



Diving Safety Lines

2013 Edition

Diving Safety Lines is a semi-annual release by the Afloat Safety Directorate of the Naval Safety Center. The information contained herein is a summary of research from selected reports of diving hazards to assist you in your mishap prevention program. *Diving Safety Lines* is intended to give advance coverage of safety-related information while reducing individual reading time. This bulletin does not, in itself, constitute authority but will cite authoritative references when available. It is recommended that this bulletin be made available to all hands.

From the Diving Safety Division Head

CDR Ed Sandoval

Hello to everyone. My name is CDR Ed Sandoval and I am LT Eli Ford's replacement. I have just completed one year at the Naval Safety Center and I have had a chance to conduct surveys on many commands. The main thing I have noticed is that commands are doing better. They are better prepared, had all paperwork ready, had all gear out and ready for inspection, briefing binders ready for us and a dedicated point of contact to escort us around the command. The good news is the total number of discrepancies per command continues to decrease. The top three discrepancies in FY11 were chamber logs, HAZMAT and PMS while the top three discrepancies for FY12 were PMS, chamber logs and filter housings not being inspected. In that timeframe, there was a 42% drop in discrepancies. We appreciate all the hard work everyone has put in to making diving safer.

However, despite all our efforts, we must remember that what we do is extremely dangerous. Vigilance is paramount at all times. A very sad and somber reminder of just how dangerous our jobs can be was present this year with the deaths of four of our shipmates. I ask that everyone take a moment to remember our shipmates and their families. Please take care of each other and remember that safety is always paramount.

As for us here in the office, we have also had some changes in our staffing. We now have MKC Chuck Sowers as our Coast Guard representative coming to us from dive school in Panama City. We also said goodbye to NDC Rebecca Jones and welcomed aboard NDC Josh Benjamins who came to us from NSW Group THREE Det Little Creek (SDVs). As always, we are all here to help with any questions you may have or requests for diving and mishap data.

Please feel free to contact our office with any questions or concerns at 757-444-3520 ext. 7837 or email us at safe-divesalvage@navy.mil.

Diving Safety Lines

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Master Diver's Corner

NDCM (MDV/DSW/EXW/SW) David "Shep" Schoephoerster

It has been great getting out and seeing everyone in the lockers around the world. To begin, I need talk about what's going on with the US Coast Guard diving program. They have started surface supplied diving using an XLDS system and SS KM-37s. I qualified their first surface supplied supervisors at the East and West Coast dive lockers. They also have a diving rating that has been approved, so they are making great steps to move forward in their dive community.

I know there are probably a lot of questions in the community due to the increased amount of class A mishaps recently. Because the JAG and safety investigations are still pending, I'm not at liberty to speak about the outcomes. As a whole, the dive community is doing great things, so keep up the good work.

We are constantly making efforts to improve and update our diving safety survey checklists. They can be found at our website www.safetycenter.navy.mil under the Afloat/Diving sections. Please have blank checklists printed and available when we come to do your survey. Here are some common discrepancies I've seen lately: Expired items in you med kits/chamber kits. It is surprising how many expired items I find. We're not talking days or weeks, but years. If it has an expiration date on it and it is beyond the date, then replace it. For your dive station med kits, properly label any over the counter meds with drug name, dosage, lot number and an expiration date. It is up to you to decide what is in your dive station med kits. AEDs – We recommend you have a towel and razor in your AED bag. This was talked about after an incident because they had a hard time getting the pads to stick. Training – Divers are following their training plan, which is great, but we are not making provisions for those divers who missed initial training. Also, if you have any unscheduled training, break out a muster sheet and document it.

We, as leaders, use operational risk management (ORM) to plan, supervise and execute all of our dives. One of the things that I don't think we do in an efficient manner is get our junior divers involved with planning. How many times have we planned our jobs and gotten out on dive station or in the water only to see something different than what was planned? Maybe the divers on station saw it differently than planned but didn't speak up. Working with the USCG, I see something they use as a planning / safety tool that gets everyone involved after leadership has planned a dive. It is the last thing that happens after the dive brief and before dive supervisor checks begin. It is called GAR, which is short for Green, Amber and Red. GAR is a point value system that calculates risk before an evolution. The elements covered are supervision, planning, crew selection, crew fitness, environment and event/evolution complexity. When the dive supervisor asks about each element, each member of the dive team assesses and holds up a number and the highest number is recorded. If one person has a high number they are asked for the reason. The whole reason behind the GAR is not to second guess everything you do as a supervisor / leader, but maybe they see it differently than you do. Once you address concerns, you move on to get a final score. The whole idea is to mitigate as much risk as you can prior to the dive. For more information about the Coast Guard GAR system, utilize the following link: http://www.uscg.mil/safety/docs/Safety_Mgr_Crs/ORM_Handouts.pdf



Hail and Farewell

MKCS Charles Sowers

I reported to the Naval Safety Center in October 2012. Previously, I was stationed at Naval Diving and Salvage Training Center. There, I served as the LCPO for Coast Guard diving. In the short time I have been at the command, I have been on several diving safety surveys for Navy, Air Force, Coast Guard and Marines. The results have been anywhere from outstanding to unsatisfactory. I ask that we all take something away from these surveys, good or bad. As we complete our rounds, our purpose is to provide an outside set of eyes that make recommendations from a safety standpoint. As military divers, it is in our nature to be the best and sometimes being the best requires some constructive criticism. I look forward to the experience, providing assistance, and learning along the way.

NDC(DSW/EXW/SW/FPJ) Joshua Benjamins “Benji”

I reported to the Naval Safety Center in May 2013. Previously, I was stationed at Naval Special Warfare Group 3 Det Little Creek Virginia Beach, VA. There, I served as the LCPO for Dry Deck Shelter Platoon III-Task Unit Alpha as well as a DDS Supervisor for NSWG-3 Det.LC. Prior to NSWG-3 Det. LC, I completed a demanding five year tour at NSWDG.

In the short time I have been at the command, I have been put in charge of the Dive Jump Reporting System (DJRS). The requests for help have been anywhere from common sense to complete locker distress. There are areas throughout the program that we need to all learn more about. I ask that you all take some time and set up your DJRS program correctly and learn how to use it. Remember, the information you enter into DJRS is not only important, it is required. I want the norm to be that the Naval Safety Center is the back up for the big issues only and show all lockers that they can manage their personnel, logs and permissions on their own accord. I look forward to the experience, providing assistance, and learning along the way. Keep deep sea alive!!!

NDC(DSW/EXW/SW) Rebecca Jones

It has been an honor to have served the last three years at the Naval Safety Center. In May, I transferred to Mobile Diving and Salvage Unit TWO and was relieved by NDC Josh Benjamins. While at the Naval Safety Center, I was able to see beyond the command level and see the big picture of the Navy diving community. Our community is ever-changing and evolving to meet the needs of the fleet and being able to see it firsthand was a great experience. I will always remember my worldly travels, the command’s I’ve surveyed, and all the great people I’ve met along the way. I’d like to say thank you to everyone and Hoo-yah Deep Sea!!



Personal Dive Logs

NDC(DSW/EXW/SW/FPJ) Joshua Benjamins "Benji"

IAW Dive Manual Rev. 6 Ch. A:

5-6 DIVER'S PERSONAL DIVE LOG

Although specific Navy Divers Personal Logbooks are no longer required; each Navy-trained diver is still required to maintain a record of his dives in accordance with the OPNAVINST 3150.27 B.

Below are the new (DJRS) way and old (DRS) way for each diver to accomplish this requirement:

DJRS-after 2007

1. <http://www.public.navy.mil/navsafecen/Pages/wess/WESS.aspx>
2. Click log in
3. Click ok
4. Click PKI login
5. Click DJRS
6. Click Print Dive Logs
7. Enter at least one field
8. Click DJRS ID #
9. PDF is available

DRS-before 2007

1. <http://www.public.navy.mil/navsafecen/Pages/wess/WESS.aspx>
2. Click log in
3. Click ok
4. Click PKI login
5. Click Data Extraction
6. Click View Reports
7. Type "dive" in the Repository box
8. Click magnifying glass
9. Click Personal Dive History
10. Fill in input controls with appropriate information
11. Click OK
12. Drop down menu to export PDF file
13. PDF is available



From The Medical Department

HMC (DSW) Dean Del Favero

As an important safety reminder, I would like to all of you to refresh your knowledge on breathhold diving. Please take a few minutes and read the following paragraphs taken directly from the U.S. Navy Diving Manual, Rev. 6 Ch. A:

3-5.5 Breathholding and Unconsciousness. Most people can hold their breath approximately 1 minute, but usually not much longer without training or special preparation. At some time during a breathholding attempt, the desire to breathe becomes uncontrollable. The demand to breathe is signaled by the respiratory center responding to the increasing levels of carbon dioxide in the arterial blood and peripheral chemoreceptors responding to the corresponding fall in arterial oxygen partial pressure. If the breathhold is preceded by a period of voluntary hyperventilation, the breathhold can be much longer. Voluntary hyperventilation lowers body stores of carbon dioxide below normal (a condition known as hypocapnia), without significantly increasing oxygen stores. During the breathhold, it takes an appreciable time for the body stores of carbon dioxide to return to the normal level then to rise to the point where breathing is stimulated. During this time the oxygen partial pressure may fall below the level necessary to maintain consciousness. This is a common cause of breathholding accidents in swimming pools. Extended breathholding after hyperventilation is not a safe procedure.

WARNING Voluntary hyperventilation is dangerous and can lead to unconsciousness and death during breathhold dives.

Another hazard of breathhold diving is the possible loss of consciousness from hypoxia during ascent. Air in the lungs is compressed during descent, raising the oxygen partial pressure. The increased ppO₂ readily satisfies the body's oxygen demand during descent and while on the bottom, even though a portion is being consumed by the body. During ascent, the partial pressure of the remaining oxygen is reduced rapidly as the hydrostatic pressure on the body lessens. If the ppO₂ falls below 0.10 ata (10% sev), unconsciousness may result. This danger is further heightened when hyperventilation has eliminated normal body warning signs of carbon dioxide accumulation and allowed the diver to remain on the bottom for a longer period of time.

6-6.2 Breathhold Diving Restrictions. Breathhold diving shall be confined to tactical and work situations that cannot be effectively accomplished by the use of underwater breathing apparatus and applicable diver training situations such as SCUBA pool phase and shallow water obstacle/ordnance clearance. Breathhold diving includes the practice of taking two or three deep breaths prior to the dive. The diver shall terminate the dive and surface at the first sign of the urge to breathe. Hyperventilation (excessive rate and depth of breathing prior to a dive, as differentiated from two or three deep breaths prior to a dive) shall not be practiced because of the high possibility of causing unconsciousness under water.



Web Page and Checklist Changes

NDCS(DSW/SW) Joshua Cole

As some of you may have seen, there have been some changes to our webpage. We have decided that we are no longer going to provide the links to common instructions that can be found at the SUPSALV (www.supsalv.org) or Department of the Navy Issuances (<http://doni.daps.dla.mil/default.aspx>) web pages. We, at the Safety Center, do not update these instructions; therefore, we will not publish them on our website. The only one that we decided we would leave on there is the TED-010, as this technical directive is hard to find. Additionally, the diving safety survey checklists get an annual review/update so please ensure that you have the most up to date checklists prior to our arrival for survey.

This leads me to the next area of discussion: checklists. Not all commands are guilty of this, so if it does not pertain to you then disregard. A common problem we find is that when we arrive for a survey, commands have not fully gone through the checklists to ensure everything is ready to go. We use the exact checklists that are posted on our website. As a matter of fact, most of the time we have the commands print these out once we arrive. It is in your best interest to print these out prior to a survey and do a thorough review of your gear prior to our arrival. If you all take the time to go through line item for line item, and have a list of known discrepancies prior to our arrival, then the survey will be that much smoother. I don't know anywhere in the diving community where you are given the answers to the test, except in this situation. Leadership take charge and get a good look 30 days out. I'll say it one more time; complete the checklists on your own before we get there!!!

Additionally, there are going to be some changes regarding our role at the Naval Safety Center. We have an extremely proactive Commander that is pushing to increase our authority. His vision is that we gain the authority to shut commands down for major safety violations and, through the type commanders, immediately schedule a DORA in order to regain your diving capabilities. This has already been discussed and approved for similar capabilities throughout the Surface and Submarine communities, so it is only a matter of time before it becomes implemented into the diving community. Thanks again and dive safe. Hoo Yah Deep Sea!!



Diver in the Spotlight

ND3 (DV) Duane J. Altman

ND3 Duane Altman has the distinction of accumulating the most bottom time of all U.S. Navy Deep Sea Divers from July 2012 to December 2012. Born in Wiesbaden, Germany and growing up in Sacramento, California. ND3 Altman graduated from Encina High School and attended Heald Community College. Petty Officer Altman enlisted in the U.S. Navy on March 2, 2010. After finishing boot camp, he received orders to Navy Diving & Salvage Training Center (NDSTC) in Panama City, Florida. After graduating dive school, he was assigned to Southwest Regional Maintenance Center in San Diego, Cali. Upon checking into the command, he was immediately assigned to funeral detail for three months in which he garnered praise from his superiors for handling each funeral with pride and professionalism, in turn he received a flag LOC. Once assigned to Charlie Dive Crew, he quickly established himself as a go-to diver and was awarded the Navy/Marine Corps Achievement Medal for performing critical underway limiting maintenance on the USS Connecticut (SSN-22). Petty Officer Altman's 7,402 minutes of bottom time from July to December 2012 included a waterborne propeller replacement onboard the USS Hampton (SSN-767) and over 40 troubleshooting and repairs on five tended submarines. Since being onboard, his tremendous motivation and hard charging attitude made him a subject matter expert in all aspects of underwater ships husbandry allowing his team to save the Navy \$3.6M in limited dry docking costs. Petty Officer Altman's untiring dedication to the diving Navy has resulted in him being selected for "Diver in the Spotlight".

Hooyah ND3!!!





FY 13 Top 10 List

Top 10 Commands by Bottom Time

1. NDSTC: 13,717 dives / 859,698 minutes of BT
2. NSW Basic Training Command: 11,542 dives/ 782,294 minutes of BT
3. SDVT-1: 3,060 dives/ 330,820 minutes of BT
4. Norfolk Naval Shipyard and IMF: 3,093 dives/ 237,878 minutes of BT
5. Pearl Harbor Naval Shipyard and IMF: 2,159 dives/ 225,467 minutes of BT
6. Southwest RMC: 2,715 dives/ 220,935 minutes of BT
7. Puget Sound NSY: 2,342 dives/ 211,822 minutes of BT
8. Special Forces Underwater Ops School: 4,752 dives/ 209,077 minutes of BT
9. Air Force Combat Dive School (NDSTC): 3,177 dives/ 204,561 minutes of BT
10. NSSF New London, CT: 1,198 dives/ 182,411 minutes of BT

Top 10 Discrepancies

1. Diving medical equipment (oxygen cylinders, AMBU bags, stretchers, AEDs) is not covered under PMS.
2. No command DSWS instruction.
3. PMS not implemented for all diving equipment.
4. Eyewash stations not being maintained properly IAW PMS.
5. Expired items in med kits.
6. No DORA in the last 24 months.
7. Not all divers have a current CPR card.
8. Not all dive equipment is serialized/single line items or EGLs not being used.
9. Rubber hoses on underwater tools not within service date (12 years).
10. REC procedures not being followed on MK16 UBA.