate the ARS at full mission capability with far more bridge and deck experience while greatly increasing the operational availability to Fleet Commanders and reducing costs to the Navy.

BACKGROUND PERSPECTIVE

Throughout the years the experience level in Navy salvage ships has varied for a number of reasons. Today our manning policy results in the lowest level of experience in the primary mission areas since before World War II. The Special Operations Community (1140) provided the experienced diving and salvage officers to man and command salvage ships for the past twenty years. We, the authors, both commanded ARS 38 and ARS 50 Class salvage ships, and each was a qualified Navy Diver with 10+ years at sea and three different salvage ship tours before taking command of our respective ARS 50 Class salvage ship. We point this out not to sell our resume, but rather to show what the typical experience level was for a commanding officer. The SPECOPS community is no longer willing or able to provide qualified salvage officers in XO or CO billets. The current command assignment policy provides a commanding officer who is well qualified in those aspects common to all surface ships, but who must rely on members of his or her crew for knowledge and experience in the towing, diving, and salvage business.

USS GRASP (ARS 51).

Another problem that exacerbates the lack of experience on salvage ships is that strong "back-up" is no longer assured. In the eighties, it was not unusual to have a Master Diver who was on his 2nd, 3rd, or even 4th salvage ship tour; a Bos'n with decades of experience and many other of our senior enlisted had multiple salvage ship tours. With only four USN salvage ships throughout the past 8 to 10 years; this is no longer the case.

In our Navy we strive to assign the most qualified officers to command. This qualification is the result of years of training and experience. Submarine qualified officers command submarines. Surface warfare officers command surface combatants. In the aviation community, it gets more specialized. Helicopter qualified officers command helicopter squadrons, P-3 aviators command P-3 squadrons, fighter/attack aviators command VF squadrons. "Know your stuff" is one of the foremost qualities of a leader. Yet, on a cyclic basis, we assign officers to command salvage ships that have never performed an open ocean or rescue tow, never planned and supervised a diving operation, never retracted a grounded ship – the primary missions of their new command.

MOVING FORWARD TO FUTURE

A best solution for today and into tomorrow – transfer operation of the ARS 50 Class ships to Military Sealift Command (MSC).

Proven capability

This concept is not ground breaking. With the transfer of last AOE 6 this summer and the decommissioning of the last AOE 1 in FY'06, MSC will be operating the Navy's entire Combat Logistic Fleet. Other non-combatants such as submarine tenders and even command ships are under study. The four ARS 50 Class salvage ships are a natural fit. MSC already operates the five T-ATF Class ships, with a primary mission of ocean towing and second-

ary mission of salvage. During diving and salvage operations using the T-ATF, the MSC Master retains full responsibility for the safe navigation and maneuvering of the vessel, but a qualified Navy Officer in Charge is responsible for planning and execution of diving and salvage operations. Two of the T-ATFs, USNS MOHAWK and APACHE, with MDSU TWO detachments and fly-away DLSS regularly deploy as the salvage asset to Sixth Fleet. Like the Combat Logistics ships and T-ATFs, the ARS would remain Government Owned and Government Operated, or GO/GO, and would be operated by Government Service Civilian Mariners or CIVMARs.

Experience

Placing all towing and salvage platforms under a single Type Commander creates synergy. Under MSC, crews of professional licensed and unlicensed mariners, whose experience in towing and salvage is not measured in months, but in years or decades, will operate all our salvage ships. Having a sub-critical mass of only the five T-ATFs creates a challenge for MSC in maintaining the optimum experience level among their deck officers in towing and salvage. With the addition of the ARS 50 Class, MSC would have nine ships, greatly enhancing the development of their cadre of deck officers to optimally operate these ships. MSC CIVMARs are licensed and experienced mariners and T-ATF Masters already carry Coast Guard towing endorsements on their licenses. MSC wants to improve on this base and is finalizing a training course for Masters and Mates assigned to the tugs. This training, which will be expanded for the ARS, includes towing and salvage unique shiphandling, operational planning, MDSU and SUPSALV operations. The training will consist of classroom, simulator, and underway training.

Increased OPTEMPO

A significant benefit of MSC operation of the ARS 50 Class salvage ships is that real operational availability would more than double. MSC guarantees their ships to the Fleet for OPCON 270 days a year for tasking as the operational commander desires. Transferring the Diver billets from the ARSs to the Mobile Diving and Salvage Units provides for more deployable detachments, with an increase in flexibility to respond to diving and salvage requirements worldwide.

Providing T-ATF and T-ARS platforms on a rotating basis to support MDSU training requirements will keep the readiness edge sharp, both for the MDSU detachments and the T-ATF/T-ARS crews. The really good news is that you get this increased operational availability and improved readiness at a reduced cost to the Navy.

Cost

Although secondary to operational readiness, fiscal realities cannot be overlooked. From the CNO Guidance for 2004, it is clear that we must pursue smarter ways to optimize readiness at lower cost. MSC can operate the ARS 50 Class salvage ships at lower cost and the increased operational availability allows us to more effectively size the salvage force structure. The Center for Naval Analysis (CNA) published a preliminary report in December 2003 that shows a potential savings of $14M to $24M per year. These saving estimates take into account the additional manning required at MDSUs. They are somewhat conservative in that potential additional savings from force reductions resulting from increased employability are not accounted for.

BOTTOM LINE

All things considered, it is the right thing to do. Sailors who have spent years sailing on Navy salvage ships feel in their heart that there should be a Naval Officer in command and dungaree Sailors at the helm. History and traditions of Navy diving and salvage run long, deep, and proud; however, our first priority must be readiness. The intangible benefit of having pure USN salvage ships is not worth the risks associated with the perishing command experience and skills. Transitioning the ARS 50 Class salvage ships to MSC operation and the resulting partnership with the Mobile Diving and Salvage Units is the best way for us to ensure our wartime and peacetime operational salvage capability is preserved for the future.

Michael D. Freeman holds a Master, Oceans, Unlimited Tonnage license and is currently a First Class Pilot with the U.S. Navy. He retired from the Navy in 1998 with the rank of Commander. CAPT Michael C. Herb is currently Deputy Program Manager, Naval Fleet Auxiliary Force at MSC.

Both Freeman and Herb are Naval Academy graduates, qualified Surface Warfare Officers, Special Operations Officers, and Divers. Between the two of them they served on and command nine different salvage ships.

This article is the opinion of the authors and does not represent the position of SEA 00C.

From The Managing Editor

It is a true pleasure to be back assisting the Supervisor of Diving, Captain Mark Helmkamp, as the Managing Editor for FACEPLATE. Our purpose is to get the word out about the support and accomplishments provided by Navy Divers. As you read through these pages, bear in mind that the stories published in FACEPLATE are only a fraction of the work completed by Navy Divers. Much of the work will never be known due to its classification or the reluctance to record it. Help us remedy this situation by sending us articles relating your experiences, successes, lessons learned and what it takes to get the job done. Faceplate is limited only by the input that we receive from you in the Fleet. Let us hear from you.

We recently received from Mr. Doug Huff, Director of the Museum of Man in the Sea, Panama City, Florida, copies of past FACEPLATEs, dating back to May 1956. We are exploring ways to make them easily available to you. They contain a lot of history and interesting reading and should prove to be excellent reference material.

I wish to thank all of you for your continued interest and support. Remember: When you submit an article, we are looking for photos with captions and a brief bio of the article's author.

By: LCDR Jim Bladh, USN (Ret)

Battle Damage Repair at Sea

USS GRAPPLE Exercises Her Capability

By LCDR Onofrio Anastasio

All Navy ships spend hours training on defensive systems and response to battle damage. Damage control efforts are always manpower intensive, but are particularly so when faced with damage associated with the explosive capability of today's high-powered missile systems. As weapons become more powerful and crew size is decreased, manpower for damage control will become a major concern on board Navy ships. Ships will always need an organic fire fighting and damage control capability but smaller crews will become more dependent on salvage assets for fire fighting and damage control support and relief. The ability of an ARS to respond to such a situation was partially tested during Weapons Effect Test (WET) conducted onboard EX-PETERSON in January. The crew of the USS GRAPPLE (ARS 53) was tasked with providing fire boundary monitoring, fire fighting, damage control, and salvage efforts to prevent EX-PETERSON from sinking or failing to meet established return to port criteria during the WET evaluation. Blast and fire damage are severe and unpredictable and a real life salvage and fire fighting situation takes even more manpower and time to get under control than a WET. GRAPPLE had the advantage of studying the specifics of the test scenario, pre-test damage and fire spread predictions conducting fire boundary team rehearsals, and pre-staging some fire fighting and dewatering equipment.

Hull damage from blast. Crack arrestors (external hull stiffeners) were installed previously to limit damage based on pre-test predictions.

The purpose of the WET was to test the ability of an Autonomic Fire Suppression System in development for possible use in the DD (X) program. A threat representative sized warhead was placed inside the hull of EX-PETERSON and detonated to simulate an ASCM casualty. EX-PETERSON was rigged with sophisticated test equipment to monitor and record the effects of the explosion, and corresponding response of the fire fighting system. A post explosion survey was also required as part of the WET. In order to accomplish this survey all fires would have to be extinguished and required damage control actions completed to keep the ship safely afloat. This challenging task was assigned to the crew of USS GRAPPLE.

Damage Control and Planning Leaders for the recovery operation.

FRONT ROW: *LT Matt Rick, ENS Lori Bentzel, LTJG Sean Kido, DCCS (SW) Jeffery Yaun, HTC (DSW/SW) John Coffelt, LCDR Kevin Robinson (CO).*
BACK ROW: *DCCS (DSW/SW) Randy Duncan, BMCS (DSW/SW/MDV) Mark Leet, LCDR Brian Lawrence, DC1 (SW) Steve Rose.*

Providing off-ship fire fighting at sea to EX-PETERSON was no easy matter. Boarding the damaged ship from USS GRAPPLE with the required salvage and fire fighting equipment required careful planning. Much of the equipment was pre-staged to maximize personnel safety in conducting the fire boundary monitoring. Still, the salvage crew needed to be familiar with small boat operations and transfers at sea, then familiarize themselves with the layout of the ship and the extent of the damaged area. Equipment transferred included fire fighting hoses, de-smoking equipment, Scott Air Packs, Fire Fighting Ensembles (FFEs), and life jackets. Lastly, the response team needed to extinguish all fires and patch external hull damage.

EX-PETERSON was towed over fifty miles off the coast of Florida and positioned where depths exceeded a thousand fathoms. GRAPPLE was stationed 2 miles from EX-PETERSON when the warhead was detonated. After detonation, the on-scene test conductor waited for test systems response. After this response period was over, the GRAPPLE team was called in. GRAPPLE Commanding Officer LCDR Kevin Robinson established command and control in GRAPPLE. The response team was lead by GRAPPLE's Executive Officer LT Matt Rick using rigid inflatable boats to ferry the response team to the severely damaged ship. GRAPPLE deployed three salvage and rescue teams composed of twelve to fifteen personnel each for the fire fighting and damage control efforts. These teams were composed of personnel from all divisions in GRAPPLE, temporarily assigned personnel from MDSU-2, SIMA Mayport, and

Mayport fire fighting school. LTJG Sean Kido, MDV Mark Leet, DCCS (SW) Jeffrey Yaun, DCCS (DSW/SW) Randy Duncan, and DC1 (SW) Steven Rose led fire fighting and assessment parties.

Once on-board, the teams immediately established smoke and fire boundaries and established a command post. Next the response team deployed investigators to conduct damage and fire surveys. Despite the ship being offloaded of fuel and equipment that would normally ignite under explosive conditions, numerous fire hazards existed including three hundred forty-five gallons of heptane to simulate onboard fuels and unspent rocket fuel. Investigators encountered severe fires, dense smoke, and a significant amount of debris blocking passages and ladder wells. In addition, investigators had to overcome bowed and jammed water tight doors and hatches, damaged and destroyed decks along with a dangerous amount of sharp metal debris scattered throughout the detonation area. Once initial investigations were complete, the GRAPPLE response team spent the next twelve hours putting out residual fires, overhauling the fires, and setting re-flash watches. Two teams combated the fires. These teams alternated efforts every two hours until all fires were extinguished. The third team rotated boundary watches and conducted routine investigations to monitor flooding and damage. Some members of the fire fighting teams expended up to fifteen forty-five minute SCBA bottles in their efforts.

While fire fighting efforts were underway, a fourth team in GRAPPLE began planning efforts on how the external hull damage would be patched. While the fire parties and repair team tended to EX-PETERSON, a fifth team of eight personnel maintained a continuous ferry of supplies to the damage control party. This team transferred SCBA bottles to and from EX-PETERSON along with food, fresh water, and other supplies packaged and prepared by GRAPPLE's Supply Department.

Remaining GRAPPLE crewmembers were employed on at-sea watch stations. Before all fires were extinguished, GRAPPLE tied up alongside the drifting vessel and used her Monitor fire fighting system to cool the blast area. This event was not over when the fires were out. The explosion blew a sizeable hole through the exterior hull above the waterline, as predicted. After the area was cooled, the fourth team led by HTC (DSW/SW) John Coffelt patched the hole using GRAPPLE's boom to position 4' x 8' sheets of 3/8" thick mild steel over the hole in the side shell for welding. This welding event was necessary to provide enough freeboard to bring the damaged ship safely back to port. Upon completing patching operations, the response teams and crew were noticeably fatigued, but response operations were still required. Stability calculations and a below waterline hull survey remained. After taking on a significant amount of water from hull damage and fire fighting efforts, stability of the ship was in question.

USS GRAPPLE along side EX-PETERSON while moving hull plating into place.

Stability calculations were conducted by NAVSEA 00C Salvage Engineer LCDR Brian Lawrence. The Program of Ship Salvage Engineering (POSSE) software was used to develop a dewatering and stability plan. After meeting stability requirements, GRAPPLE safely towed EX-PETERSON back to port.

The GRAPPLE crew executed this high-risk exercise flawlessly; completing numerous personnel transfers, live fire fighting and damage control efforts, and major repairs with no injuries or equipment damage; all in an uncontrolled open-ocean environment. The DD (X) WET gave the GRAPPLE crew the opportunity to do what it was designed to do — conduct at-sea combat salvage operations on a stricken vessel. LCDR Kevin Robinson approached the operation as a USS COLE type scenario with the additional complexity of dealing with open-ocean conditions in 2 to 4 foot swells.

Only necessary accommodations were made for safety purposes to distinguish this evolution from a real world incident yet the most important lesson learned from this operation was clear: in a combat damage scenario, this evolution requires all hands for an intensive and sustained period of time. This was summed up by USS GRAPPLE's Command Senior Chief BMCS (DSW/SW/MDV) Mark Leet: "When we get the call to execute, there are no individual ratings. We are all Salvors until the vessel is in port."

As the next generation of Navy ships get smarter and crew size decreases, the Fleet will benefit from a mobile and highly skilled response force to enter the combat theater and provide casualty assistance. This force will require ships with the response capabilities and dedicated crew such as that aboard USS GRAPPLE.

LCDR Onofrio Anastasio is the Diving and Salvage Officer at CLF/CNSL.

USS HARTFORD GROUNDED

Extensive UWSH Required To Make Safe Transit To CONUS

By: Mr. Tom McCue (00C55)

In October, USS HARTFORD (SSN 768) sustained damage while operating near Caprera, Sardegna, Italy and returned to the Naval Support Activity La Maddalena where Divers stationed on USS EMORY S. LAND (AS 39) were called to inspect the condition of the boat. Divers discovered damage to the lower rudder, hull coatings, openings, and appendages. It was clear that the extensive damage would require help from many areas of expertise.

Damage to bottom of rudder.

NAVSEA 00C immediately mobilized underwater cutting and welding equipment from the Emergency Ship Salvage Materials (ESSM) bases located in Livorno, Italy, Cheatham Annex, Virginia, and Bahrain. In addition NAVSEA mobilized technical personnel from Washington, DC, Norfolk, VA, and Bayou Vista, Louisiana to coordinate, direct, and assist in repairs.

While specialized equipment and personnel were in transit, E. S. LAND Divers completed a detailed damage inspection. The results were submitted to the Squadron, SUBLANT, and NAVSEA. Back at NAVSEA headquarters in the Washington Navy Yard, a team of over 30 engineers responsible for the affected ship systems gathered to evaluate the damage and develop repair requirements to make the boat ready for a safe transit to Norfolk, where extensive drydock repairs would be accomplished.

FTSCLANT assisted E. S. LAND Divers and ships force to conduct a thorough evaluation of the steering gear and its operation. NAVSEA 00C provided on-scene technical direction and coordination to the team of 14 Navy Divers and 14 contract Diver/welders in this rare opportunity for Fleet Divers to work in concert with commercial Divers. The experience of both resources complemented each other and greatly contributed to the rapid success of this complex repair. Working round-the-clock under intense pressure, the cohesive team of Divers conducted 213 dives and over 466 hours of bottom time inspecting and repairing the boat in a two-week period. All work was done under the close surveillance of NAVSEA's technical director for submarines who, upon completion of the repairs, granted permission for the ship to return to CONUS with only a few operational restrictions.

Damage forward included main ballast tank grates missing fasteners and hinges, a circumferential crack in the non-pressure hull adjacent to the forward ballast tanks, and damaged hydrophones. Damage continued aft with over 600 square feet of tile damage and ended with a twisted and torn rudder, which was hard up on the hull and inoperable.

E. S. LAND Divers were responsible for a multitude of tasks including inspection and documentation of all damage, repair, and replacement of hydrophones, removal of damaged tile, removal of a large area of the damaged rudder plating, and the removal of the top section of the rudder to allow the rudder to operate without contacting the hull. Phoenix welder/Divers were responsible for the trimming and fairing of the damage on the bottom of the lower rudder, the non-destructive testing of numerous cracks in the proximity of the main ballast tanks, and the welding of the ballast tank grates.

The lower rudder had the most catastrophic damage. E. S. LAND Divers discovered that approximately 25 percent of the lower rudder was twisted, torn, and dented. There were multiple areas of plate deformation on the sides of the rudder and the top of the rudder was contacting with the hull. Based on these inspection results, NAVSEA on-scene technical representatives developed a repair plan consisting of removal of the top of the rudder to increase the clearance between the rudder and the hull, and to remove the damaged section of the bottom of the rudder.

USS EMORY S. LAND Diver burning top of rudder to increase clearance from hull.

(USS HARTFORD GROUNDED continued on page 9)

Navy-Trained Divers Commercial Certification Cards

By: Ross Saxon, Ph.D., LCDR, USN (Ret.)

The commercial diving industry of the United States is well and prospering. It is an industry in which the vast majority of participants has committed to assuring the highest levels of safety, but is also continually seeking the input of properly trained and experienced personnel to fill both operational and managerial positions.

In reality, many commercial diving companies owe their longevity to the efforts of former U.S. Navy trained Divers – personnel who, while on active duty, served in all the various diving positions including those of Master Diver and Diving Officer. That fact is a testimonial to the training received, to their can-do attitude, and to their leadership abilities.

In 1999 the Association of Diving Contractors International initiated a Commercial Diver Certification Card program to serve as documented evidence that holders of such a card had received proper formal training, on-the-job training, and had gained the necessary experience to "fleet up" from Entry-Level Tender/Diver (a new graduate of a school) through Diver and to Diving Supervisor. Further; that process provided for each of the categories of Air, Mixed Gas, and Bell/Saturation diving. These cards are recognized internationally and are referenced in U.S. Army Corps of Engineers Diving Procedures, in the OSHA definition of what constitutes a properly trained and experienced commercial Diver, and also inserted into bid documents as a required proof that Divers employed on the job will be properly trained and experienced.

Beginning in 2000 ADCI discussed with U.S. Navy official implementation of a system whereby Navy Divers, or other Divers trained at U.S. Navy diving schools, could also become certified under the system and thus have a "leg up" when separating or retiring from active duty. That "leg up" would be by the fact that these individuals could then seek direct entry into the commercial diving industry to hold a position appropriate to their training and experience. The Commanding Officer of Naval Diving and Training Center at the time (now SUPDIVE) Captain Helmkamp was extremely helpful and enthusiastic in moving to initiate the cooperative relationship between NDTC and ADCI.

As a result of discussions, a letter to the Navy Diving & Salvage Training Center on 30 March 2001 stated in part, "by transmittal of this letter I invite any and all qualified U.S. Navy Divers to make application for the appropriate certification cards in accordance with ADCI Standards. If appropriate, ADCI would also accept application for issuance of the appropriate cards by the U.S. Navy Diving and Salvage Training Center prior to graduation of the students so as to facilitate bulk shipment of the appropriate cards for issuance at graduation."

Unfortunately, as we all know, it was not too many months after that letter that we experienced an attack on our nation with emphasis then shifting to the requirement of further protecting our nation and our way of life. As a result of that action,coupled with other significant projects assigned to the U.S. Navy diving community, implementation of the program discussed was somewhat overlooked. After recently discussing this with Captain Wilkins, Captain Murray, and Captain Helmkamp we all agree that now is the time to correct this oversight and to move forward in a positive direction.

Notice of the program has spread its way across the diving communities of the Navy and Army. Since initiation cards have been issued in response to applications, however, not in great quantity. It is for that reason that this information is now being made available in a better-publicized manner.

The Program

It was originally envisioned that upon graduation from Naval Diving and Salvage Training Center each graduate would be furnished a form with the graduation certificate in order that he or she might apply for an ADCI Certification Card at the level of Entry Level Tender/Diver. That form would be submitted to ADCI together with a $25.00 fee, photograph in hard or digital form, application, and copy of the graduation certificate.

An individual that completes the 1st Class Diver Course would, upon graduation, be eligible for immediate application for the Surface Supplied Mixed Gas Diver Card (if not already in possession by actual performance) based on his or her prior 2nd Class Diver training and experience having satisfied the Entry Level Tender/Diver requirement.

Active duty Divers who have gained experience in a work environment would be eligible to apply for a Surface Supplied Air Diver, or Surface Supplied Mixed Gas Diver, or Bell/Saturation Diver card by submission of the ADCI application form, photograph, $25.00 fee, and a documented record that they had the requisite field time and actual working dives to move into the higher level category.

Active duty Divers who have gained experience in a work environment where operations are of a nature that they could be considered equivalent to the conduct of commercial activity – such as underwater ships husbandry, salvage, or related activities could make application for an ADCI Surface Supplied Air, Mixed Gas, or Bell/Saturation Supervisor card in the same manner as above.

Information and Application

Detailed information on this program is available at http://www.adc-int.org by clicking on the ADCI home page and then clicking on "Certification Card Information Application" link on the left side of the page.

In closing, the commercial diving community believes that our active duty counterparts should be given every opportunity to become a part of our community when they separate or retire from active duty. To that end, it is our responsibility to aid and assist each individual to take that course of action, should they so desire. Not only are you a highly trained and experienced Diver but also an individual with a demonstrated ability to manage and to lead - important qualities many

companies seek as primary. Please realize that your abilities or willingness to be in the water may at some time decrease but managerial and leadership abilities will continue. It is therefore important when seeking civilian employment to stress both.

Ross Saxon is the Vice Chairman of the Association of Diving Contractors International.

Photos provided by:
Epic Divers of Harvey, Louisiana.

(USS HARTFORD GROUNDED continued from page 7)

In order to increase the clearance between the rudder and the hull, a fairing plate had to be trimmed off the top of the rudder. Divers cut approximately 13 feet of the fairing plate off the top of the rudder.

Divers descended towards the bottom of the rudder and prepared to remove the extensive damage to the plating and internal structure of that section of the rudder. E. S. LAND Divers installed an elaborate stage to work from while they burned off the projected and folded sections of plate and removed any coating in way of the repairs. This proved to be a labor-intensive task. Divers peeled off the coating and cleaned the base metal to a white finish to facilitate arc gouging the plate and internal members.

Divers arc gouging damaged stiffener from lower section of rudder.

With the damaged section of the rudder prepared, Phoenix welder/Divers proceeded to cut off the plating and internal structure with an arc gouger. Phoenix welder/Divers then installed internal stiffeners and backing plates to the existing structure, templated the profile of the rudder and installed the new bottom plate with the NAVSEA approved underwater wet welding procedure utilizing the Sanvek Aquasan 5A nickel electrode and Oxy-Lance underwater coating.

Upon completion of all repairs the ship conducted a short sea trial, reported no significant problems, and returned to the site so E. S. LAND Divers could perform a quick rudder clearance inspection. With satisfactory results, the ship immediately departed for transit back to CONUS and is currently in drydock undergoing extensive repairs.

The success of this underwater ship husbandry operation was greatly attributed to the professionalism and talents of these two unique diving organizations and their ability to work side-by-side to implement a well engineered repair plan. The future of underwater ship husbandry can benefit as we bring similar expertise together in future operations.

Mr. McCue is the hull cleaning program manager within the UWSH Division of NAVSEA 00C.

Photos provided by: CWO3 Frank Perna (USS Emory S. Land)

"Both Divers Leaving The Bottom? Charts, Mark Time: Max Depth 300 Feet!"

By: CDR Dave Davis

We will soon mark departure from 300 feet on mixed gas here at NDSTC. This capability, dormant since the early 90's, is only one of the initiatives the schoolhouse is undertaking to improve diver training in support of the Revolution in Training. The changes we are in the process of implementing will build on an already strong program and perfectly align our training methodology and content with the intentions of Sea Warrior.

Under the aegis of the Center for Explosive Ordnance Disposal and Diving, NDSTC is now free to concentrate fully on the business of providing an underwater education in diving. We are the Department of Defense's primary source for entry level, apprentice, journeyman, and master level training in work beneath the sea. As such, we will continue to provide training to all the armed forces and civilians in their employ. In order to meet the needs of our varied customers, we are working towards several changes to the way we do business.

One of the initiatives we are going to exploit is termed "a la carte" or "modularized" training. This training process builds on the common training elements in most of our courses, and will allow us to tailor training to the specific billet or job description of the prospective Diver. As an example, we may offer nearly continuous SCUBA training, classing up as minimum class size is obtained.

SCUBA confidence training.

Technical regulator maintenance training at NDSTC.

Upon graduation the newly qualified SCUBA Diver either goes to the Fleet or continues on to more extensive training in surface supplied diving, EOD, or some com-bination suiting the graduate's prospective orders. This method of training will reduce the delay for Divers set-back for minor academic or physical problems, and to some extent will allow for variations in the pace at which the student can absorb the material; no longer will a strong prospect need to be dropped for academic or similar minor deficiencies.

Our training policies emphasize the value of time underwater, and we're expanding the opportunities to learn via realistic training environments. Students in the near future will experience more bottom time doing a wider variety of projects in an expanded range of environments. Weather permitting, we will conduct all open sea diving, including surface supplied, over one of the many wrecks available in the nearby Gulf of Mexico. We are exploring several means of increasing student bottom time overall without increasing the time to train and making that time underwater more effective with a wider variety of assign-ments including port security dives, ship's husbandry, and surveys.

These are exciting changes we are implementing to reinvigorate Diver training. Regaining the capability to conduct deep mixed gas dives after a ten year hiatus will enable us to provide a "proof" test for all our graduates. By returning this evolution to the Diver curriculum we can ensure that Divers can attain their maximum depth of qual-ification, and all qualified Divers can obtain the confidence borne of having "been there, done that." This process perfectly complements our renewed emphasis on training Divers, and is only the first of many positive changes being pursued by the crew at NDSTC. I invite all to come down and see what we are up to at the Home of Navy Diving.

CDR Dave Davis is currently the Command-ing Officer of Naval Diving and Salvage Training Center.

"20,000 Jobs Under the Sea" at Los Angeles Marine Museum

By: Leslie G. Jacobs

Divers and historical diving enthusiasts have a new destination in the Los Angeles Maritime Museum in San Pedro, California — this classic streamline-modern building holds an archive of Southern California's commercial diving history, the brainchild of Diver-historian Torrance Parker. Drawing upon his extensive knowledge and collection of diving history, materials and equipment, and assisted by former Navy Divers Rigdon Crawford, Jr. and Ed White, Parker has created a permanent display documenting the history of commercial and fishery diving in Southern California. Along with Crawford, Kenneth Knott, and Dan Boone are the many ex-Navy Divers mentioned in the exhibit who helped build the infrastructure of Southern California.

20,000 Jobs Under the Sea traces commercial diving from the development of the Deanes' first practical helmet to use compressed air up until present time, including oil exploration, pipelaying, rigging, and other marine construction. The ports of Los Angeles and Long Beach are responsible for eight percent of the national economy; Divers' contribution to building the harbor together with Southern California's major power plants, marine outfalls, bridges, and dams cannot be overstated. Between 1947 and 1985, Parker worked on more than a thousand ships and along with his employees set a record in the two ports by servicing more than 2,500 merchant and Naval vessels.

This exhibit is a natural extension of Parker's life work. The Dive Locker window is a recreation of a typical locker: suits, helmets, tools and equipment were actually used to construct and maintain the harbor and the South Bay's underwater infrastructures. One item of particular interest is a Schrader helmet dating from the late 1800s. The locker also features a pre-1933 MARK V with single-spring exhaust valve and a circa 1911 Morse No. 3 air pump, Diver's dress, gas-driven compressor, comboxes, underwater lights, and other tools of the trade. Another display window features a 1901 Japanese abalone Diver — one of the original group who emigrated from Japan to operate the White Point abalone processing facility. The manikin wears a Japanese 3-light helmet dating from the early 1900s, with rare 90-degree inlet. Local artist Guillermo Avalos painted the spectacular background mural. Eerie black-light and lifelike abalone sculpture recreate a brilliantly realistic view of the ab Diver's world.

Torrance Parker and Dr. William "Pete" Lee, the former Director of the Los Angeles Maritime Museum. Dr. Lee championed the 20,000 Jobs Under the Sea exhibit before he retired last year.

The Fishery Diving Exhibit.

The Los Angeles Maritime Museum is located on the main shipping channel in the Port of Los Angeles and is open Tuesday through Sunday. For information, call (310) 548-7618.

Leslie Jacobs is a freelance writer and photographer from Redondo Beach, CA. She has written a series of interviews with veteran hardhat divers called "Voices of the Deep" for the HDS Magazine.

Propeller Hub Removal:

Another Milestone in Underwater Ship Repair Accomplished

By: LCDR Bruce Hamilton

The need for a new underwater repair procedure may present itself at any moment. In one such case, a foreign Navy FFG had run aground, creating an urgent requirement for a new propeller hub. A dry dock was not readily available for the decommissioned ship identified as the source of the hub. Mr. Michael Dean, head of the Underwater Ship Husbandry Division Naval Sea Systems Command (NAVSEA 00C5), saw the need to develop a procedure and put together a team to determine the feasibility of an in-water hub removal. While the plans for the hub removal were being formulated, the necessity for immediately supplying a hub was alleviated. However, the in-water hub removal procedure was still worth developing and testing on an inactive ship. If the concept of in-water propeller hub removal could be proven on an inactive ship, then the procedure could be developed for active ships. The in-water hub removal procedure would give the Navy an option for a hub replacement other than a costly dry-docking.

Cofferdam being lowered into place.

NAVSEA 00C5 pulled togeth a team of experts in the various areas required to develop this new procedure while providing oversight and final approval. Naval Surface Warfare Center (NSWC) Panama City designed, built, and tested the cofferdam and equipment associated with the hub removal. Naval Surface Warfare Center Carderock Division/Naval Ship Systems Engineering Station Philadelphia (NAVSSES) reviewed and provided expert guidance in propeller hub mechanics and removal procedures. Hull integrity was scrutinized by NAVSEA 05 to ensure the cofferdam would not damage the ship. NAVSEA Inactive Ship On-Site Maintenance Office (NISMO) Philadelphia provided the facilities and inside mechanics for work on the decommissioned ship. Phoenix International, Inc. provided diving, welding, and design support for the hub removal. Global PCCI- A Joint Venture (GPC) on-site support included both tools and personnel while design and manufacturing services were supplied from GPC's Cheatham Annex location. Ship Intermediate Maintenance Facility (SIMA) Norfolk's critical review of rigging procedures for the cofferdam and Byrd Johnson's synopsis of dry-dock hub removal and installation procedures were of invaluable assistance.

Upper part of Cofferdam structure coming out of the water.

The underlying requirement for the in water hub removal was to establish a dry environment to protect the internals of the hub and the shaft from water intrusion during the procedure.

NSWC Panama City engineers, machinists, and welders had the lion's share of the work in designing, fabricating, and testing the cofferdam that would provide this dry environment. The hub removal followed the dry-dock procedure with the exception that all work was performed in a cofferdam pressurized to the pressure at twenty feet below the water line.

The worst combinations of rigging loads, hull shape irregularities, and water pressure that could act upon the coffer-

Hub port view.

dam were modeled to create a robust cofferdam and provide a safe working environment for the divers. The cofferdam designed would approximate the work area that is used by mechanics in dry-dock. Keeping the cofferdam to this relatively compact size meant it could be installed as a one piece unit around the hub. The cofferdam's height left a gap between the top of the cofferdam and the ship's hull. The dewatered cofferdam would have nothing to hold it down except the seal around the strut barrel. An upper structure with a jack stand at each corner was installed on top of the cofferdam to make up for the gap between the cofferdam and the ships hull. When bolted to the top of the cofferdam the upper structure's four jacks would extend to make contact with the hull. The upper structure, the seal around the strut barrel, and rigging made the cofferdam and the ship react as one system while the hub was being removed from the shaft. NSWC Panama City's single-point rigging design used a trolley hoist to remove the hub from the propeller shaft and greatly simplified what the divers had to monitor and operate.

A decommissioned ship presented a unique set of conditions in preparing for hub removal. Piping missing, systems open, and equipment removed was part of the complication of working on an inactive ship. A great deal of patience, perseverance, and system knowledge was shown by NISMO mechanics in preparing the ship for the hub removal.

With the ship ready on the inside and the blades removed, Phoenix Divers started the work everyone had come for - hub removal. A 170-ton crane was used to pick up the cofferdam from the pier. The cofferdam was yard and stayed over the propeller hub using the starboard lifting tunnel's rigging and the crane. Rigging from port side lifting tunnels was used to rotate the cofferdam to the upright position while the crane and starboard side rigging were used to control the rotation and act as hold backs. Moving a nine-ton cofferdam into place with less than one inch clearance on multiple sides in water with visibility less than one foot is anything but easy. The Phoenix crew handled the cofferdam as if it were a routine operation.

With cofferdam in place, the hub was connected to the lifting trolley, propeller hub bolts were removed and the hub was then easily pushed away from the shaft. The trolley and beam method worked very well and proved an easy and effective way to move the hub within the cofferdam.

The blanked hub was lowered out of the cofferdam and sent to the pier. At the completion of the work, all five blades and the propeller hub had been removed from the FFG. The ship sits lighter with the absence of 52,000 pounds of weight; otherwise, the ship was left as it was found. The removal of the propeller hub was a great success. The efforts by all members of the team performing this operation were exemplary. The in-water hub procedure is faster and less expensive than the equivalent dry-dock procedure. No extensive ship preparation for and recovery from dry-docking is required. The ship can stay pier-side with no disruption to its normal in-port routine. The development of an in-water hub replacement procedure for active ships will be of great value to the United States Navy, once again proving the worth of underwater ship repair.

LCDR Bruce Hamilton is currently assigned as part of the Underwater Ship Husbandry Division, NAVSEA 00C5.

SUPSALV SENDS

(...continued from page 2)

In summary, a careful determination is still required to understand: (1) the number of salvage ships required to conduct wartime harbor clearance and channel clearance to permit rapid off-load of strategic logistics ships **in addition** to the salvage ships engaged elsewhere in battle-damage recovery and rescue towing missions, and (2) the increased demands on salvage ship manning resulting from diminishing surface-combatant crew sizes. Our drive for peacetime efficiency must not overwhelm our requirement for war-fighting effectiveness.

During the last two Gulf wars, our Naval losses (and therefore our requirements for salvage ships) were extremely limited due in part to the enemy's inept and ineffectual use of mines. And there was virtually no effort by enemy forces to scuttle ships to block channels and harbors. Our next enemy will not likely be so foolish. Our biggest issue is not whether we're aboard ARSs or T-ARSs, but whether our Navy's salvage forces (both ships and Salvors) must be properly sized and properly trained.

Captain Jim Wilkins

Rapture Of The DEEP

"Service to the Fleet"

*This page is designed to give the readers **the latest "Buzz"** on various topics to USN diving and its systems.*
Compiled and written by MDV Steve Smith (smithss@navsea.navy.mil)

Standard Dive Systems: Standard life support dive systems such as the LWDS, FARCC, SNDL, TRCS, EEHS, and FADS are just that, "standard". NAVSEA has a good and sound policy that keeps the system configurations and OPs/EPs the same. So regardless of where you get stationed, your system configuration and OPs/EPs should be the same. If a "standard" system configuration or OPs/EPs is substandard in your eyes, then please submit a change request to MDV Fred Orns or myself and we will test and evaluate. If it is a change that will benefit the Fleet or has substantial cost savings, we will generate the change for all the affected systems so that all can benefit.

Process Instruction 006: PI 006 "Viewports in Hyperbaric Systems" is now signed and approved. It is applicable to all manned hyperbaric chambers that are built IAW ASME and PVHO standards. This PI covers chambers with flat, conical frustum, and double bevel disc windows for all pressures. This PI cancels AIG 03-05 and is available on our web page at http://www.supsalv.org/.

Compressors: Recently there have been a number of problems with the purification systems of MAKO and Bauer compressors. We have found that one of the problems is not maintaining pressure in the purification system at all times. We are making a change to 5921/063 5921/36 PMS that will reflect a bi-monthly check, to check and maintain appropriate pressure in the purification system when not in use. Some other steps to help avoid these problems are: don't count on the automatic drain alone, manually bleed down periodically, remove filters when compressor is not going to be used for an extended period of time, maintain pressure on the purification system at all times, keep a compressor log, and change filters regularly.

Superlite 17/MK-21 MOD 1 helmet.

MK-21 MOD 1: It has come to our attention that over the years Kirby Morgan has made three different lengths of neck clamp adjustment stud on the Superlite 17/MK-21 MOD 1 helmets, some as short as 2-1/2 in. If too short, this can possibly create an "over tightening" effect on the shell of the MK-21 MOD 1 helmet. If the neck clamp handle on the neck clamp/yoke assembly requires excessive force when donning a MK-21 MOD1 helmet, then it requires attention. It could be a simple matter of adjusting the nut. However, in at least one case, the nut was backed all the way out and enough force was applied to crack the helmet shell. During normal MK-21 diving this should never be a problem, but when using the helmet with dry suits with the integral neck dam that are approved for contaminated water diving, this could become a problem.

MK-21 EGS: When diving with an EGS that has a J-Valve, ensure that it is in the down position prior to starting the dive. This requirement will be reflected in the next Dive Manual revision.

Choices: NAVSEA has recently approved the use of CPV valves and TESCOM regulators as alternatives for the LWDS and the FADS III systems. Revised drawings reflecting these changes have been issued for the FADS III. Revised drawings reflecting these changes for the LWDS will be issued soon. The LWDS manual has been changed to reflect this. Changes to the FADS III manual are in process and revised manuals will be issued when ready.

Mishap Reporting: Everybody is familiar with Appendix A6-M (Diving Mishap with Hyperbaric Treatment) of OPNAVINST 5100.19D, but what about Appendix A6-N of the same instruction? Appendix A6-N requires reporting of all Class B or Class C diving mishaps that don't require hyperbaric treatment. Class B mishap is identified as: The total cost of reportable property damage is $200,000 or more, but less than $1,000,000; an injury or work-related illness resulting in permanent partial disability; or a mishap resulting in the hospitalization of three or more people. A Class C mishap is identified as: The total cost of reportable property damage is $20,000 or more, but less than $200,000; or an injury preventing an individual from performing regularly scheduled duty or work beyond the day or shift on which it occurred; or a nonfatal illness or disability causing loss of time from work or disability at any time (lost time case). For more information, please see the instruction.

Future: We are in the process of securing funds, designing, and eventually building a portable O_2 suitcase console that will have the capability to be hooked up to any existing dive system. We have talked about actually converting existing systems, but our analysis is that it would be too cost prohibitive. The suitcase console gives us a flexible and affordable alternative. This will enable us to supply 100% O_2 to the Diver in the water column, helping us to minimize the chances of DCS. Once built, we will provide O_2 suitcase consoles to select commands to evaluate and obtain data on new procedures and tables that are designed to decrease the probability of diving related illnesses.

Diving System Certification Corner

By: Paul McMurtrie (00C44)

Topside Tech Notes:

There are four recently updated Topside Tech Notes on the 00C4 webpage:

- Filters – Vol IX, Issue 2 (Jan 2004)
- Moisture Separators – Vol V, Issue 3 (Jan 2004)
- Relief Valves – Vol I, Issue 2 (Jan 2004)
- Flasks – Vol IV, Issue 3 (Feb 2004)

All diving commands should periodically check the 00C4 webpage and download the most recent issue of all applicable technical publications. We strongly encourage dive lockers to use these Topside Tech Notes to assist in Division training.

Standard PSOBs:

The 00C4 webpage also contains six standard PSOBs:

- LWDS (15 Nov 2003)
- SNDL (17 Apr 2003)
- TRCS with OL scrubber (15 Mar 2002)
- TRCS without OL scrubber (15 Mar 2002)
- Standard SSDS (1 Nov 2001)
- Standard Chamber (15 May 2000)

Additionally, we are in the process of developing standard PSOBs for FADS III and FARC systems. Until these standard PSOBs are completed and put on the 00C4 webpage, continue to use the Standard SSDS or Standard Chamber PSOB for these systems.

The standard PSOBs on the 00C4 webpage are the only ones authorized for system certification. Each command is responsible for downloading the most recent version of the applicable PSOB and filling it out prior to the System Certification Site Survey. We continually update these PSOBs to reflect the latest technical requirements and system certification procedures. So the PSOB you used for your last certification may not be the most current version.

System Certification Status Report:

The System Certification Status Report is now updated quarterly, and is available on the 00C4 website.

Standard Navy Double Lock Chamber (SNDL).

System Certification Manual (MAN-010):

The first major revision to the MAN-010 is in for final Fleet review. We are hoping to issue the revised MAN-010 by the Working Divers Conference (or shortly thereafter). We will issue an AIG 239 to inform the Fleet when the MAN-010 revision is issued. A limited number of manual CDs will be mailed out to Dive Commands. The manual will be available for download from the 00C4 webpage.

Certification Manual Revision:

The revision of the Safety Certification Manual or "Orange Book", as it has become to be known, was completed in February 2004. Hopefully you will find this version is easier to use with clear and up-to-date certification procedures and technical requirements. The responsibilities and requirements of certification are clearly spelled out and the searchable CD format makes it easy to find answers to your questions. Currently it is a stand-alone CD, but will be added to the 00C Technical Publications CD at the earliest opportunity.

Read the manual, paying particular attention to Chapters 2 (Administrative Procedures of the System Certification Process), 3 (Initial Certification), and 5 (Repair and Overhaul), as these pertain to the Fleet certification process. Also, Appendices A (Categorization of Scope of Certification Materials and Components), H (Divers Handling Systems), and I (REC procedures) provide required procedures for the Fleet user.

On a bigger picture, most of the current Appendices will be taken out of this manual for incorporation into a NAVSEA Diving Life Support Systems General Design Manual. Currently the REC, OQE, Diver Handling Systems, and those appendices that apply only to certification, will be kept in the Certification Manual.

Over the next year we ask for your comments and suggestions to improve the manual. We look forward to your feedback on the revised manual, as this is your guide to successful certification. Without your input, we cannot respond to Fleet needs.

Hard Hat History

The Navy's Contribution to Diving

This is an excerpt from "20,000 Jobs Under the Sea, A History of Diving and Underwater Engineering" by Torrance R. Parker

Master Diver Frank W. Crilley.

Like underwater burning, much of America's early diving development was the result of U.S. Naval diving operations. An example of Naval Divers and their contributions to diving is the work of Master Diver Frank W. Crilley. Crilley made record air dives to depths over 300 feet during the 1915 salvage operations on the sunken submarine *F-4*. President Calvin Coolidge awarded Crilley the Congressional Medal of Honor for his heroism in rescuing fellow Diver William F. Loughman when he became entangled in the steel sweep wires during operations to salvage the *F-4*. Loughman survived, but suffered permanent paralysis from the bends.

Master Diver Garland Suggs.

Another Navy Diver who helped develop modern diving methods was Garland Suggs. Suggs, designated a Master Diver in 1928, participated in the Navy's early oxy-helium diving test work, and eventually served as chief instructor at the Navy's Diving and Salvage School in Washington, D.C. Once, on special assignment by the Navy, Suggs salvaged Howard Hughes' record-breaking aircraft from Lake Mead's deep water. Impressed with Suggs, Hughes offered him a job upon retirement from the service. Suggs accepted, and worked the remainder of his life for Hughes after retiring from diving.

Command in the Spotlight

Mobile Diving and Salvage Unit TWO Det Alpha

By: HMC(DSW) Kenneth R. Meler

LT Col Mataras going "up and over".

The sun was shining, the seas were calm and crystal blue on the island of Crete. Detachment Alpha of Mobile Diving and Salvage Unit Two (MDSU TWO) was hosting the 2003 Joint U.S./Hellenic Diving Exercise, better known as the Greek DIVEX. This was a continuation of a joint NATO diving and salvage exercises MDSU TWO has been conducting with Hellenic Special Forces and Fleet Divers for a number of Mediterranean deployments. With Master Diver Mike Babin running the dive site, Detachment Alpha was ready to show Hellenic Navy and Special Forces Divers the U.S. Navy surface supplied diving protocol.

Topics such as MK-21 familiarization and underwater cutting and welding were thoroughly covered in a classroom setting and then put to use within the clear waters of Souda Bay.

This team of 15 U.S. Navy Divers, stationed TAD aboard USNS Mohawk (T-ATF 170), were in the final stages of a Mediterranean deployment in support of Operation Enduring Freedom and COMSIXTHFLT, when they were requested by the Hellenic Navy to give training to their Greek counterparts.

The Greek Divers were impressed with the ease of set up and deployability that was afforded to U.S. Navy Divers using the FADS 3 SSDS. So much so that they inquired about the possibility of buying one. Of course, when told the sticker price, they were a little less eager to make the purchase.

The Greeks quickly mastered the MK-21 SSDS rig and were eager to pursue underwater cutting and welding. They were taught waterborne cutting techniques with the Broco oxygen system and wet welding with a Miller welder fortified with a power converter. A piece of quarter inch thick plate steel was taken down on the stage and clamped to a home-made work bench previously fabricated by Det Alpha Divers.

The Hellenic Divers then attempted to cut the practice plate utilizing the methods previously taught to them by MDSU TWO Divers. There were varying degrees of success, as with any Diver that has attempted to use this system for the first time. The cutting torch was pulled up and the welding stinger was lowered to the Divers and they attempted to fill in holes and run beads on what was left of the steel plate.

During the DIVEX, a call came from COMNAVEUR for Navy Divers to evaluate a potential salvage of a sunken cargo ship in the main port of war torn Monrovia, Liberia. The Detachment OIC CWO4 Armstrong and MDV Babin were quickly dispatched by COMSIXTHFLT for this mission.

This left Detachment Alpha and the Greek Divers in the capable hands of Detachment LCPO, MMC(DSW) Andy Degitz. Dive training was resumed with unbridled enthusiasm.

For ten days the Divers of Det Alpha and their Greek counterparts continued plunging to the bone-crushing depth of 30 feet beneath the sleek hull of the USNS Mohawk to train. The result was 22 successful dives with over 870 minutes of bottom time safely accomplished.

At the conclusion of the exercise, Det Alpha hosted a Bar-B-Q for their Greek counterparts and in return the Greek Divers invited the U.S. Navy Divers to a celebratory dinner of traditional Greek foods. Det Alpha enjoyed the octopus and squid and learned a greater appreciation of Greek cuisine and hospitality. The evening concluded with the presentation of certificates and trading of dive pins by all participants.

It was mutually agreed that the exercise was a great success and that future diving and salvage exercises should be planned to further the cooperation and training between the two countries.

WO (MDV) Kantzios and HT1 (DSW) Valentine posing for the camera.

The Old Master

MDV Scott Heineman.

First of all, in response to BMCM(MDV) Fred Orns' (Faceplate Vol. 6, Number 2, November 2002) claim that he's good looking. Have any of you seen Fred when he gets up in the morning? Where did he get that mirror? Just kidding Fred!

Well shipmates, I have given four line-pulls and I'm coming up and over. It's time to step down and let the talent that WE have been cultivating and allow them to take the side. My emphasis for this article is the future, not the past. I, as much as anyone in the Fleet, spend a lot of time looking back fondly at the "Good Ole' Days" and telling sea stories that get better and better with each passing year. But I will tell you all this - I have never been more proud of Fleet Divers of today and their accomplishments.

MDV Scott Heineman prepares to enter the water for a dive on USS MONITOR.

Why? Because the Divers of today are just as motivated and dedicated as we ever were, but their level of knowledge and hunger for more is exponentially higher. When I was a young Diver, the MDV had the one and only copy of the Diving Manual under lock and key in his office. We were too proud to show our shipmates that we didn't have the manual memorized and we "needed" it to get smarter. Today, there are more manuals in print, on CD, or website than can be held by Barnes and Noble. The numbers of 2nd Class Divers that are Diving Supervisor qualified is amazing. As a DORA inspector, I get out quite a bit to see it first hand. In fact, last year I witnessed (along with others) the best neurological exam I have ever seen, and it was done by a first term 5343!

So, how do we take this hunger, talent, motivation, and expertise, and apply it to Sea Warrior (you need to read up on this)? It will not be easy, my friends. Much of what the senior enlisted diving leadership has been wrestling with these past months has been trying breakdown what we do into its smallest parts, so we can determine the best way to train our Divers. No salvage job or ship repair evolution I have ever done can compare to this task in terms of planning for the unknown and the absolute necessity to wipe the slate clean and not hang onto the "that's the way we have always done it" mentality. But I liken this to a salvage or UWSH job. Our job is not to complain that we can't do it, or that it won't work! Our job, our forte these past 120 or so years, has been accomplishing the impossible. We are the ultimate problem solvers! Yes, this task is uncomfortable and mind numbing on its best day, but we must prevail.

It has been an honor and a privilege serving with you and for you these 20 or so years. Rest assured I will continue to support the Fleet diving community in any capacity I can in the years to come. I am comforted in the fact that the watch will be relieved, and relieved well. The process of Sailors moving on and others stepping up to fill the void is tried and true.

In closing, I would like to recognize the Master Divers that helped "make" me:

ENCM(MDV) Ray Straining,

HTCM(MDV) Donnie Laurin,

HTCM(MDV) Rudy Watts,

BMCM(MDV) Mike Einhellig,

ENCS(MDV) Clifford Ellis,

HTCM(MDV) Rick Armstrong,

BMCM(MDV) Oly Olson,

MMCM(MDV) Rusty Hunt,

HTCM(MDV) Lino Matteoni.

These men have had the greatest impact on my career. I hope in some way that I have had the same effect on some of you.

JAKE'S CORNER

By: Otto Adams

Drawing was created by **CWO4 Rick Armstrong.**

Topside; Red Diver...

From the Supervisor of Diving

Captain Mark Helmkamp, USN

Twenty-four years ago, the current Supervisor of Salvage, Captain Jim Wilkins, the former Supervisor of Diving, Captain Chris Murray and I were all engaged in training at the new Naval Diving and Salvage Training Center in Panama City, Florida. We trained in the venerable MK V, MK I, MK-12, Jack Browne, and of course, SCUBA.

In SCUBA, we dove with Modified UDT or Fenzy life preservers; state of the art, we were told. We always thought we should wrap our arms through the straps and hoist the doubles over our head, then slide them down our backs into position when donning the gear. We learned this technique from our hero, the great Mike Nelson, played by Lloyd Bridges in the television series *Sea Hunt*. We *assumed* everything we learned at the school in those days was cutting edge technology, and if Nelson donned his bottles in that fashion, so should we. MDV Wes Gummel had a different opinion, but never corrected us, quietly smiling as he allowed us to break our backs. MDV Gummel knew Divers had to learn some things on their own, and he enjoyed the entertainment brought by successive classes of mud puppies.

Twenty years later, while I was in command of the Dive School, we determined to celebrate the 20th anniversary of NDSTC in Panama City. We dedicated the school to VADM "Swede" Momsen with the assistance of our guest speaker, former USMC Commandant, General Al Gray, sponsored a BBQ, street rod and big bike show, equipped and dedicated the "Hall of Heroes" for our Medal of Honor Divers, and built a Master Diver "Wall of Fame." We also sponsored, with the assistance of one our great diving predecessors – GENESIS and SEALAB Diver Bob Barth – a fish fry for former SEALAB and Deep Submergence Sailors. It was a great party.

It was during that festive occasion that Bob introduced me to Bev Morgan, of Kirby-Morgan fame. Bev cut Lloyd Bridges his wet suits for the *Sea Hunt* series. It was during that conversation with Bev that he laughingly mentioned how they had made a set of balsa wood SCUBA cylinders (doubles) for Lloyd so he could easily throw them over his head in the fashion we desperately tried to copy while at NDSTC.

A valuable lesson was recorded that day...

Now we are in a fairly critical time in our Navy diving history. Captain Wilkins, Captain Murray and I never expected 24 years ago that we would be so positioned, and through our collaborative efforts could advance Navy Diving-we just wanted to survive and graduate. But here we are and we understand completely our obligation to our Navy Diving community. It's payback time. We cannot afford to make *assumptions* regarding our future Divers and the equipment they will employ. Our underwater capabilities are at stake, and it is up to us, Navy Divers, to preserve our valuable diving skill-set for our Fleet.

Captain Gary Windhorst, commanding the Center for EOD and Diving, and Commander Dave Davis, commanding NDSTC in Panama City, heavily engaged through the Revolution in Training, are completing the analysis leading to formation of Fleet Diver and EOD Diver ratings. Training efficiency is a paramount consideration for them and that means that Fleet Diving requirements must be explicitly detailed and catalogued. Fleet involvement is integral to this process, and must be supported by experienced Fleet Master Divers. Only through quality Master Diver input can Captain Windhorst and Commander Davis hope to complete this monumental task and provide dive training that is efficient and responsive to Fleet requirements. Neither Captain Windhorst nor Commander Davis can rely on mere assumptions to execute their training plan... as fellow Divers, we are all obliged to support them, and without emotion.

We at 00C3 understand a need to review our Fleet diving program. We have targeted four areas for review where we expect to (1) improve efficiency, (2) improve responsiveness and enhance interoperability, (3) advance technology, and (4) better engage with the Fleet.

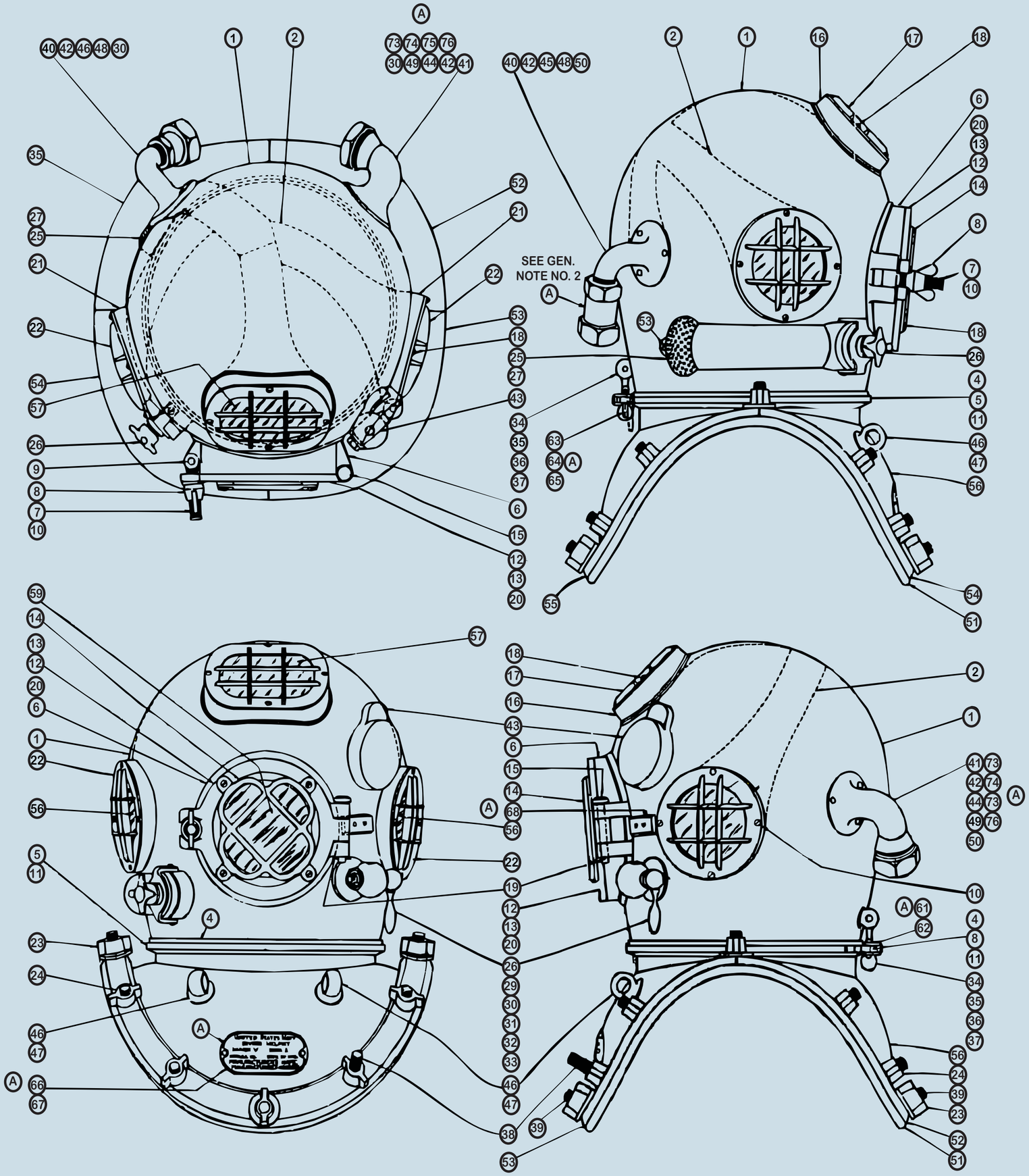
In future issues of FACEPLATE I will share more detail in each of these areas, but I do want give you a brief example of one initiative for your consideration.

Under the heading of *improve efficiency* we will replace our current air decompression tables with tables and procedures based on the VVAL-18 decompression algorithm. Bob Kilpatrick of our office and MDV (Ret.) Paul Schadow have developed the concept for the required hardware to give our Divers in-water O_2. We hope to prove the concept, including certification, by July. Captain (Dr.) John Murray and Dr. Ed Flynn are preparing a plan for implementation of the new Air Tables.

Some advantages of the new tables include $SurDO_2$ capability to 190 fsw, longer No-D times between 120 and 190 fsw, and fully integrating a single table format for air/O_2, and $AirSurDO_2$ dives.

I view the VVAL-18 tables as an intermediate step toward our ultimate goal of fielding a "probabilistic" model vice our current "deterministic" dive tables in our effort to "optimize" bottom time and decompression obligation. After we have gathered sufficient data, using computers coupled with digital depth measurement systems, Drs. Flynn, Murray and Drs. Gerth and Southerland at the Experimental Dive Unit will expand our diving capability wherein we maximize our allowable Bottom Time and minimize a corresponding amount of safe Decompression Time. We shouldn't be penalized in decompression for "square" dives we do not make. Remember: time is money, and we can not afford to spend unwarranted time "cooking" in the round house, nor can we afford to cut short, in aggregate, our TBT.

There has been concern over the loss of bottom time at 40 fsw on the VVAL-18 Table. I believe we will eventually increase our available bottom time at that depth when we "drive the dive" by com-



REVISIONS

REV.	DATE	DESCRIPTION	APPROVED
A	11/14/41	APPROVED BY CAPT MARK V. HELMKAMP U.S. NAVY SUPERVISOR OF DIVING "NOT A CERTIFIED DIVING APARATUS"	
B	11/14/44	LOCKING DEVICE AND GEN. NOTES NO.'S. 1, 3, 4. AND 8 ADDED. ALTERED LEGEND ON NAME PLATE ALSO ON NOTE NO. 1 TO 11 ADDITION OF NEW SHEETS NO.'S 2 AND 10 TO SET. PAGE NUMBERS CHANGED FROM 007 TO 008. TITLE ALTERED TO COVER ADDITIONAL SHEETS. CORRECTIONS MADE TO DRAWING, ADDED PCS 13, 74, 76, & 78.	
C	12/14/44	PC 77 ADDED TO GENERAL NOTE NO. 1	
D	7/29/47	PLAN NUMBER CHANGED FROM BU.NO. 417976 TO BU.NO.S9400-921583.	
E	12/15/56	PLAN NUMBER CHANGED FROM "STANDARD PLAN" TO "HULL STANDARD PLAN."	

GENERAL NOTES

1. PC. NO. 1 & 68 SHOWN ON SHEET NO. 2 BU.NO.S9400-921591
   " " 2 & 3 " " 3 " " " -921584
   " " 4 TO 11 INCL. " " 4 " " " -921585
   " " 12 20 " " " 5 " " " -921586
   " " 21 39 " " " 6 " " " -921587
   " " 40 50 " " " 7 " " " -921588
   " " 51 55 " " " 8 " " " -921589
   " " 56 59 " " " 9 " " " -921590
   " " 60 " " " 7 " " " -921588
   " " 61 65 " " " 6 " " " -921587
   " " 66 67 " " " 9 " " " -921590
   " " 68 70 " " " 10 " " " -921593
   " " 71 72 " " " 8 " " " -921589
   " " 73 77 " " " 7 " " " -921588
2. DIVERS AIR AND EXHAUST VALVES SHOWN ON BU.NO.S9400-921580 SHALL BE FURNISHED AS PART OF HELMET CONTRACT.
3. WELDING LENS FACE PLATE SHOWN ON BUREAU NO S9400-921582 SHALL NOT BE FURNISHED AS PART OF HELMET CONTRACT.
4. FOR DIVERS DRESS SEE BUREAU PLAN NO'S. 583407 AND 583408.
5. METHOD OF FASTENING ATTACHMENTS TO HELMET SHELL AND COLLAR:

THE HELMET PC.1 AND THE COLLAR PC.56 ARE TINNED IN WAY OF THE FAYING SURFACES OF ALL PARTS INTENDED FOR ATTACHMENT.

THE WINDOW FRAMES PCS. 6, 21, AND 16; THE AIR DUCT PC.2; THE TELEPHONE CUP PC. 43; THE PAD FOR WELDING CLIP PC. 68 AND THE SCREW RING (FEMALE) PC.4 ARE SECURED TO THE HELMET SHELL PC. 1 BY TINNING AND SWEATING TIGHT. THE SCREW RING (MALE) PC. 5 IS SECURED TO COLLAR PC 56 IN THE SAME MANNER.

THE GOOSENECKS PCS. 40 AND 41 TOGETHER WITH THEIR WASHERS PC. 42 ARE FIRST TINNED AND AFTER SECURELY FASTENING THEM TO THE HELMET PC. 1 BY COPPER RIVETS, THEY ARE SWEATED TIGHT.

THE COLLAR RING PC. 51 IS FIRST FORMED TO FIT THE COLLAR SHELL PC. 56 AND BOTH ARE TINNED. THE SKIRT OF THE COLLAR SHELL IS THEN WORKED NEATLY AROUND THE OUTER EDGE OF THE RING AND THE TWO SURFACES SWEATED TOGETHER. BEAD PC. 71 SOLDERED ON TOP OF RING.

THE OUTLET EXHAUST BODY PC.25 AND ITS THREADED WASHER PC. 27 ARE FIRST TINNED. THE AFTER END OF THE VALVE BODY IS SECURELY COPPER RIVETED TO THE HELMET SHELL PC. 1 AND THE THREADED WASHER PC. 27 IS SCREWED ON AND SWEATED TIGHT. THE WHOLE BODY THEN SWEATED TIGHT.

THE BALL SPIT COCK PC. 28 AND ITS THREADED WASHER PC 32 SHALL BE SECURED IN THE SAME MANNER.

THE SAFETY LOCK BRACKET PC. 34 AND THE WASHER PC. 37 ALSO, THE EYELETS PC. 46 WITH THEIR WASHERS PC. 47 SHALL BE FIRST TINNED, THEN RIVETED UP AND SWEATED TIGHT.

THE STUDS PCS. 36 AND 39 SHALL PASS THROUGH THE COLLAR RING PC. 51 AND THE HEADS SHALL BE SOLDERED TIGHT ON THE INSIDE OF THE COLLAR SHELL PC. 56.

THE NAME PLATE SHALL BE SECURED BY BRASS RIVETS MADE WATER TIGHT BY SOLDERING ON THE INSIDE.

THE SOLDER USED CONSISTS OF MIXTURE OF EQUAL QUANTITIES OF LEAD AND TIN.

THIS PLAN SUPERSEDES BU. NO.417976.

N

DRAWN BY: Fred K. Ore BMCM (NDV)
EXAMINED BY: Stephen J. Smith (NDV)
IN CHARGE OF: TB
PRINCIPLE ENGINEER
DATE:

HULL STANDARD PLAN

NAVY STANDARD DIVING HELMET

MARK V MOD. I

GENERAL ARRANGEMENT

10 SHEETS SCALE 6" = 1 FOOT SHEET I

NAVY DEPARTMENT

BUREAU OF SHIPS

WASHINGTON, D.C. APRIL 6, 1948

FOR CHIEF OF BUREAU

BU.NO.S9400-921583

REV D

Topside; Red Diver... (continued)

puter. "Table-jumping" is becoming more common and clearly indicates a faulty process; we must forge ahead and update our air decompression procedures.

The intervening period using the VVAL-18 tables will require the dedication of all Master Divers to ensure data is consistently and accurately collected. If we have any hope of advancing our profession, we need to collect this data accurately.

As always, I am counting on you, the Fleet Master Diver, as your support and personal involvement is critical to the success of this endeavor. You are kidding yourself if you are comfortable with the status quo; a visit to DEMA or ADC will quickly reveal that Navy Diving has room to improve, both in safety *AND* efficiency. Let's do it.

In future issues, I will discuss our other initiatives, including our Fly-Away Sat System, Dive Manual changes, interagency diving, advanced air quality monitoring, diving computers and data loggers, contaminated water diving, and future EOD and NSW diving systems.

As your "Supervisor Topside" I am very interested in hearing your "bottom reports" – from the working Diver. LCDR Paul Fleishman, MDVs Smith and Orns are standing by to hear your advice and concerns and are eager to serve. So far I've heard from MDVs Balesi, Furr, Stogdale, Westbrook, Wiggins, Bradford (MDV Brick always provides *interesting* feedback) and Van Horn and am always interested in hearing and learning from our Fleet Master Divers. Don't be shy about calling and giving me your bottom report! ***OK, Red?***

Letters to the Editor…

Feel a burning desire to sound off and want to be heard by our diving community? Square your shoulders and send me a letter or email and tell me about it. And if I deem them appropriate for this publication, I will publish them and provide a response where warranted. Controversial issues are acceptable, but don't bother me with anything offensive.

Here's my address:

Captain Mark Helmkamp, USN
Supervisor of Diving
Code 00C3B
1333 Isaac Hull Ave, SE Stop 1073
Washington Navy Yard, DC 20376

If you're the impatient sort, my email address is helmkampmt@navsea.navy.mil ***OK, Red?***

WNY Dive School Memorial…

How many of you out there served in or graduated from the Naval School of Diving and Salvage at the Washington Navy Yard? How many of you choked on exhaust fumes and dodged DC traffic during morning PT, experienced Anacostia River muck, and recall the Thomas O'Malley? The school is gone of course, but there is nothing to mark the site where many great Navy Deep-Sea Divers earned the right to wear the hard-hat. Captain Mike Herb and I discussed a bronzed "Jake" to mark this hallowed ground. Is this a worthy project? I think so, and I will inquire with Chuck Micele of the ARS/ASR Society to see if there is interest there too. Let me know what you think. More to follow…. ***OK, Red?***

Old Copperhead…

It seems to me that we should recognize our senior active duty Officer and Enlisted Hard Hat Divers. In our next issue, I will introduce our "Old Copperhead" - both officer and enlisted. Do you know who they are? ***OK, Red?***

Faceplate Centerfold…

Centerfold? Now don't have an embolism…calm down; take a vent. Occasionally, we'll provide something that will give you a little insight into our fabulous USN Diving history. In this issue, the MK V print was prepared by Mr. Brian Deitz of NDSTC. I'm told Brian worked over a weekend to meet my admittedly inflexible and unreasonable demands. Thanks Brian… and great job! Our centerfold for a future issue is already in the works and will give a glimpse into the inner workings of one of Navy's greatest contributions to the science of diving…Any guesses? ***OK, Red?***

The Age of Aquarius…

Aquarius is an underwater ocean laboratory located in the Florida Keys national Marine Sanctuary. The laboratory is deployed three and half miles offshore, at a depth of 60 feet, next to spectacular coral reefs. Scientists live in Aquarius during ten-day missions using saturation diving to study and explore our coastal ocean. Aquarius is owned by NOAA and is operated by the National Undersea Research Center at the University of North Carolina at Wilmington. Our Undersea Medical Officers have been supporting Aquarius missions since 2000. These diving doctors receive valuable real-world saturation dive training and Aquarius receives top-notch medical assistance. This symbiotic relationship will be expanded this year to include 1st and 2nd Class Divers acting in support roles. UMO's are coordinated through CDR (Dr.) Ross Levine at NDSTC. 1st and 2nd Class Divers will be scheduled through MDV Steve Smith of our office. I have dove Aquarius and was in sat there in December – a fantastic experience – an experience I would like as many of our Divers as possible to take advantage of as we look ahead to our own fly-away saturation diving system. Want to know more? Go to: http://www.uncw.edu/aquarius/ ***OK, Red?***

The Underwater Swim School Reunion is scheduled for 7 - 9 May, 2004 in Coronado. Contact Don Stone for more information at stonefish7@cs.com or call (561) 391-6727.

This year's Sealab/Man-In-The-Sea Reunion will be held in San Diego, CA on May 9-11, 2004. A special invitation is extended to all of our friends from the various Deep Submergence communities. This year's festivities will be held at the Holiday Inn Bayside. For reservations call (800) 662-8899 and ask for the "Reunion 2004" rate.