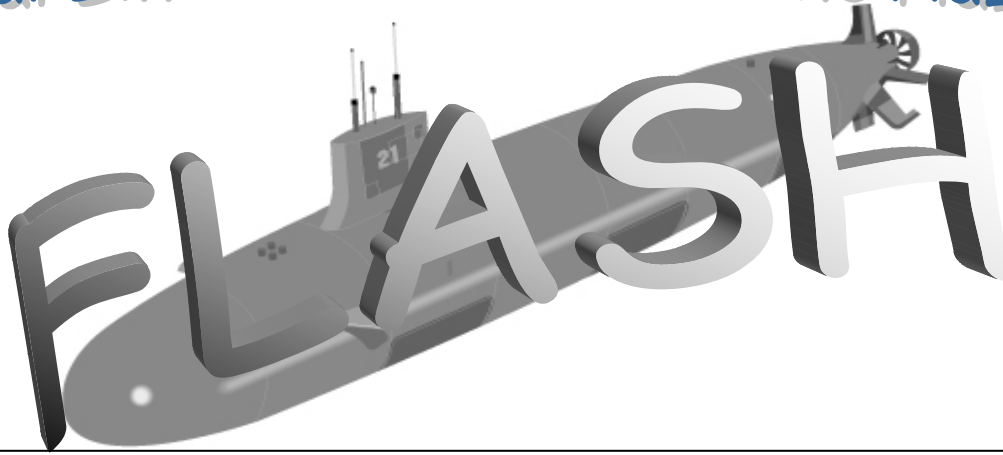


Submarine Division of the Naval Safety Center Factual Lines About Submarine Hazards



Oct-Dec 08

Table of Contents

Page	Article Name
1	Table of Contents
2	Damage Control
3	Damage Control (cont)
4	Medical
5	Safety Officer
6	Electrical
7	Electrical (cont) Mechanical
8	Mechanical (cont) Combat Systems
9	Deck
10	Effective COMNAVSAFECEN Submarine Safety Advisories Points of Contact



Route for Safety's Sake

CO _____ XO _____ NAV _____ ENG _____ CSO _____ SUPPO _____ MDR _____

DCA _____ COB _____ EDMC _____ 3MC _____ CPOs _____ Ship's DCPO _____

When reading through these articles, remember this is not an all inclusive list and there are many other issues that should be addressed with regard to each section's attribute checklist. Each section owner is cautioned to review the Hazard Reviews for each section. For further

information or assistance in improving your safety and/or processes go to:

<http://safetycenter.navy.mil/afloat/downloads/default.htm> - submarine.

Now that we have come to the end of the fiscal year, it is time to revisit the most common deficiencies identified during Submarine surveys. The references and recommended corrective action for each deficiency are included. If you have any questions contact the subject matter expert listed at the beginning of each section using the contact information provided.

This list should be used as a tool to further train our Sailors and increase their level of knowledge so that they can perform better and learn from the discrepancies of today and hopefully not repeat them. The twenty year repetitive cycle needs to end, and the change must start at the deckplate. Verify APL's periodically (following an availability or semi-annually) to ensure they are up to date.

Damage Control MMC (SS) Fannin

#10 OBA/SCBA - 100% of all Submarines surveyed this fiscal year did not have a verified donning procedure with each SCBA/OBA locker. **Recommendation:** Make copies of the donning procedure and have the DCA verify them to be true copies and install them in each locker.

#9 Portable Oxyacetylene Cutting Apparatus - 100% of all Submarines surveyed this fiscal year did not have a complete kit per the AEL contrary to MIP 6641/009, MRC 18M-1R and 24M-3R. The correct AEL is 2-920013034 rev Dec 05. **Recommendation:** Ensure you have the most current revision of the AEL and conduct the inventory IAW PMS.

#8 DC Locker Equipment Missing Items (Material)- 100% of all Submarines surveyed this fiscal year had at least one DC locker with the Material Bag, Band-It Kit and Tool Roll missing items from the AEL's contrary to MIP 6641/009, MRC Q-3R. **Recommendation:** Ensure that you have verified that the DC AEL's are the current revisions. Bandit Kit AEL 2-880043002 rev Jan 08. Material Bag AEL 2-880043003 rev Jan 08. Tool Roll AEL 2-880043004 rev Apr 07. Once you have verified the AEL's are the current revision, take the time to inventory each and every locker using the AEL's and document the completion of 6641/009 Q-3R.

#7. PKP Caps are being over lubricated - 100% of all Submarines surveyed this fiscal year had at least one PKP extinguisher with over lubricated cap gaskets and threads contrary to MIP 6641/009, MRC A-18R. Over lubricating the PKP cap gaskets and threads causes the powder to stick to the lubricant and may clog the pressure relief ports in the cap creating a safety hazard. The MRC requires maintenance personnel to apply a thin coat of silicone to the cap threads and gaskets and then install the cap hand tight. **Recommendation:** Ensure you complete the applicable portion of MRC A-18R on all extinguishers annually and upon work center receipt of a new extinguisher.

SAFETY NOTE: Tightening the cap hand tight is necessary to prevent a false indication of a charged extinguisher. A cap that is over tightened may be difficult to remove and give a false indication of a pressurized extinguisher. An extinguisher with an over tightened cap must be vented prior to cap removal

to confirm the extinguisher is not pressurized and eliminate the safety hazards associated with removing a cap from a pressurized extinguisher.

#6. Fire Hoses - 100% of all Submarines surveyed this fiscal year had at least one fire hose station with improperly cleaned, lubricated fire hoses and vari-nozzles, and unions over tightened contrary to MIP 6641/009 MRCs A-21R and R-19. **Recommendation:** Fire hose and Vari-Nozzle unions are required to be hand tight only with a thin coat of silicone compound on the threads. Follow the MRCs step-by-step and if you have questions, stop what you are doing, place everything in the safest condition possible and get help from your LPO or LCPO so that you can complete the PMS properly.

#5. DC Locker AEL's not updated (Administrative)-100% of all Submarines surveyed this fiscal year had AELs for the tool roll, band-it kit, and the material bag that were not the latest version. **Recommendation:** You can get the latest version of the AELs at the following site (<https://nicppla11.fmso.navy.mil/APLAEL/aplael.aspx?Banner=ON>). This Application Requires A PKI Certificate - No Exceptions!! Once you have verified through the website that you have the correct AELs, ensure that the Supply and 3MC also have the correct information. Bandit Kit AEL 2-880043002 rev Jan 08. Material Bag AEL 2-880043003 rev Jan 08. Tool Roll AEL 2-880043004 rev Apr 07.

#4. APC System Cleanliness - 100% of all Submarines surveyed this fiscal year had a combination of dirty fusible links or scissor assemblies or were not cleaned properly IAW MIP 5556/004, MRC M-2 and S-4R,. **Recommendation:** Take your time when performing these MRC's. Ensure that you use a flashlight when verifying that all the areas called out on the MRC are clean. You should not be able to feel oil or see an orangish brown residue on any of the places called out to be cleaned.

#3. PKP Extinguishers - 100% of all Submarines surveyed this fiscal year had PKP extinguishers with the dry chemical at an improper level contrary to MIP 6641/009, MRC A-18R. **Recommendation:** Perform the entire 18M-1R going line-by-line using the reader-worker method to ensure proper completion. Accomplish the 18M-1R in conjunction with the Q-7R upon receipt of new extinguishers to ensure they are placed in service with the PKP chemical at the proper level and ready for use.

#2. AFFF Extinguishers - 100% of all Submarines surveyed this fiscal year had AFFF extinguishers that were under/over charged with AFFF solution contrary to MIP 6641/009, MRCs Q-10R, A-1R and R-48,. **Recommendation:** Perform the Q-10R and A-1R on all AFFF extinguishers upon receipt. If necessary (under or over weight) fill the extinguisher to the correct level with the anti-overfill tube inserted and properly seated IAW MRC R-48. Complete the remainder of the prescribed MRC using the correct tools and scale (0 to 60 LB dial, in 1 OZ graduations NSN 9V-6670-01-035-5507).

#1. SCBA - 100% of all Submarines surveyed this fiscal year had SCBA bottles that were damaged and should have been removed from service until repaired IAW MIP 5519/016, MRC R-2,. **Recommendation:** Inspect SCBA bottles that are damaged using MRC R-2 and if required have them repaired by an authorized repair facilities identified in COMNAVSAFECEN Afloat Safety Advisory 3-08 DTG 211439Z Oct 08 and the JUL-SEP 08 FLASH.

If you have any questions about these items or ideas for items to be submitted in the next FLASH feel free to call or email me using the contact information listed in FLASH.

Medical

HMCS (SS/AW/SW) Bonneville

#5. Incorrect or missing hanging dry bulb thermometers. 61.5% of all Submarines surveyed this fiscal year were missing the NAVSEA approved hanging dry bulb thermometers (NSN 6685-00-243-9964) permanently mounted at all key watch and work stations where heat stress conditions may exist. **Recommendation:** Thermometers shall be hung with a non-heat conducting material such as plastic tie-wrap or string. The ship shall install DB thermometers, at a minimum, in main machinery spaces, auxiliary machinery spaces, emergency diesel spaces and other engineering spaces containing heat sources, as well as in laundry, scullery, and galley. REF: OPNAVINST 5100.19 Series, B0204B(1)

#4 Eye wash stations not operating properly. 66.7% of all Submarines surveyed this fiscal year had eye wash stations that did not comply with current requirements (a) flush both eyes simultaneously (b) deliver not less than 0.4 gallons of water per minute for 15 continuous minutes. **Recommendation:** If the ship is not able to repair the eye wash station, submit a 2-Kilo/AWR referencing APL: 882057008 and request repair or replacement. REF: OPNAVINST 5100.19 Series B0508A

#3. Eyewash Stations and Bottles locations not properly marked. 69.2% of all Submarines surveyed this fiscal year had Eyewash Stations or Bottles that were not clearly marked with visible signs. **Recommendation:** Order NSN 9905-01-345-4521, install at the eye wash station and eye wash bottles at the secondary sample sink and nucleonics. REF: OPNAVINST 5100.19 Series B0508A

#2. Potable Water Vacuum breakers missing. 69.2% of all Submarines surveyed this fiscal year were missing vacuum breakers. **Recommendation:** Order NSN: 4820-00-164-3377 and install at all sink and faucets with hose threads. This includes all garden hose type connections to the potable water system, usually located in heads and the galley. REF: NSTM 533 PARA 533-2.3.5.1, NAVMED P-5010 PARA 6-42

#1. Heat Stress Surveyors not qualified. 100.0% of all Submarines surveyed this fiscal year did not have a qualified Heat Stress Surveyor. **Recommendation:** Heat Stress Surveyors that perform WBGT surveys must be trained and qualified using Heat Stress Surveyor watchstation 303 of the safety programs afloat PQS, NAVEDTRA 43460-4B. Download the PQS from Navy Knowledge Online, www.nko.navy.mil click on the Learning tab along the top, then click on the PQS link on the left side, click on the PQS Catalog link and look for 43460-4b. Print and complete section 303. REF: OPNAVINST 5100.19 Series, B0206(B)

If you have any questions about these items or ideas of items to submit for the next flash feel free to call or email me using the contact information listed in FLASH

Safety Officer

CDR Webb

#5. Safety officer - 92.3% of commands do not have a process in place to track personnel convicted of traffic violations or who have been found at fault as a result of a traffic mishap. Ref: OPNAVINST 5100.12G Encl. 1 Para 3.B **Recommendation:** Your command should be using this information to identify high risk drivers, mentor Sailors and provide direction for driving improvement. The best practice that I have seen is to have all hands sign a page 13 requiring them to report to the command if they receive a ticket or are involved in a traffic incident. If you add this to your motorcycle riders page 13 and have it signed by all hands you have covered both requirements.

#4. Safety officer - 92.3% of Safety Officers do not retain documentation of safety discrepancies or hazards identified through inspections conducted by outside support agencies, surveys or items reported by the crew. Ref: OPNAVINST 5100.19 series A0404D **Recommendation:** Safety Officer maintain a status log (ESL, JSN) of all safety discrepancies (ship generated, ship yard walk through, ISIC spot checks, inspections, surveys) to track these discrepancies to completion and retain this information for command statistics and lessons learned.

#3. Safety officer - 100% of command safety councils have not reviewed the command safety statistics (MISHAPS/NEAR-MISHAPS REPORTS, INSPECTION REPORTS, ACCIDENTS AND INJURY REPORTS) and directed action to be taken as a result of the lessons learned. Ref: OPNAVINST 5100.19 Series, A0203H (1) **Recommendation:** Designate the last safety council meeting of the year (calendar or FY) as the annual review meeting. The safety officer puts together the past year's safety related statistical data from your ship and issues identified by other submarines lessons learned then recommends a safety plan for the following year.

#2. Safety officer - 100% of Safety Officers are not tracking and do not have a process in place to ensure they are informed of safety discrepancies that are corrected on the spot. Ref: OPNAVINST 5100.19 Series, A0404A **Recommendation:** Safety Officer identify a plan to keep informed of on the spot corrections to be tracked in his ESL. The best practice that I have seen is for the command to maintain a "Green Book" 365 days of the year that is kept by the Chief of the Watch under way and the Duty Chief in port. This allows all actions taken, including on-the-spot corrections, to be entered and reviewed by the safety officer to corrected safety discrepancies that required a configuration, scheduled maintenance or instruction change to improve a safety situation.

#1. Safety Officer - 100% of commands do not have safety hazard reports (OPNAV 3120/5), command safety statistics and lessons learned available for use by all hands. Ref: OPNAVINST 5100.19E series A0307A. **Recommendation:** The use of a "green book" 365 days of the year would identify a standard reporting plan for all discrepancies and would support the safety officer's ability to compile statistics and lessons learned for review by all hands.

If you have any questions about these items or ideas for items to be submitted in the next FLASH feel free to call or email me using the contact information listed in FLASH.

Electrical

ETCS(SS) May

#5. Main storage battery - 54.5% did not have chemical goggles readily available for use in the battery well. The SSORM requires chemical goggles to be worn any time a battery cell is open. If the goggles are not available, we assume no one is using them. **Recommendation:** Make the goggles available wherever you store your battery tools. Train your personnel on the requirements and their uses. Let's eliminate this hazard. Ref: COMNAVSUBFORINST 5400.38/5400.39 ARTICLE 4309, NSN 4240-00-190-6432, NSN 4240-00-764-5152

#4. Multi-outlet power strips - 69.2% had unapproved power strips in use. Where a multi-outlet power-line is required, only one is permitted on one isolated receptacle circuit, it must be the marine type. They must have a metal case, a double-pole switch/circuit breaker, and dual thermal fuses to prevent dangerous overheating. A six-receptacle unit with a six-foot cord is available under NSN 6150-01-362-7192. An approved surge suppressor is shown here. Ref: NSTM 300 PARA 300-2.7.3.5

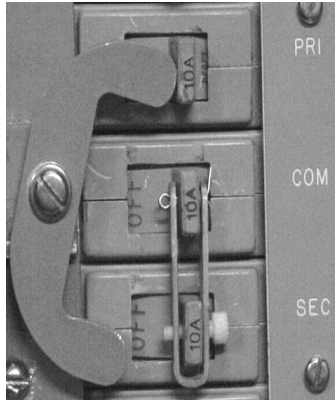


#3. Safety shorting probe - 69.2% did not have an authorized safety probe readily accessible in electrical/electronic spaces and/or it had not been properly modified. The hole closest to the ground wire is for attaching the copper shorting rod used in the discharge process. The hole at the opposite end is to be plugged with either a $\frac{1}{4}$ " x 20 nylon screw with the head cut off (NSN 5305-00-543-5733) or RTV. **Recommendation:** Inventory, inspect and modify all safety shorting probes using MRC S-10. Ensure they are staged at the best locations and are readily accessible. Ref: MIP 3000/029 (S-10)

#2. Electrical safety programs - 84.6% were not maintaining their electrical safety programs properly. MIP 3000 series and NSTM 300 specify the required periodicity for safety checks. The periodicity varies depending on the type of electrical equipment involved. Personal items are not included. The most non-compliant items continue to be submersible pumps and other damage control gear. This is doubly unsatisfactory because electrical safety checks on damage control gear are required by electrical and auxiliary division PMS. All divisions must be involved in the effort to safety check and track portable equipment. Each crewmember should be trained that portable equipment cannot be plugged into the ship's electrical distribution system unless it is safety checked and tagged.

#1. Navigation lighting panel N-1 - 84.6% had shock hazards in their N-1 lighting panels. This hazard was supposed to be eliminated by A&I N-3171 and TZ-0856. The hazard comes from an exposed, energized, metal stiffener in the circuit breaker handles. Unfortunately the safety hardware, which consists of plastic thumbscrews and plastic insulating bushings that are designed to insulate the operators, is often found to be missing. Check your N-1 panel and ensure it is safely configured. If you are unsure of the correct configuration please contact me for clarification. This is a properly completed A&I that reduces the shock hazard first noted in 1996. Ref: COMSUBLANT/ COMSUBPAC A&I N-3171 FOR 688 CLASS, A&I TZ-0856 FOR 726 CLASS

INSULATOR SCREW NSN: 96 5970-01-094-3317, INSULATOR BUSHING NSN: 96 5970-01-094-1582.



Mechanical ETCS(SS) May

#5. Bench grinder- 63.6% Bench grinders showed evidence that the wheel was used to grind non-ferrous material. Hazard: The build up of this material on the wheel can cause wheel imbalance and possible disintegration while in use. Solution: Don't use the ship's grinder to grind non-ferrous materials. The use of a dressing tool helps eliminate grinding wheel imbalance. REF: OPNAVINST 5100.19E D0804 g.3.f

#4. Steam kettle - 66.7% submarines had not accomplished the hydrostatic test of the steam jacket and discharge line (36 months) and either have not conducted annual relief valve testing or the identification tags were missing. REF: MIP 6520/015

#3. Non-skid strips/safety tape - 61.1% of all submarines surveyed did not have adequate nonskid or eye hazard markings around machinery areas. OPNAVINST 5100.19E para D0804 requires the installation of non-skid on the deck (at the point of operation) in front of permanently mounted machine tools and ensure caution areas and eye hazard areas around the machine are marked as defined in chapter B5. Deck non-skid Strips NSN 96 7220-00-205-0389, Checkerboard Yellow and Black Tape NSN 9905-01-342-5934, Striped Yellow and Black Tape NSN 9905-01-342-5933.

#2. Eye protection - 92.2% failed to install the point of operation guard (chip shield) on the drill press and the lathe. Chip shields are available under Government Source Rockford Systems 800-922-7533 or sales@rockfordsystems.com. Ref: OPNAVINST 5100.19E D0804

#1. Pneumatic grease guns - Our safety surveys reveal 100% of the pneumatic grease guns did not meet the requirements of the Submarine Greasing Handbook, NAVSEA T6350-AA-HBK-010 REV 4. Gauges are smashed, regulators don't work or are not even installed. It is important to rig it correctly to ensure the safety of the operator and to prevent the grease lines from rupturing due to over pressurization.

If you have any questions about these items or ideas for items to be submitted in the next FLASH feel free to call or email me using the contact information listed in FLASH.

Table of materials for Grease Guns taken from the MRC and located in the Submarine Greasing Handbook. We have provided a NSN for a replacement 0-200 psig gage as well.

Part	NSNs
Gage 2.5", 0-5000 PSIG	9C 6685-01-330-6733
Hose 50 FT. (with 1/4" NPT 1/2"-27 NS taper double male adapter)	9C 4720-00-066-4759
Pipe Nipple 1/4" X 6"	9C 4730-00-196-1541
Pipe Nipple 1/4" X 3" (2) ea	9C 4730-00-196-1487
Pipe Tee 1/4" (2) ea	9C 4730-00-263-5264
Regulator Low Pressure Air (With 0-200 PSIG Gage)	9C 4820-01-250-8597
Relief Valve Low Pressure Air	9C 4820-00-454-7586
Pump	9C 4930-01-223-3730
Quick-disconnect type fittings, service air	(Male) 9C 4730-00-766-9028 (Female) 9C 4730-00-766-9029
Pressure Gage, 0-200 PSIG	9C 6685-00-868-7918

Combat Systems MMC(SS) Lint

#5. Rubber Gaskets - 51.2% of commands have breaks and or foreign debris on the rubber gaskets preventing a proper seal. **Recommendation:** When completing daily PMS MIP 7000/X04 D-1, D-2, D-3 on ammunition lockers pay close attention to the rubber gaskets.

#4. Knife Edges- 53.5% of commands have paint or foreign debris on the knife edges preventing a proper seal. **Recommendation:** When completing daily PMS MIP 7000/X04 D-1, D-2, D-3 on ammunition lockers pay close attention to the knife edges.

#3. Dummy/Drill Ammunition- 61.9% of commands Dummy/Drill ammunition is either improperly labeled and/or color coded. **Recommendation:** IAW Chap 700-5.12.2 it shall be labeled as "FOR PRACTICE ONLY" and SW010-AF-ORD-010 table 1-1 it shall be "GOLD"

#2. Ammunition Far Side Signs- 62.5% of commands are missing "AMMUNITION FAR SIDE" signs from the required locations. **Recommendation:** Inspect using OP 4 Rev 8 Appendix D, D-2 for all required locations for the signs.

#1. Physical Security Gear- 83.3% of commands are not maintaining all required physical security gear onboard as required by AEL- 2-320024503. **Recommendation:** Complete a through physical security gear inventory using AEL-2-320024503 rev date Sep 07, and order all missing items.

If you have any questions about these items or ideas for items to be submitted in the next FLASH feel free to call or email me using the contact information listed in FLASH.

Deck MMC(SS) Lint

#5. Life Rings- 65.1% of commands have distress marker lights improperly attached to the life rings. **Recommendation:** IAW NSTM 077-2.6.2.2 a 4 foot lanyard of $\frac{1}{4}$ inch diameter polyethylene line is used to attach the light to the ring buoy.

#4. Float Lines- 67.6% of commands float lines are improperly manufactured and/or missing. **Recommendation:** As required by OPNAVINST 5100.19E Chapter D10 para D1002.b., keep complete floating lifelines rigged at all times while moored. Keep floating lifelines in good condition.

#3. SEIE Suit Log- 69.2% of commands are not maintaining a SEIE suit log. **Recommendation:** as required by PMS MIP 5940 A-1 Note 5 ensure SEIE inventory log is maintained. As a minimum it should contain a listing of all SEIE escape suits and life raft packages carried on board by serial number, date of packaging, stowage location, record of all inspections and inventories with signatures and dates pertaining to inspection and inventory.

#2. SEIE Suit Lockers- 73.1% of command's SEIE storage lockers are not locked and do not have anti-pilferage seals installed while inport. **Recommendation:** as required by PMS MIP 5940/XXX A-1, Note 2, ensure SEIE storage lockers are locked and have anti-pilferage seals installed while inport.

#1. Man Overboard Bag- 79.1% of commands Man Overboard Bags are incomplete. **Recommendation:** complete a through inventory of the man overboard bag using AEL-2-330023061 rev date Mar 05 .

If you have any questions about these items or ideas for items to be submitted in the next FLASH feel free to call or email me using the contact information listed in FLASH.

Effective COMNAVSAFECEN Submarine Safety Advisories

2007
 31 7-07 081545Z AUG 07 Guidance on NAVSEA Approved Safety Harnesses and Climber Safety Sleeve Recall Interim Aloft Procedures

2008
 39 1-08 101833Z JAN 08 Effective COMNAVSAFECEN Afloat Safety Advisories for Surface Ships and Submarines

34 3-08 211439Z OCT 08 SCBA Repair Facilities

To download, you must be on a .mil domain terminal and have a PKI certificate. Go to our secure web site by selecting the [Secure site](#) link. Once you are on the secure site, select the [Afloat Messages](#) link, and then select the [advisories](#) you need. To gain access to the secure site for the NAVAL SAFETY CENTER, please go to <https://www.dko.mil> <<https://webmail.east.nmci.navy.mil/exchweb/bin/redirect.asp?URL=https://www.dko.mil>> . Click on "register for DKO" under new user? title. This is a self registration step. You should now be able to go to the secure website. After you've done the above, the fastest and easiest way to find it is using the Naval Safety Center link: <https://www.us.army.mil/suite/page/418385> <<https://www.us.army.mil/suite/page/418385>>

Warnings, Cautions and Notes

The Flash is a newsletter that provides safety-related information to the fleet. This information is a summary of research from selected mishaps and surveys done throughout the force. This data is provided to assist you in YOUR mishap prevention program and gives advance notice of other safety-related information.

This newsletter is NOT authoritative but will cite references when available.

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