FACEPLATE

The Official Newsletter for the Divers and Salvors of the United States Navy
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USS MONITOR TURRET RECOVERY

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.

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SUPSALV SENDS

It occurred in a location that nobody in the U.S. had ever heard of – Massawa, Eritrea, (North Africa). The year was 1941. The Italian military, then members of the Nazi axis, were on the run, retreating from their former naval facility in this small harbor town on the western bank of the Red Sea after defeat by the British. But inspite of their hasty retreat, the Italians left an incapacitating surprise. Advance members of the Royal Navy (who desperately needed this isolated, protected harbor as a depot level repair yard for their Mediterranean Fleet) found twelve scuttled (and in at least one case booby-trapped) ships blockading both entrances to the port, and two former floating drydocks – of almost inestimable value to battle-damaged British warships – lying on the harbor bottom, damaged and sunken. Although the Italians were retreating in North Africa, the Japanese were attacking in the Pacific, and in December of 1941 and early 1942, U.S. Navy salvage forces were heroically engaged and nearly entirely consumed by effort to recover from Pearl Harbor, a full half-world away from Eritrea. With US forces simultaneously joining the global war in both the European and Pacific theaters, resources were thin, and only one salvage officer was sent to Eritrea to assist in this strategically critical, but little known, salvage operation. LCDR Edward Ellsberg, USNR, engineer and diving officer of S-51 salvage operations fame, after a death-defying transit to North Africa, found himself the sole military salvage officer in Massawa, with a small band of commercial salvors and some local Eritrean natives for his salvage team. With virtually no infra-structure other than the sabotaged and battle-damaged facilities left by the fleeing Italians, Ellsberg rose to the challenge, scoped out the situation, developed a plan, and compartment by compartment, ship by ship, drydock by drydock, accomplished what everyone else declared impossible – he salvaged Massawa Harbor within weeks, and opened the port for in-theater depot level repairs. The entire story of this miracle of human ingenuity and persistence is engagingly documented in Ellsberg's book *Under the Red Sea Sun*.

So why, you're asking yourself, is the new SUPSALV starting off his first FACEPLATE article retelling a long-forgotten chapter from the dusty old Salvage Chronicles? To inspire us to reach deep within, and be prepared for the certain salvage heroics which will be required of our community in the future? Not really – though that's not a bad idea. The real purpose is to lay the backdrop for what I'm thinking about regarding our current preparedness – or lack of preparedness – for major salvage operations our Nation may soon require of us.

Our current war on terrorism started with an attack on one of our warships, and by a combination of God's grace, superb response by the crew and salvage forces, and extraordinary damage-tolerant design features, the ship was saved and is back

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Editor's Note: *The March 2002 issue of FACEPLATE had an editorial error in the Underwater Ship Husbandry Advisory entitled, "Diving Around ICCP Systems". The error appeared in the caption of the third photo. The term frequently used to describe this discoloration above an ICCP anode is "flaming" vice "floating". The anode depicted shows the typical flaming pattern found on hull coating directly above an ICCP anode. This is a normal bleaching effect.*

In This Issue

Cover: ENCS(DV) Vern Geymon prepares to cut the 7" x 14" pine decking during the USS MONITOR turret recovery. Photo by Fleet Combat Camera, Atlantic.

USS MONITOR Turret Recovery

By: Chief Warrant Officer Rick Cavey

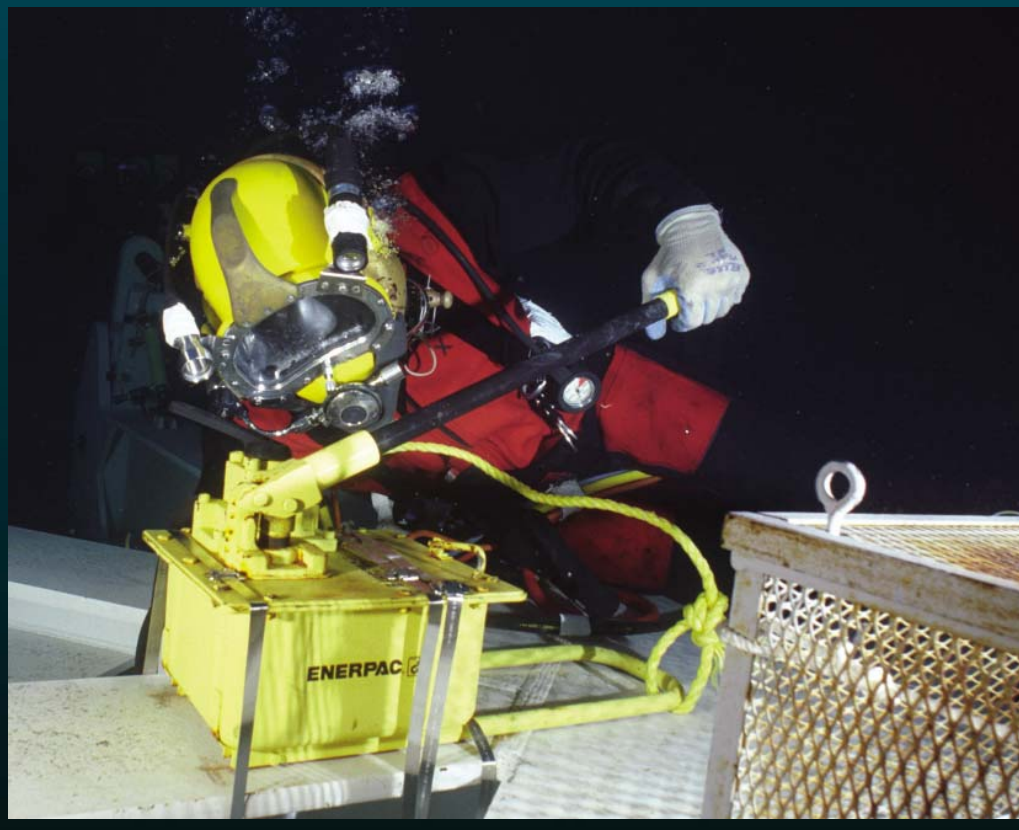
White caps dotted the seas and a slight swell rocked the huge barge. The divers reported 20-foot visibility and a 2-knot current. Not ideal conditions to lift the MONITOR's 140-year-old turret from its resting place 240 feet below. A tropical storm was threatening from the south, promising 50-knot winds and 12-foot seas that would threaten the eight-point moor and time was running out. The lift had to be today.

The USS MONITOR, best known for its heroic stand against the CSS VIRGINIA (USS MERIMAC) in the battle of the ironclads during the Civil War, sank in a New Year's Eve storm in 1862. It came to rest upside down on the sandy bottom 14 miles from Cape Hatteras in what is commonly known as the graveyard of the Atlantic. Since its discovery some 30 years ago, the National Oceanographic and Atmospheric Administration (NOAA) has maintained the site as a historic monument. Recent archeological surveys showed a dramatic increase in the hull's decay. The recovery of parts of this famous warship fell to US Navy Divers.

In recent years NOAA in cooperation with Naval Sea Systems Command 00C3 (SUPDIVE), Mobile Diving and Salvage Unit TWO (MDSU 2), and Navy Divers from around the fleet have recovered portions of the ship including the shaft, screw, and steam engine. Once again this successful team prepared for salvage of the MONITOR's most recognizable feature, the 22-foot diameter, nine feet tall, 160-ton cylindrical turret. Unknown was the integrity of the eight inch thick iron turret bulkheads, or the contents remaining inside. High hopes envisioned the entire turret, two Dahlgren cannons and other period artifacts being recovered in one lift.

DOD Legacy funds, allocated by Congress for realistic military training missions, were appropriated at SUPDIVE's request. Commanding Officer MDSU 2 was assigned as On Scene Commander (OSC). Planning teams went to work and soon a salvage plan began to take shape. Unique equipment had to be designed and manufactured, manning for the entire 45 day operation had to been allocated, and diving procedures had to be identified.

Diving offshore to 240 feet in one of the most hostile weather locations in the world to recover a historic artifact buried beneath 100 tons of wreckage is no job for a conventional Surface Supplied Diving System. Use of one of only three US Navy certified Fly Away Mixed Gas Systems (FMGS), combined with a commercially leased, Navy diver operated Saturation Diving System would provide the safest and most effective tools for this project. Lacking a suitable platform, MDSU 2 looked to Phoenix Marine, the Navy's prime salvage contractor, to locate a lift barge capable of an estimated 300-ton lift and large enough to accommodate the salvage and diving equipment. The Manson Gulf barge WOTAN used last year during the engine recovery with its 500-ton crane capacity, onboard berthing and messing, and spacious 300 x 90 foot deck fit the bill. Since the project's main mission was to train US Navy Divers in



Surface supplied diver operating hydraulics on turrent lifting system spider. Photo by Fleet Combat Camera, Atlantic.

(USS MONITOR continued on page 4)

Surface supplied divers going up and over during an average sea state. Photo by Fleet Combat Camera, Atlantic.

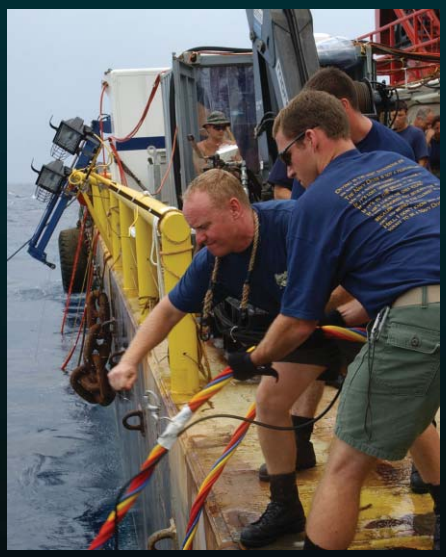
(USS MONITOR continued on from page 3)

salvage and diving procedures, MDSU 2 opened enrollment to all fleet diving commands. One hundred and sixty two Divers from twenty-five separate commands including three from the British Royal Navy responded to our call. Twenty-one US Navy saturation (SAT) Divers responded to provide the commercial saturation system with divers and watchstanders.

Enjoying calm seas and little wind the WOTAN dropped the first anchor over the site at 0330, 26 June 2002. Surface supplied divers splashed the first set of divers exactly six hours later and MONITOR Turret Recovery 2002 got underway. Dive teams from both the saturation side and surface supplied side worked in two shifts, 24 hours a day, seven days a week. While many of the divers rotated through every two weeks, a core of 12 surface supplied divers and all the saturation divers remained for the entire forty-five day operation.

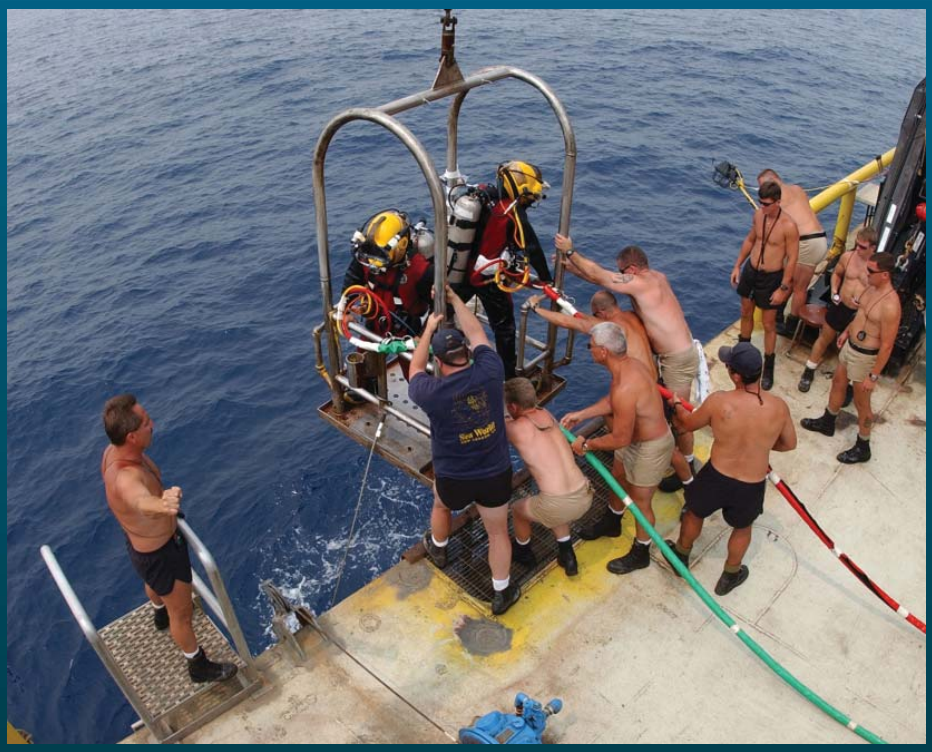
The immense task of raising the turret to the surface required some "refining" of current salvage procedures. NOAA scientists and historians required certain archeological procedures be used throughout the entire recovery. Any areas disturbed had to be thoroughly searched for small artifacts. When found, small artifacts had to be "mapped in" to the site by taking precise measurements and video. Large eductors and airlifts, used to remove over 100 cubic yards of sediment and coal, had to be discharged into salvage baskets with an eighth inch mesh to prevent small artifacts, such as coins or buttons, from being scattered around the site. Any human remains found would require specific procedures for removal and shipment to U.S. Army Central Identification Laboratory in Hawaii.

Working side by side, SAT divers and surface supplied divers worked to clear the deck and armor belt from atop the turret. Using a variety of tools, divers cut, sawed, pried, and hydroblasted decking and armor plate, hoisting sections as heavy as 70 tons until the turret was finally exposed for the first time in 140 years. The elation at accomplishing that phase of the operation was short lived. The turret was full of sediment and half-buried in sand and coal. SAT divers went to work removing the sediment inside the turret, while surface supplied divers removed sediment from around the outside. The weather forecast called for calm seas for a short time, so the decision to lower the 25-ton Spider, an eight-legged claw designed



Tenders worked harder than usual during the normally heavy currents encountered off Cape Hatteras, NC. Photo by Fleet Combat Camera, Atlantic.

(USS MONITOR continued on page 5)



MDV Mariano directs side during up and over phase. Photo by Fleet Combat Camera, Atlantic.

(USS MONITOR continued from page 4)

for lifting the turret, and place it around the turret was made. While internal turret excavations continued, divers attempted to sink the claws in and around the turret. Some of the legs had to sink as much as four feet into the sand, soil, and coal that lay against the turret sides. Divers encountered iron plating and stanchions, which had to be cut using 36-inch ultrathermic rods and lifted out by cranes. This work progressed slowly. Hopes were that the turret would be ready to lift ten days prior to the deadline date to allow a cushion for unfavorable weather. These hopes diminished with the discovery of human remains in the turret. From the beginning, plans had been in place to ensure proper procedures were used during the excavation and removal of sailors trapped inside the turret during her descent to the bottom that stormy night. Progress slowed as divers accomplished the time-honored task of removing sailor's remains from their watery graves for proper identification and burial.

A few short days before the deadline the turret was ready to lift off the bottom. The human remains had been removed and both Dahlgren cannons were secured inside the turret. The weather forecast was grim. Bottom currents had increased beyond the safe working limits of diving, and surface conditions exceeded the crane's capabilities. It was during this lull that the OSC made a crucial decision. CDR Scholley ordered the barge to pick up all eight anchors and reposition the bow into the forecasted seas. Hoping bottom currents would diminish, this new heading would lessen the movement on the barge and allow the large crane to operate safely. Optimism prevailed and on 6 August 2002, with only three days left in the schedule and a tropical storm headed in, bottom currents lessened and the first of two lifts got underway. First, the spider with the turret safely ensconced within its eight legs, had to be picked up from the bottom and placed on a platform lying close by. This critical lift was required to contain all the contents left in the turret prior to bringing to the surface. Once attached, the spider, platform, and turret would be raised to the surface and gently placed on deck.

The rigging went taut, Navy Divers, spectators, and reporters jockeyed for the best view, the water churned, and for the first time in one hundred and forty years the USS MONITOR's 160-ton turret rose slowly from the water. Pride, joy, and patriotism washed over the crowd as the backslapping and congratulations began. Navy Divers had once again proved their commitment, versatility, and professionalism in accomplishing one of the most realistic and challenging training exercises ever undertaken.

Overall, U.S. Navy Fleet Divers completed 507 surface supplied HE-O_2 dives, accumulating 286 hours of bottom time and 213 man-days in saturation. They fought through every adversity and met all challenges to become part of history by recovering what some consider the Mother of the modern naval warship.
HOO YAH DEEP SEA!!!

Chief Warrant Officer Rick Cavey is the Officer in Charge of Detachment DELTA, Mobile Diving and Salvage Unit TWO in Little Creek, VA. He was the project diving and salvage officer for USS MONITOR Expedition 2002.

Surface supplied divers, affectionately known as sprint divers, make their way to the turret. Photo by Fleet Combat Camera, Atlantic.

NAVY Saturation Diving on the USS MONITOR

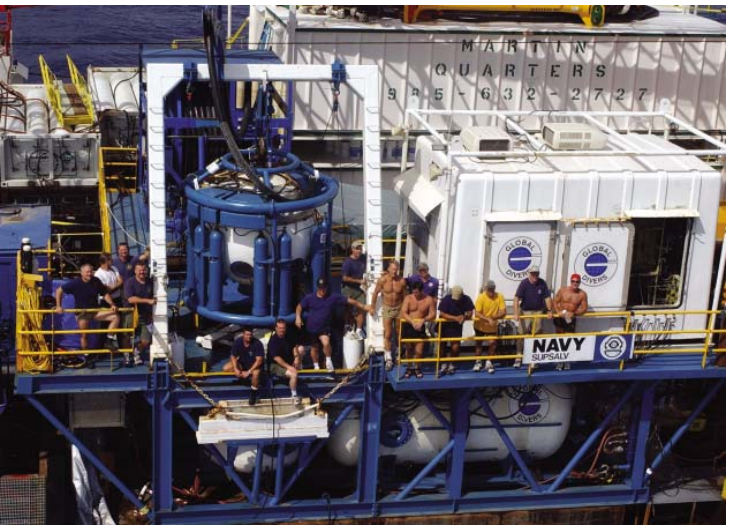
By: CAPT Chris Murray

Once again the US Navy was given a chance to use a commercial saturation diving system on the USS MONITOR. The system that was used was the Global Industries 1504 Saturation Diving System; the same system used to recover the engine in 2001. After completing the engine recovery in 2001, NAVSEA 00C entered into a maintenance contract with Global to maintain the 1504 SAT system to specifications, as outlined by NAVSEA SUPDIVE and Certification, in order to assist in a more rapid mobilization for use with the MONITOR or emergency use.

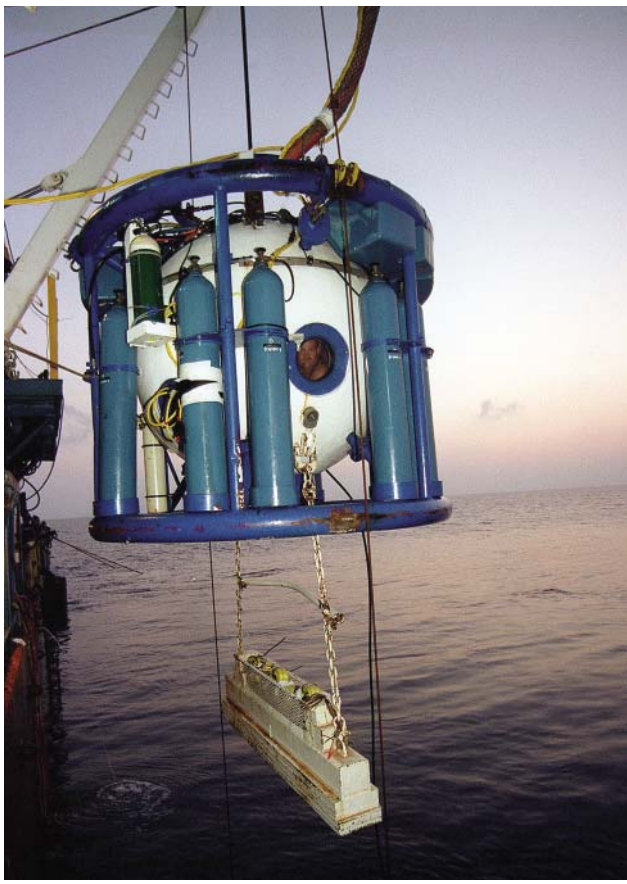
The SAT system was again thoroughly inspected by NAVSEA Certification, SUPDIVE and NEDU. After inspection and review, a waiver was submitted to OPNAV for conditional use on the MONITOR. The waiver was contingent on system and operational training and a demonstration dive prior to final approval for the MONITOR mission. The Global 1504 SAT System is a two chamber, 1500-foot system with a two-man bell. Each chamber was capable of handling 6 personnel. However, for the MONITOR we had it configured for four personnel.

During the MONITOR mission, the SAT system was manned with 21 saturation divers and a SAT qualified Diving Medical Officer. They worked in twelve-hour shifts in concert with the surface supplied divers. Each 12-hour shift consisted of launching a team of two divers in the bell, and each diver completing a four to seven hour dive during their bell run. Between the two divers, they would average 10 hours of bottom time per day. The length of each dive would depend on the task at hand, environmental conditions, and how the diver felt. At any one time, there were at least two 2-man teams in saturation to provide for 24-hour a day operations. Each team would generally work for about nine days prior to being relieved on the bottom and then decompressing for 66 hours.

During the MONITOR 2002 mission, the SAT divers completed 80 bell runs and 641 hours of total bottom time. The saturation diving bell was launched and diving for all but about 48 hours during the entire mission. The missed diving time was attributed to either excessive current (greater than 3 knots) or equipment down time. The Global 1504 system wasn't fancy but it proved to be very safe and reliable. The SAT diving increased the efficiency of the diver almost 4 to 1 over surface supplied diving, when considering the consistency of a single dive team, diving everyday for extended periods of time.



USS MONITOR Expedition 2002 saturation dive team with the Global Industries 1504 portable saturation diving system in-transit to the MONITOR site off Hatteras, NC. Photo by Fleet Combat Camera, Atlantic.



BMC(DV) Keith Nelson being launched for a 10-hour bell dive on the USS MONITOR. He will spend 4 to 5 1/2 hours actually working in the water during this bell run. Photo by Fleet Combat Camera, Atlantic.

The three Saturation Master Divers that made this possible were MDV Chuck Young, MDV Bryon Van Horn, and MDV Lyle Becker. Without these Master Divers running the training and operational dives, the MONITOR turret would still be on the bottom of the ocean. This year's iron men were Chief Keith Nelson and Senior Chief Vern Geyman. Between the two of them, they almost accounted for 200 hours of bottom time. HOO YAH!

Navy Saturation Diving Future

We have an opportunity here. Without saturation diving, missions like the USS MONITOR recovery would not have been possible. For the amount of bottom time and tedious and dangerous work that was required at 240 feet, it just would not have been possible with surface supplied diving alone. A saturation diving system

(Saturation Diving continued on page 18)

Miner Miracle

By: LCDR Paul Fleischman

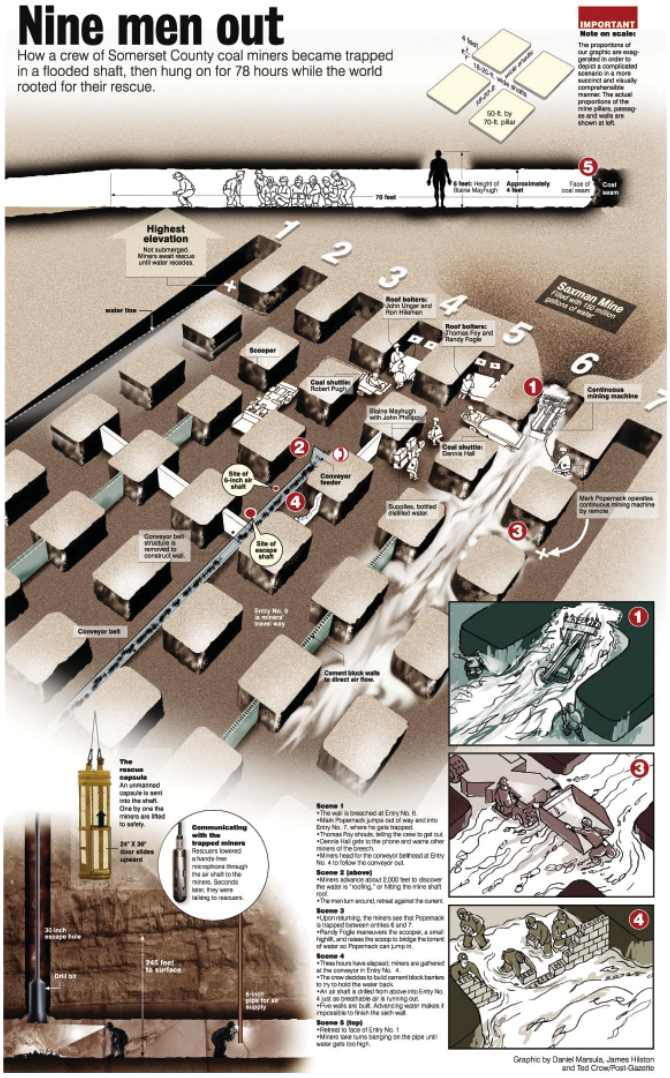
It's wet, cold and dark…a typical Navy dive? No, because it's 240 feet underground in a coal mine. This was the situation for nine miners, who were trapped in the Quecreek Mine, a crosshatch of interconnecting tunnels approximately four feet high by twenty feet wide, located in western Pennsylvania near Pittsburgh. Late on the 24th of July, the miners breached an abandoned mine, which was filled with an estimated 150 million gallons of water, trapping them underground.

The water flooded into the mine so quickly that the miners were unable to move the 8,000 feet to the mine entrance before they were cut off by the rising water. As the water level in the mine continued to rise, the miners made a difficult retreat into a captive air pocket at the highest elevation in the mine. The rest of the relatively horizontal shaft rapidly flooded and compressed the trapped air pocket exposing the miners to an estimated pressure equivalent to 40 feet of sea water (FSW). It was soon realized they would need recompression therapy if removed from their pressurized air pocket.

Topside, the rescue operation had already begun. Mine engineers surmised the miners were trapped in the flooded section, and that if they were alive, they would be forced to the highest ground. Accordingly, they started drilling a six-inch air shaft above that point. The mine engineers also speculated that providing compressed air down the shaft could prevent the water from rising further, while providing oxygen and warmth to the miners, since the temperature of the mine and water was estimated to be 55 degrees Fahrenheit. When the six-inch drill broke through, the miners banged on the pipe to let people topside know they were still alive. This initial contact motivated the rescue effort and provided hope to the families and friends of the trapped miners.

As part of the rescue effort, the Indiana County Special Medical Response Team (SMART) responded to the site. Dr. Nick Colovos, a member of the SMART Team and a Naval Reserve Diving Medical Officer, contacted the Navy Bureau of Medicine and Surgery (BUMED) for assistance, in case the miners required recompression therapy. Following a conference call between OPNAV and SUPSALV, all Navy diving commands with recompression assets within 18 hours of Pittsburgh were alerted.

By 1430 all the available recompression chambers were notified to deploy and the first personnel arrived on site at 2230. The first recompression chambers from the Emergency Ship Salvage Material (ESSM) pool at Cheatham Annex, Virginia arrived at midnight. By 0600 the next morning there were eight chambers on site with more than 50 Navy active duty and civilian personnel to operate them. The equipment was staged in a large machinery barn on the dairy farm, where the rescue operation was underway. The farm owner graciously and unselfishly offered the use of his facilities to the Navy team.



Graphic provided courtesy of Pittsburg Post Gazette.

The equipment included three Transportable Recompression Chamber Systems (TRCS) mounted in standard modular CONEX boxes with air banks and air conditioning, four free-standing Transportable Recompression Chambers (TRC), which are the single-lock components of the TRCS, one Mobile Transfer Lock (MTL), and a standard Navy two-lock chamber in a CONEX box from UCT ONE. In addition there were five Emergency Evacuation Hyperbaric Stretcher (EEHS) units, known commercially as Hyperlites, which are undergoing evaluation and certification for Navy use. A mobile civilian recompression chamber had also arrived from Ohio and was made available to the Navy team if needed.

The Navy personnel represented eight different commands and included active duty, reserves, and civilians. The ma-

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(Miner Miracle continued from page 7)

HM1 Jon Carlson and HM2 Christoper Walker from Underwater Construction Team ONE performing the initial examination of a miner prior to evacuation. Photo by CAPT Dale Mole'.

jority of the personnel and equipment were from the Norfolk, VA area.

As the Navy presence grew the rescue effort continued. A 30-inch rescue shaft was started while huge water pumps were set up near the mine entrance to begin dewatering the mine. The rescue plan was to maintain the miners under pressure, rapidly decant them on the surface, and recompress them in the Navy chambers. Metalworkers fabricated an air lock on site. This air lock would be attached to the metal shaft lining the top of the rescue hole when the drilling was done. A 22-inch rescue capsule would be lowered through the air lock and down the rescue shaft to retrieve the miners one at a time.

At 0130 on the 26th of July, the 30-inch drill bit broke and it took the next 14 hours to remove it from the hole. Over the course of the delay, the water pumps continued to decrease the water level in the mine. The engineers wanted to lower the water level below the elevation of the estimated breakthrough point to ensure the rescue shaft would not fill with water. The drilling recommenced with a smaller 26-inch drill bit and was stopped approximately 20 feet before breakthrough to allow the installation of a metal pressure seal on top of the rescue shaft. Upon breakthrough, the pressure gauge on the pressure seal showed zero. The dewatering efforts had lowered the pressure in the air pocket to one atmosphere and immediate recompression would not be required. The mine engineers calculated the pressure had been reduced by one to one and a half feet sea water per hour, almost exactly the Navy's accepted decompression rate for saturation diving.

Once the drill broke through, workers on the surface established communications with the trapped miners, who reported that one miner had severe shoulder pain. The miner had a history of shoulder pain, but it did not normally interfere with his work. He reported the pain had increased during the second and third day of entrapment and he believed he could not use the affected arm. About seven hours after rescue, the decision was made to give a test to pressure. The miner was recompressed in MDSU TWO TRCS, which had been moved to the hospital in Johnstown, PA for just such a scenario. He experienced significant relief on reaching 60 FSW and was treated on USN Treatment Table 6.

The diagnosis was decompression sickness, superimposed on a preexisting injury. The increase in pain during the natural decompression through pumping down the water, with the considerable relief of pain and return to baseline during recompression treatment, supported the diagnosis and treatment.

Fortunately, recompression therapy on the scale initially anticipated was not required. However, this does not minimize the contribution of the Navy personnel on site. The Navy team provided tangible contributions including supervised rehearsals of the evacuation and decontamination procedures, provided technical guidance and equipment to construct the pressure seal used on the rescue shaft, and Navy doctors and corpsmen conducted the initial medical assessment of the miners prior to evacuation to the local hospitals. The Navy team's greatest contribution was the most intangible. As noted by several members of other rescue organizations, the Navy team's presence, timely response, and demonstrated professionalism, provided hope to the family members and contributed significantly to a sense of confidence throughout the entire rescue organization.

Equally memorable to the Navy personnel on site were the skill and dedication of all the emergency response personnel and the generosity of the local people and businesses, who provided an abundance of food, drink, and equipment. It was a privilege to be a part of such an effort, and the best reward was the rescue of all nine miners. To borrow a phrase from the SeaBee's, the Quecreek Mine rescue demonstrated again that Navy Divers CAN DO!

TRCS used on site. Photo by CAPT Dale Mole'.

LCDR Fleischman is currently the Assistant Supervisor of Diving and is the EOD/ SPECWAR liaison officer. His previous assignments include tours at Defense Threat Reduction Agency, EODMU FIVE and USS ROANOKE (AOR 7).

Diving Equipment Issues

By: NAVSEA 00C Staff Writers

STANDARD NAVY DOUBLE LOCK RECOMPRESSION CHAMBER SYSTEM

Mobile Diving and Salvage Unit TWO (MDSU 2) assisted Naval Sea Systems Command (NAVSEA) personnel in testing and certification of the first Standard Navy Double Lock Recompression Chamber System (SNDLRCS) at Cheatham Annex in Williamsburg, VA. The SNDLRCS is certified for treatments using the U.S. Navy Diving Manual Treatment Tables for the maximum time required, and for conducting Pressure Tests and Surface Decompression.

The SNDLRCS consists of a double lock recompression chamber installed in an ISO container and an air/oxygen supply system. The recompression chamber was designed by Fink Engineering and manufactured by Cowan Manufacturing. It is 54" in diameter and made of stainless steel. It has air, oxygen, and mixed gas BIBS in the inner lock and air and oxygen BIBS in the outer lock. It also has a CO_2 scrubber, an environmental conditioning system, communications, and an O_2 and CO_2 analyzer.

View of the inner lock of the SNDLRCS. Photo by Stuart Yee.

Air is supplied to the chamber from an Air Supply Rack Assembly (ASRA), the same that is used with the FADS III. Oxygen is supplied from 4 bottles stored in the ISO container or can be supplied from an external source (an Oxygen Supply Rack Assembly, for example).

The ISO container is 8' x 8' x 20' and has a vestibule, which can be opened to allow more room in front of the chamber console. It has lighting, heating, and air conditioning, storage for four O_2 bottles, and reducing stations for air and oxygen. There is also storage space for an ASRA, which is used as the chamber's air supply. Rollers are provided to allow easy removal of the ASRA for more working room within the ISO container.

From left to right on the picture; HT3 (DV) Draper McBride, OSSN (DV) Andrew Glueck, QM1 (SW/DV) Geoffrey Ives, DC1 (DV) Jeffrey Poulin, and HT2 (DV) Larry Langdon. Photo by Stuart Yee.

MDSU 2 personnel participating in the testing and certification of the first SNDLRCS were HT3 (DV) Draper McBride, OSSN (DV) Andrew Glueck, QM1 (SW/DV) Geoffrey Ives, DC1 (DV) Jeffrey Poulin, HT2 (DV) Larry Langdon, SM1 (SW/DV) Mark Cooper, and HTC (SW/DV) Steve Janek.

NAVSEA personnel involved were HTCM (MDV) Chuck Young (00C36), Rob Warren (00C4), Paul McMurtrie (00C46), and Stuart Yee (00C37).

UBA MK 21 MOD 1

Kirby Morgan Diving Systems, Inc. (KMDSI), formerly DSI, has advised us of a potential problem with the regulator exhaust valve, PN 510-552. As a result of changing to a different supplier for the exhaust valves, a slight difference in the elasticity and stiffness of the valve has been detected. This difference has the potential to cause a small leakage in the helmet when in certain helmet orientations. **THIS IS NOT CONSIDERED TO BE A SERIOUS PROBLEM**. However, KMDSI has offered to replace these valves at no cost. The valves in question will show the part number and a mold cavity number, as opposed to the previous parts which have no mold cavity number. There have been no reports of problems with leakage due to these valves in the Navy. To our knowledge, no parts from this new lot have made it into the fleet inventory. If you do detect that you have some of these exhaust valves in your inventory, you may contact KMDSI for replacements at (805) 965-8538. Additional information is available on the KMDSI web site, www.KMDSI.com.

KMDSI has also issued a safety bulletin relative to the improper installation of the oral nasal inhalation valve, PN 510-550. These valves can potentially be installed

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(Diving Equipment Issues continued from page 9)

backwards leading to serious problems if attempting to breathe using the steady flow valve. As long as proper procedures are followed as specified in the PMS and the UBA MK 21 MOD 1 manual, this will not be a problem. However, this problem has been detected by KMDSI on some diver-maintained (commercial) helmets.

Another caution issued by KMDSI has to do with the use of lubricants on the regulator exhaust valve, PN 510-552. Use of such compounds can deteriorate the physical properties of the valves and can attract and hold debris causing the valve to leak. This caution also applies to the diaphragm. The UBA MK 21 manual calls for wetting these valves with water if lubrication is needed during installation. The PMS is being corrected to prohibit lubricating these valves with anything but water.

COMPRESSOR PURIFICATION SYSTEMS

Problems related to compressor purification systems continue to plague diving commands. These systems consist of canisters containing desiccant for moisture removal, charcoal to absorb odors, and a catalyst for carbon monoxide absorption, such as HOPCALITE. These elements, when used properly, provide excellent protection to the HP storage flasks. If these cartridges are not changed at proper intervals, the cartridges become saturated with moisture, potentially leading to a catastrophic failure of the cartridge. Ultimately, this leads to contamination of the HP air system and a very costly clean up.

Life of the cartridges is a function of several factors; amount of air run through the system, humidity of air being compressed, ambient temperature, and system pressure. It is difficult to predict how long a cartridge will last because of these various factors, so it is wise to be very conservative when estimating the life of the cartridge. When changing one cartridge, all cartridges in the system should be changed.

Most, if not all, of these systems have an option for an electronic sensor(s) that will detect excessive levels of moisture and carbon monoxide. On some of these systems, exceeding the preset levels of moisture or carbon monoxide will automatically shut down the compressor. This is a clear sign that the cartridges must be changed. MAKO has the Cartridge Monitoring System (CMS) which monitors moisture level. They are presently developing a carbon monoxide sensor. Bauer has the Securus which is a moisture detector. They also have a carbon monoxide monitor. Use of these sensors can allow you to greatly extend the life of the cartridge. In most cases, these sensors can be added to an existing system and will easily pay for themselves in extended cartridge life. Check with the manufacturer of your purification system to see what is available for your system.

POSEIDON REGULATORS

The new U.S. Distributor for the Poseidon regulator is Trelleborg Viking, Inc. They can be reached at (800) 344-4458. Their address is 170 West Road, Suite 1, Portsmouth, NH 03801.

PMS Corner

"Service to the Fleet"

- MIP 5921/038, Seatec Life Preserver. The following correction will come out in Force Revision 2-02: MRC 8CEB (R-3) NOTE 5: the weight variance of the standard should read +/- 4 grams.
- MIP 5921/036 (MAKO 5409 HPAC) now contains maintenance to clean and inspect the final separator semi-annually or in conjunction with filter replacement. It has been reported that on some purification systems, the top plugs have been overtightened. Tighten the top plugs only until the top cap contacts the cylinder housing. Also reported has been hairline cracks in the oil filter housing. This is an O-ring seal and is installed hand tight only.
- MIP 5921-019, SCUBA. Additional disinfectant agents have been approved. SaniZide Plus, Advance TB_E, Bi-Arrest 2, and Confidence Plus have been added. Wescodyne can still be used as a substitute, if local hazardous materials policies permit. Also, the R-7, Inspect Regulator and Gauge Hoses, MRC situation requirement has changed to perform the maintenance requirement before each diving day. The R-6, Rinse Regulator and Air Cylinder Assembly, has changed to accomplish after each day's use.
- Various MIPs. To preserve the functionality of the drying/purification cartridges in the MAKO/BAUER filtration systems, upon completion of charging evolutions, bleed down the condensation and leave a minimum of 2000 psi in the system. Periodicities for cartridge change-out will be revised as follows:

(PMS Corner continued on page 11)

(PMS Corner continued from page 10)

PMS Corner

"Service to the Fleet"

1. Purification systems without electronic moisture monitoring require cartridge change-out at 250 hours for Bauer and 64 hours for Mako.

2. Purification systems with electronic moisture monitoring, either Bauer Securus or Mako CMS, require cartridge change-out annually or when indicated by the moisture monitor, whichever comes first.

3. Purification systems with electronic CO and moisture monitoring require change-out whenever one of the monitors indicates.

Also, the shelf life of these cartridges is now 3 years.

- MIP 5921/162, MK 21 MOD 1UBA. As mentioned in the Diving Equipment Issues article, the oral nasal exhaust, water dump assembly, and installation valves, should only be wetted with water prior to installation. Do not lubricate these valves with grease.

- MIP 5921/034 and other miscellaneous MIPs: Guidance for the recertification and inspection of flasks, moisture separators, filter housings, volume tanks/receivers, and purification system housings is being incorporated into a joint process instruction NAVSEA-00C3-PI-005. Until approval and promulgation of this process instruction use the following inspection criteria:

  NAVSEA certified systems:

  1. MIL-F-22606 flasks and moisture separators use NSTM CH 551.

  2. DOT kevlar composite flasks require hydrostatic testing every 3 years with exception of the new carbon fiber composite flask which is tested every 5 years. Steel flasks and aluminum cylinders are still hydrostatically tested every 5 years.

  3. For all filter housings, volume tanks/receivers, and purification system housings, conduct external and internal visual inspection at periodicity on MIP/MRC. Contact NAVSEA 00C36 for interim inspection criteria for these components.

  NAVFAC certified systems:

  1. All shore based unfired pressure vessels, specifically ASME and MIL-F-22606 HP flasks and ASME LP volume tanks/receivers, must use MIL-HDBK-1152, Inspection And Certification of Boilers and Unfired Pressure Vessels.

  2. DOT kevlar composite flasks require hydrostatic testing every 3 years, with exception of the new carbon fiber composite flasks which is tested every 5 years. Steel flasks and aluminum cylinders are still hydrostatically tested every 5 years.

  3. For all filter housings and purification system housings, conduct external and internal visual inspection at periodicity on MIP/MRC. Contact Mr. Rob Smith for interim inspection criteria for these components.

- Upon receipt of Force Revision 2-02, all commands should review their LOP and equipment configuration and update accordingly.

- NAVSEA strives to keep the maintenance requirements for all DLSS accurate and limited to that necessary to keep the equipment safe and working well. When problems are found with the PMS, it is almost always the sailor performing the maintenance on the equipment that finds them and it is only when the commands using this equipment provide feedback to NAVSEA that these problems get resolved. This is accomplished through the submission of feedback reports. There are several ways to do this, but probably the easiest is to submit an automatic feedback report using the FTSCPAC web site, www.ftscpac.navy.mil. Once on the web site, select Integrated Logistics (PMS), then select Code 401 PMS. Under Services, select Automated TFBR Form. This works for the 5921, 5971, and H012 series MIP's. Feedback for EOD MIP's can be submitted through the FTSCLANT web site.

Points of contact:

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HTCM(MDV) Chuck Young, NAVSEA 00C36, commercial: (202) 781-0960, DSN: 326-0960, or email: youngch@navsea.navy.mil.

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Dave DeAngelis, NFESC ECDET Code 55DD Shore Based Design/Acquisition commercial: (202)433-5480, DSN:288-5480, or email: davebdms@aol.com

Technical questions, logistics problems, supply requests, personnel issue? Call or contact ANCHOR DESK 1-877-4-1-TOUCH (86824) or on the internet at http://www.AnchorDesk.navy.mil.

Military Handbook 1152, Inspection And Certification of Boilers and Unfired Pressure Vessels, can be found on the internet at http://edlant.navfac.navy.mil/criteria/documents/MH/1152.pdf.

(SUPSALV SENDS continued from page 2)

in our Nation's service. But stop and think for a minute of how many close calls we've had – USS STARK, USS SAMUEL B. ROBERTS, USS PRINCETON, USS TRIPOLI, and now USS COLE. Whether by declared acts of war or cowardly terrorism, we are a Navy at constant risk. The recent attack on the commercial tanker LIMBURG is another reminder that our vulnerability goes beyond just our warships, but also to the lifeblood of our economy — commercial shipping — ninety percent of our nation's commerce is transported by ships. We could conceivably find ourselves not just fighting to keep a single ship afloat, but simultaneously engaged in several different ports thousands of miles from one another, in the US and abroad, in a desperate battle to recover shipping lanes and navigable waterways, raising warships and commercial ships, and battling the environmental pollution that ensues wherever ships are sunk — all the while potentially under enemy fire.

This is our salvage heritage – the annals of World War II and Vietnam are replete with combat salvage and harbor clearance operations.

Are we prepared for this call? I will argue no – not sufficiently. Though recent past FACEPLATE issues highlighted the exceptional success of individual salvage operations (USS LAMOURE COUNTY, USS COLE, Japanese Marine Fisheries Vessel EHIME MARU operation, and this issue heralds the MONITOR Turret recovery), our ability to successfully engage in two or more concurrent major salvage operations (each with two or more ships) could place us much in the position of LCDR Ellsberg in Eritrea… with a small salvage team of limited resource attempting to accomplish the impossible. Our people – the strength of our community – are **not** broadly experienced in major ship salvage operations. Our planned salvage training exercises are so minor in scope that we don't know what we don't know. Our commissioned fleet has lost two thirds of its capability in the past decade, now with just four "junk boats", down from twelve not long ago. Our Special Operations (1140) community is focusing on the critical expertise of Explosive Ordnance Disposal (EOD) as their principal professional capability, with a subordinate focus on salvage operations. This is a double blow to our four remaining ARS-50s as their wardrooms are no longer "grown" up into salvage, but are learning multiple point mooring, towing, and heavy-rigging ship handling skills when they step aboard. The junior ranks of our Engineering Duty (1440) divers are greatly undermanned, bringing a near term deficit of both engineering talent and experience to our salvage community. Our Master Divers and Warrant Officers are the world's best, but the few recent major ship salvage operations and the limited scope of salvage training exercises give all of us a false sense of confidence. Our Fleet Divers are the professional heart and soul of our salvage community, engrained with a never-say-die attitude that gives us the upper hand against adversity, but they, too, suffer from the same limited experience base in major ship salvage operations. We have a tremendous resource in our Emergency Ship Salvage Material (ESSM) bases, but most of our divers are not as familiar with the ESSM inventory as they should be, and even fewer have real operational experience with much more than ESSM's compressors and pumps.

The picture is not all bleak…we have somehow always been able to dig deep and find a way to get the job done, and that salvage persistence and ingenuity that kept LCDR Ellsberg going 60 years ago is in a sense in our DNA. But we **can** be better prepared; we need not rely on miracles and heroism alone. For instance, when is the last time we tried to find a way to "exercise" a broader inventory of ESSM equipment, even if "just" for training? In 1969, the ex-USS HAKE (diesel submarine) was intentionally scuttled for the sole purpose of a submarine salvage exercise – and it was successful! With the reduction in salvage operations experience from the Special Operations community, should we relook at the purpose of the Diving Warrant community and shape it to retain the USN's corporate salvage operations experience? Or as a Warrant recently proposed, maybe we should consider the advent of Diving/Salvage Limited Duty Officers. Since major commercial ship salvage occurs more frequently than USN ship salvage, why not "TAD" some of our MDVs and Diving Warrants and JOs out to some commercial heavy lift or surf-stranding removal using beach-gear or parbuckling operations so that we leverage that experience into our own salvage corps?

As I step into this job, and look out to the horizon, it is not hard to mentally imagine what until only recently was unimaginable. I solicit your inputs and ideas for how we can be better prepared for the foreseeable. As we stand as a Navy, both in war and ready to go to war, get started now…review your notes from salvage training, hold some special training refreshers, forward your good ideas, visit the ESSM bases to get familiar with our equipment inventory. Don't wait for someone else to do it for you…take action to improve our salvage readiness posture. Take a lesson from LCDR Ellsberg's experience. We **must** be ready when our Nation and our Navy calls.

Dive safe and smart,

Captain Jim Wilkins
SUPSALV

"Experience is the toughest teacher. She gives the exam first, and the lesson later."

ULITHI ATOLL

By: HTCS (MDV) Bob Barker

On February 4, 2002, U.S. Navy Divers from Mobile Diving and Salvage Unit ONE (MDSU 1) and Explosive Ordnance Disposal Mobile Unit FIVE (EODMU 5) headed for Ulithi Atoll, Federated States of Micronesia, where they spent 10 days assessing an oil leak and the condition of the Ex -USS MISSISSINEWA (AO-59).

The 553-foot MISSISSINEWA, commissioned in May of 1944, was an ASHTABULA Class auxiliary oiler, displaced 25,440 tons, and had a capacity to carry 146,000 barrels of fuel oil. On the early morning of November 20, 1944, the ship was torpedoed by a Japanese Kaiten suicide submarine, becoming the first and only documented sinking of a U.S. Navy ship by this weapon. The ship burst into flames and quickly sank taking with it 3 officers and 47 enlisted men. Today, the ship lies inverted at a depth of 130 ft. in the Ulithi Atoll.

Diver going over side.

Ulithi Atoll, 330 miles southwest of Guam, was a secret anchorage for hundreds of Pacific Fleet ships throughout WWII. The U.S Naval Base at Ulithi was for a time the world's largest and most active naval facility in the world and was a major staging area for the campaigns at Leyte Gulf, Iwo Jima, and Okinawa. Its reef runs roughly twenty miles north to south by ten miles across, enclosing a vast anchorage with an average depth of 80 to 100 feet – the only suitable anchorage within 800 miles.

Collecting sand on uninhabited island for cement. Ulitihi Atoll.

About 700 people live on the atoll, which is made up of 49 islands. It has a land area of 1.79 square miles wrapped around the fourth largest lagoon in the world and engulfs 183 square miles.

Since WWII, the MISSISSINEWA's exact position had been in question, despite numerous attempts by both American and Japanese dive groups to find the wreck. On April 6, 2001, an independent dive team from San Francisco located the wreck and was the first to dive on the vessel in nearly 57 years.

Today, the lifeless twisted ship is home to large schools of fish and other sea life. The remainder of the ship lies upside down with its bow section separated and lying on its port side 50 feet forward of the hull.

The first oil leak occurred when a storm jarred the wreck on August 6, 2001. Later that month, a mission was funded by Chief of Naval Operations Environmental Protection, Safety and Occupational Health Division (CNO N45) for divers contracted through the Navy Supervisor of Salvage (SUPSALV) to stop the leak with a temporary concrete patch over a deteriorated 4-inch gate valve. The National Oceanographic and Atmospheric Administration (NOAA) reported that the environmental impact from the leak was minimal.

The leak reappeared on 23 December 2001. In early February, a 12-member dive team from MDSU 1, EODMU 5, along with four SUPSALV technicians, were deployed on a contracted salvage ship to again survey the source of the leak.

The Navy dive team, led by MMCM (MDV) Jim Nickels (MDSU 1) and HTCS (MDV) Bob Barker (EODMU 5), quickly

(Ulithi Atoll continued on page 14)

CHANGE OF COMMAND

By: CAPT Jim Wilkins

For over thirty-five years, the Office of the Supervisor of Salvage, USN (NAVSEA 00C) has quietly transferred the helm of responsibility for Navy diving and salvage from one officer to another. August 8, 2002 was just such a transfer, but this time, for the first time, it occurred with the full formality of an official Change of Command, as SUPSALV is now formally designated a Major Shore Command, reporting directly to Commander, Naval Sea Systems Command. On the 8th of August during the inaugural SUPSALV Change of Command, Captain James R. Wilkins III, USN, relieved Captain Bert Marsh, USN, during a ceremony conducted at the Navy Historical Museum, Washington Navy Yard. RADM Denny Dwyer, Program Executive Officer for Aircraft Carriers (PEO Carriers) was the guest speaker and officiating officer. Captain Marsh received his second Legion of Merit for operations conducted during his tour as SUPSALV, including Egypt Air 990, Alaska Airlines Flight 261, EHIME MARU, USS COLE (DDG 67), USS RADFORD (DD 968), USS LAMOURE COUNTY (LST 1194), and MONITOR Recovery Operations (2001 and 2002). Upon relief and detachment, Captain Marsh is now serving as the Pacific Fleet NEMAIS Program Manager with Navy Enterprise Team Ships and SUPSHIP San Diego. This is Captain Jim Wilkins' third command assignment, having recently detached as Major Program Manager of the Amphibious Warfare Program Office. His previous tours spanned both a ship design and acquisition career path and three previous tours in diving and salvage including Commanding Officer of the Navy Experimental Diving Unit and SEVENTH FLEET Diving and Salvage Officer.

RADM Denny Dwyer salutes as CAPT Jim Wilkins relieves CAPT Bert Marsh as the Supervisor of Salvage and Diving.

Dive Station

(Ulithi Atoll continued from page 13)

found two leaks, one coming from the ships port wing tank and the other from the previously patched 4-inch gate valve. Divers, using surface supplied MK-21, sealed the leaks using expandable plugs, epoxy cement and blank flanges. The presence of fuel oil contamination on the water surface caused the divers to decompress in the water using the U.S. Navy Standard Air Decompression Tables and procedures.

The Navy Divers from EODMU 5 and MDSU 1 logged over 86 dives totaling more than 139 hours of dive time, and reclaimed 3470 gallons of fuel oil.

The Ex -USS MISSISSINEWA was nearly full at the time of the attack and an estimated 3 million gallons of fuel oil still remain in the vessel. This oil represents a potential economic and ecological disaster for the island residents of Ulithi, who rely heavily on the lagoon for their food and income. Accordingly, the U.S. Navy has made plans to remove the remaining oil. Representatives from the FSM and Yap State governments, as well as U.S. State Department and appropriate embassy personnel, were advised that the optimal time frame for the oil offload is between November and May. The oil removal operation is moving forward as planned, with the actual oil removal operation scheduled to begin in February 2003. The oil offload is expected to take approximately six weeks.

HTCS(MDV/SW) Barker is currently assigned as Command Master Diver at Explosive Ordnance Disposal Mobile Unit FIVE. HTCS Barker served as on site Master Diver during the Ulithi Atoll pollution abatement operation 4-16 February 2002.

00C Website Update

By: Mac Alnakari

The goal for the re-design of the SUPSALV web page (www.supsalv.org) was simply to add as much functionality as possible from the user's point of view while maintaining a clean, well-organized, and friendly interface. The various 00C departments and their functions are listed at the top of each page, making them easily accessible from all the main pages of the site. The drop-down menu adds to the "one-click away" functionality and the ease of use guidelines that we have followed from the beginning. Headed by the search engine, immediately visible in the upper left corner, the left section lists more general options, as well as FTP access and Calendar. Finally a "New on our Pages" section flanks the right section of the page. The main page is designed to fit the widely used 800 by 600 resolution which eliminates any left-right scrolling. For those who may get lost, a "you are here" at the top of each page indicates the user's precise whereabouts.

Mac Alnakari is the Webmaster for the 00C website and works as the Web Design Manager for ROH Incorporated.

00C Welcomes Brendan Murphy

We would like to take this opportunity to welcome Brendan Murphy to the 00C4 Certification Division. Brendan was hired in July as a System Certification Manager. Prior to his employment at NAVSEA, Brendan was the Division Manager of the Diving and Marine Construction Group of J. F. White Contracting Company, a major heavy civil construction company located in Boston, MA. He was in charge of estimating, bidding, and executing offshore and inshore projects throughout the United States and Canada. Murphy began his diving career in 1980 completing Second Class Dive training in Little Creek, VA. Subsequently he completed tours at a variety of commands including Instructor duty at the Second Class Dive School in Pearl Harbor, Hawaii, NRL, USS RECOVERY (ARS 43), MDSU TWO, USS GRAPPLE (ARS 53), and COMLOGGRU TWO. He retired in 1999 as a QMCM (MDV/SW) after 22 years of Naval service. Brendan's considerable experience, both in the military and commercial environments, can only serve to complement our Certification Team.

Welcome aboard!

Command in the Spotlight

Mobile Diving and Salvage Unit ONE

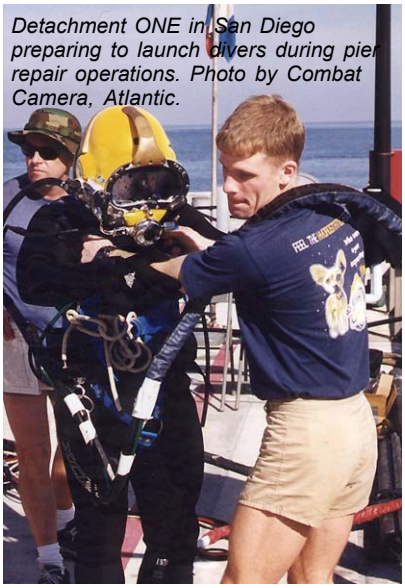
By: CDR Rob Fink

The FACEPLATE Staff has provided me with plenty of slack on literary license for this spotlight article, so I would like to offer readers, unfamiliar with Mobile Diving and Salvage Unit (MDSU) ONE, an opportunity to see inside the CINCPACFLT unit. First, let me give you the quick history lesson. MDSU ONE evolved from Harbor Clearance Unit (HCU) ONE. HCU ONE was commissioned in 1966 to provide rapid, highly efficient clearance work in Vietnamese rivers, harbors, and coastal areas to support conflict requirements. HCU ONE received five Navy Unit Commendations and one Meritorious Unit Commendation during the conflict period. In 1979, the unit took on the responsibility of providing diving services for Pearl Harbor based surface ships; in 1982 the unit had a name change to better reflect the scope of missions actually performed. In the mid 1990's, the unit continued its evolution into an organization that now had to fill the void left behind when the older ARS, ATF and ATS ship classes were decommissioned. As the evolution continues, MDSU ONE, in an effort to fill this void, has pursued enhancing mobility, reducing footprint, and refining synergistic operations with CINCPACFLT ARSs, T-ATFs, NAVSEA ESSMs, and EOD units.

One Japanese and two U.S. Navy divers hold on to a diving stage that will lower them to the Japanese fishing vessel Ehime Maru. U.S. Navy and Japanese divers are working together to recover missing crew member remains and personal effects from the ship. Photo by Combat Camera, Atlantic.

MDSU ONE is currently authorized 88 diver billets. MDSU ONE has Mobile Diving and Salvage Detachments (MDSD) that provide a multitude of services as defined by OPNAVINST 3501.133D, Required Operational Capabilities and Projected Operational Environment for MDSU. MDSU ONE has one active and one reserve detachment in San Diego, three active detachments in Pearl Harbor, and one reserve detachment in San Francisco and Galveston. These detachments rotate through an Inter-Deployment Training Cycle (IDTC) with the ultimate goal of rapid, efficient, and effective response to CINCPACFLT diving and salvage requirements. In an effort to provide mission-ready MDSDs to supported commanders throughout the PACOM AOR, MDSU ONE conducts exercises, deployments, and peacetime diving and salvage missions. Throughout Exercises NORTHERN EDGE, FOAL EAGLE, SEA HAWK, and RIMPAC, seven MDSDs provide Underwater Ship Husbandry (UWSH), diving and salvage services and respond to diving and salvage scenarios which might be anticipated in the Naval Coastal Warfare, Harbor Defense, and Port Security arena. During the deployment with Task Force COOPERATION AFLOAT READINESS AND TRAINING (CARAT), MDSD divers share knowledge and expertise with divers and salvors throughout Southeast Asia, including Brunei, Indonesia, Thailand, Malaysia, Singapore, and the Philippines. Several MDSU ONE divers, as operators in JOINT TASK FORCE-FULL ACCOUNTING, have had the honor of contributing to the repatriation of Vietnam era MIAs.

When MDSDs are not deployed, they remain actively engaged in training or in the execution of peacetime diving and salvage missions. Some of the missions include exercise minefield maintenance, underwater-sensor range maintenance, harbor clearance and salvage services for hazards to navigation within Pearl Harbor and adjacent waters. The Fleet Maintenance Dive Detachment (FMDD) teams provide Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility repair organizations with two-thirds of their diver work force for surface ship and submarine UWSH and inspection work. FMDD uses dive team rotation to provide a 24/7 response and around-the-clock UWSH to ensure fleet maintenance requirements are satisfied. FMDD is also deployable to remote locations for the emergent UWSH voyage repair.



Detachment ONE in San Diego preparing to launch divers during pier repair operations. Photo by Combat Camera, Atlantic.

In closing, if you are interested in a challenging billet working with other highly motivated sailors, then visit the MDSU ONE website at www.mdsu1.navy.mil and learn more about our team. Aloha!

CDR Fink is currently the Commanding Officer of MDSU ONE. He has a Master of Education Degree in Education and Training Management from the University of Florida.

Historical Notes

By: Scott Lassiter

In the late 50s there were many different programs in the US exploring new areas in science and technology. The space program was beginning to take off, aircraft design was quickly expanding into the jet age, ship design was exploring nuclear capabilities, and the world beneath the sea was becoming more interesting to the science community. In 1957 Dr. George Bond and Captain Jaques Cousteau began a cooperative effort to develop a method of sending people under the ocean for long periods of time. The two did not have the present knowledge of helium and oxygen breathing in a saturated state, so they began to draw up plans that would test and develop such a concept.

In the initial testing to send humans underwater for long periods, Bond (who would conduct the physiological testing, Cousteau would continue with underwater habitats with his "Conshelf" program) chose to use laboratory animals, instead of humans. He chose to use animals because the dangers posed to people in saturation diving were unknown. At the time, there was not enough research done to put people down on the bottom for very long, so the U.S. Navy continued the study of helium and oxygen for several more years. This project was called Genesis and after extensive laboratory testing with various animals, permission was given to conduct these tests on humans. The first tests were done in late 1962 with no pressure so that divers could exit quickly if there were any bad side effects. After success in zero pressure, tests were done in 100 fsw and then 200 fsw. These three tests proved that humans could, in fact, withstand deep exposure using helium.

In 1964, the first SEALAB was built and was ready for occupation in July. The chosen site was Bermuda in a depth of 193 fsw next to the Navy structure "Argus Island". Four Navy divers occupied SEALAB I for 11 days with no ill effects. With the success of SEALAB I, the next year, 1965, SEALAB II was built and placed in 205 fsw near La Jolla, California. There were 3 teams of ten men sent for 15-day intervals in the habitat. This test demonstrated a method of transferring in a bell or Personnel Transfer Capsule (PTC) for decompression and changing out team members. SEALAB II utilized a wealth of concepts from underwater weather stations, oceanographic studies, and salvage to testing of equipment designed to assist the Navy Saturation Diver. In 1969 SEALAB III was created. The new habitat was made ready for occupation at deep depths and placed on the bottom near San Clemente Island. In February of 1969, the first team was pressurized to 610 feet and two Navy divers left the PTC in an attempt to occupy the habitat. Equipment failures and the loss of life of one of the two Navy Divers terminated the program.


SEALAB II

Many of today's diving programs, techniques, concepts, or diving systems, owe their existence to the achievements of the Navy SEALAB program. One of the most recent projects based on the SEALAB concept is the NOAA Aquarius habitat located near Key Largo, Florida. Aquarius sits at a depth of 47 fsw and has been a notable place for further study in the field of oceanology. NASA uses Aquarius for the training of their astronauts for future space flight programs. Also in Key Largo is a small habitat, operated by Marine Resources Development Foundation (MRDF), a foundation that teaches young and old the art of underwater living.

This past summer, the gun turret of the historic Ironclad USS MONITOR was recovered in deep water off the coast of Cape Hatteras, North Carolina. This required several weeks of saturation and deep helium and oxygen diving. This salvage was successful largely due to concepts developed in the SEALAB program. The future of diving is still plunging into new depths with new equipment thanks to the Navy's experimental diving programs conducted at the Navy Experimental Diving Unit (NEDU), where some of the earlier SEALAB concepts were established. These studies continue to place man and his equipment in places that was once forbidden. Thanks to the Navy SEALAB saturation diving program we can understand the effects of long periods of time underwater. Divers may now go into the deep with greater confidence, knowing that deep sea diving is not only an art science, but also a science.

Master Diver Pre-Screening Puts Wannabe's to the Test

By LCDR Joe Navratil
Atlantic Fleet Public Affairs

Master Diver. It is one of the most treasured titles in the United States Navy. Diving professionals from around the world honor the title deeply. They are the Navy's technical experts on supervising dives, divers, and equipment. First Class Navy Divers, who aspire to the Master Diver (MDV) designation not only have to prove themselves to their fellow divers but also in a pre-screening program administered by Mobile Diving and Salvage Unit (MDSU) TWO, based in Little Creek, VA, are put to the test by established Master Divers to determine if they have what it takes to join their ranks.

Four experienced First Class Divers recently went through the two-week pre-screening at Naval Amphibious Base, Little Creek, and at Patuxent River Naval Air Station. Five Master Divers ran the candidates through intense wet, or underwater, scenarios that identified strengths and weaknesses of each candidate before their official Master Diver screening later this year in Panama City, FL.

"This pre-screening is ten-fold the intensity of anything I've done before, but the intensity is self-imposed," said Senior Chief Engineman (1st Class Diver) Barry Thomas of Abington, Mass., who is one of the Master Diver candidates. "Every day is a learning day." And Thomas has been a Navy Diver for 20 years.

Master Diver Russell Mallet, Command Master Chief of MDSU TWO, said the pre-screening for Master Diver candidates is "not just about procedures and diving medicine, but we evaluate their leadership qualities, supervisory skills and management of the dive team." The MDV candidates are debriefed after every scenario to determine why they made certain decisions and offered feedback on how they managed the problem. Divers from various commands perform as role-players in situation-driven scenarios that challenge the candidates' experience and knowledge. One scenario at Pax River featured a diver losing consciousness underwater (later determined to be a heart attack) and having to be brought to the surface, evaluated and receive medical treatment. The MDV candidate had to manage that while keeping an eye on the challenging ship repair scenario he had been directing. "In that scenario, we evaluated how they delegate tasks, their reaction time and the overall safety of the dive team. Also, we see if they are thinking one step ahead."

Becoming a Master Diver has been a dream of Senior Chief Thomas since he was a teenager. "I joined the Navy to be a Diver and knew early on that I wanted to be a Master Diver. It's the culmination of your career as a Diver." But not the end. Master Diver Mallet has been a Diver for 20 years and a Master Diver for the last 10 years.

Master Diver candidate Jeff Moxley, a Senior Chief Engineering Aide (1st Class Diver) from Underwater Construction Team ONE, did not become a diver until he had already been a working Seabee for nine years. The Baltimore native is now at his first pre-screening for MDV after being a Navy Diver for 10 years. "My Dad taught me that if I was going to be a trashman, to be the best trashman out there. My occupation is diving and the pinnacle of that is MDV."

First Class Damage Controlman (Diver) Jeff Poulin from MDSU TWO traveled to Pax River to be one of the role players for the scenarios testing the Master Diver candidates, knowing that someday he hopes to be one of the MDV candidates. "This is my third time doing a Master Diver pre-screening (as a role player). It's a good thing to see and a great training experience."

(Saturation Diving continued from page 6)

should be considered another tool in the salvor's toolbox as is SCUBA and surface supplied air and mixed gas systems.

In order to maintain a saturation diving capability, the Navy must acquire a SAT system. Two options exist; one is to build a Navy owned-system and the other is to lease a civilian system built to acceptable commercial standards that will be certifiable for use by Navy Divers. A 6-man portable SAT system with a three-man bell could be operated and maintained by a core group of SAT divers based at NEDU. NEDU could provide the nucleus of the Navy's SAT diving expertise. An annual budget should include funding for mobilization and SAT training proficiency and maintenance in order to maintain operational readiness. When tasked, a MDSU detachment could augment the manning of the system.

Without a validated Fleet requirement to keep an organic deepwater salvage capability, the existing infrastructure that provides the training pipeline, personnel, and RDT&E support will soon be lost. In a world where we must maximize resources and increase proficiency, SAT diving is a cost-effective method for conducting underwater salvage and rescue from 100 fsw to 1000 fsw.

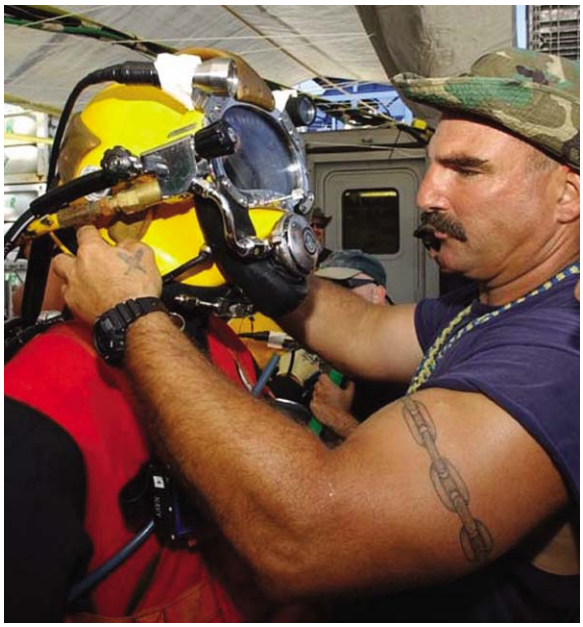
The Old Master

By: BMCM(SW/MDV) Fred Orns, Fleet Master Diver

Old? I don't think so! Wise and good looking, definitely. Isn't that what all Navy Divers see when they look in the mirror? We in the diving community are a proud bunch and we have every right to be. If it was easy, anybody could do it! As we look back over the last couple of years, it is easy to see that we have accomplished numerous high visibility jobs having an enormous impact on our Navy as well as our nation. CNN, the evening news, in the movie theaters... we are looking good.

Since the first terrorist attack in history on a U.S. Navy ship (USS COLE), the condition of readiness within our military has been increased accordingly. We've all been involved in one way or another. The workload on the waterfront as well as throughout the entire diving community has increased and it seems as though we are doing much more with less. This clearly indicates a need to be even more squared away than ever. We will not cut corners or compromise equipment and personnel safety. We will answer the call with an unwavering commitment to any mission, anytime, anywhere, regardless of the danger.

Let's face it, things happen, and no one expects everything to be perfect all the time. We should always strive for it. Whether at a training command, EOD, IMF, or on a salvage ship, we need to maintain our superior readiness. Be the sought after, recognized expert by improving on all aspects of your job. Share your knowledge and teach those new divers how to do the job right. If you see something that needs a round turn, fix it before it bites you. To continue to be the best, we must work harder for it. More than likely we'll hit a few bumps on the road to success, but it is how you react to those bumps that really makes a difference.



MDV Orns, "I'm going to the Gym!" Photo by Fleet Combat Camera, Atlantic.

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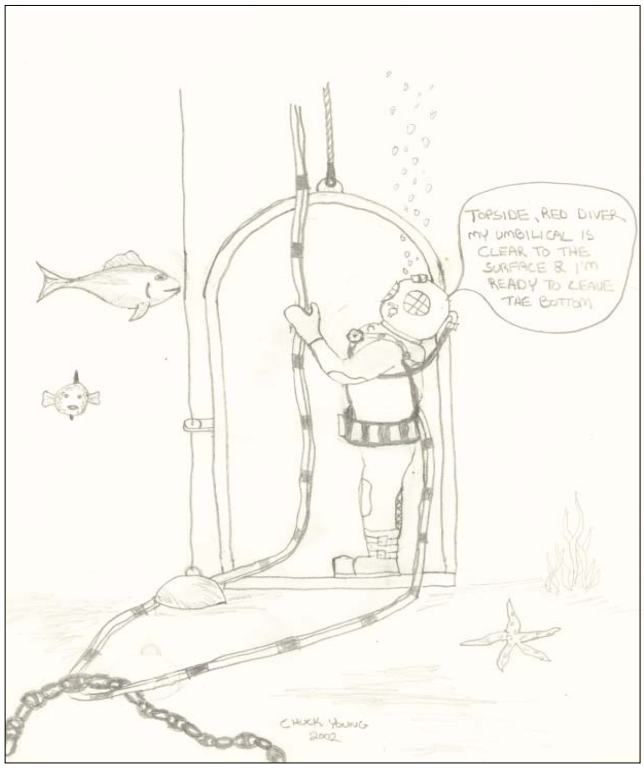
Jake's Corner

By: MDV Chuck Young



FROM THE SUPERVISOR OF DIVING . . .

By: CAPT Chris Murray

The past few months have been very busy for the various diving communities. With the numerous aircraft recoveries, security swims, emergent ship repairs, USS MONITOR, USS MISSISSINEWA, and deployments, it's hard to think of much else. With all this going on, we must also fully engage in Task Force Excel. It is coming, or should I say, it is here and it is here to stay. We all need to fully support all efforts in this endeavor whenever asked to support. Task Forces Excel will ensure our success as divers if we fully support and get it right so it works for YOU!

USS MONITOR Expedition 2002

The USS MONITOR expedition was a tremendous success thanks to Mobile Diving and Salvage Unit TWO, and the numerous commands that supported this year's work. CAPT Bobbie Scholley and CWO Rick Cavey did an outstanding job leading the efforts of this tremendous undertaking. The operational experience gained while performing operational Surface Supplied Mixed Gas Diving under some very aggressive environmental conditions cannot be understated. Saturation diving also proved its worth with what seemed to be unlimited bottom time to complete the complex tasks called for in this mission. I would especially like to thank the three Saturation Master Divers that ran the SAT dives during this mission non-stop, MDV Bryon Van Horn, MDV Chuck Young and MDV Lyle Becker. Without their total dedication throughout the SAT work-ups and the operation, the USS MONITOR's turret would not have been on deck at the end of this mission, HOO YAH!

Authorized for Navy Use (ANU)

There seems to be some confusion in a few of the dive lockers as to the ANU and how something gets placed on the ANU. There will be an article dedicated to the ANU process and what is required to be on the ANU in the next issue of FACEPLATE. In the meantime, please refer any questions to my office and talk or email to LCDR Paul Fleischman, MDV Fred Orns, MDV Chuck Young or Mike Leese.

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Navy Standard Chamber

Mobile Diving and Salvage Unit TWO used the first of the new chambers on the USS MONITOR. It proved to be a pretty good chamber and received some good reviews. There were some minor improvements that will be incorporated in the follow-on chambers where practical. The next chamber should be undergoing outfitting for delivery later this year.

MDV/CWO Conference

The MDV/CWO Conference is tentatively scheduled for 14-16 May 2003 and will be hosted by the Naval Diving and Salvage Training Center. The conference provides an opportunity for senior enlisted and Chief Warrant Officer leadership throughout the various diving commands to collectively review and discuss current and future community issues. A diving advisory will be released later this year providing more details.

MDV Reunion

The MDV Reunion will be held on Saturday, 17 May 2003, at the Coastal Systems Station Marina, Panama City, FL starting at 1000. The point of contact for the reunion is ENCM/MDV(ret) Joe Gray at (850) 230-9217.