The Submarine Division of the Naval Safety Center Presents:

FLASH

Factual Lines About Submarine Hazards

2003 Year In Review

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From the Editor

This issue of FLASH is dedicated to the most frequently found deficiencies in each subject area during surveys of the submarine force for calendar year 2003.

Route for Safeties Sake

CO	_____	ENG	_____	DCA	_____	3MC	_____	_____	_____		
XO	_____	CSO	_____	COB	_____	All CPOs	_____	_____	_____		
NAV	_____	SUPPO	_____	EDMC	_____	Ship's DCPO	_____	_____	_____		

Traffic Safety Past Five Years

FTCM(SS/SW) Clements

Here are just a few lines to shine a light on how the submarine force has been doing in traffic safety. In the last five years the Naval Safety Center has received fifty-seven submarine motor vehicle mishap reports. The breakout by submarine ports is as follows:

1. Kings Bay GA 18
2. Pearl Harbor HI 14
3. Bangor WA 9
4. Groton CT 7
5. Norfolk VA 6
6. San Diego CA 3

The ratio between automobile and motorcycle crashes is about even. Twenty-seven mishaps were automobiles and thirty were motorcycles.

1. Kings Bay: 10 automobile mishaps and 8 motorcycle mishaps
2. Pearl Harbor: 2 automobile mishaps and 12 motorcycle mishaps
3. Bangor: 6 automobile mishaps and 3 motorcycle mishaps
4. Groton: 5 automobile mishaps and 2 motorcycle mishaps
5. Norfolk: 3 automobile mishaps and 3 motorcycle mishaps
6. San Diego: 1 automobile mishap and 2 motorcycle mishaps

Pearl Harbor and Kings Bay had the highest number of motorcycle mishaps.

Deck Recurring Deficiencies

MMC(SS) Nixson

Lack of PMS continues to be the root cause of all deck department safety survey discrepancies. Most notably, 100% of all submarines surveyed in 2003 failed to secure the SEIE storage lockers IAW MIP 5940/004 (A-1R). The requirement states that while import, the locker is to be secured with an anti-pilferage seal and a padlock. Once underway, the anti-pilferage seal remains on the locker and the padlock is required to be removed.

Sixty-seven percent of submarines surveyed in 2003 did not complete and document A-1 of MRC H-409/003 on the Steinke hoods correctly. The MRC requires that the annual PMS be documented on the white shipping tag attached to the Steinke hood. Close attention to detail by all supervisors is required to ensure that all PMS is scheduled properly and documented when complete. Additionally, care should be taken when rolling the Steinke hoods for stowage as cracks in the face shield may result.

Eighty-two percent of the submarines surveyed in 2003 did not have the Jacob's ladder topside attached to the safety track in the vicinity of the access hatch. NAVSEA DWG 804-5000915 requires that the Jacob's ladder be at the access hatch and attached to the safety track while the ship is moored in port or anchored. If the ship is required to shift access for an extended period, the Jacob's ladder is required to be moved to the new access point.

Safety Officer Recurring Deficiencies

LT Romano

Submarine safety officers continue to struggle with meeting the intentions of OPNAVINST 5100.19D administrative requirements. Most notably, sixty-four percent of ships surveyed in 2003 had no NAVOSH deficiency abatement plan (item A101 of our safety officer checklist). This tool is required in paragraph A0404f and consists of safety related Equipment Status Log (ESL) entries. Safety officers must work directly with the ship's 3M coordinator to ensure they have adequate access to this abatement plan to ensure required follow up actions are conducted.

Sixty-three percent of ships surveyed in 2003 had ineffective safety councils. For the most part, ships are meeting the intent of OPNAVINST 5100.19D with regards to the council meeting and minute's requirements; but little or no NAVOSH program evaluations are being performed. Paragraph A0203h requires a periodic evaluation of the ship's NAVOSH program. OPNAVINST 5100.19D does not dictate just how to document this program evaluation. I recommend you add this evaluation to the ship's command monitoring program to be completed annually and document in memorandum form with a list of discrepancies noted and process improvement recommendations.

A final administrative area that safety officers are lacking is completion of the Submarine Safety Officer course (CIN F-4J-0020). Paragraph A0203c of OPNAVINST 5100.19D requires this course completion prior to or within six months after assuming the safety officer duties. Fifty-six percent of ships surveyed in 2003 did not meet this requirement (item A2A1 of our safety officer checklist). Many ships respond that they do not have the time or manpower to send the safety officer to a three-day course. There are ways to meet this requirement while minimizing the loss by sending the safety officer to a video tele-conference presentation of the course given quarterly at your local training facility by the NAVOSHENVTRACEN. Course dates can be found at www.norva.navy.mil/navosh under the course catalog. Another out, so to speak, is to have the safety officer complete the Naval Safety Supervisor correspondence course (NAVEDTRA 14167) and watch station 305 portions of the safety supervisor PQS (43460-4B) until he can attend the safety officer course. This is allowed by paragraph A0503a of OPNAVINST 5100.19D.

By the nature of the manning on submarines the safety officer is a collateral duty responsibility. It is imperative that proper attention is given to these collateral duties and responsibilities.

Balancing the checkbook is easy when you log your ATM and service fees, but if you put it on the back burner for three months and try to reconcile, it is far more challenging.

Damage Control Recurring Deficiencies

MMCS(SS) Morrow

The first thing anyone trying to get better does is figure out what is not currently working. It is even easier is to learn from another's mistakes, because we all know how messed up other people's programs are. In the spirit of letting others make the mistakes for us, here is

a listing of the top damage control items that have been observed in the past as being "less than the example to follow."

School - The Submarine Damage Control Petty Officer course (CIN A-495-2054) is being underutilized. This course offers a great opportunity to conduct PMS and maintenance on things like OBAs and the galley range guard (and coming soon, the SCBAs) in a learning environment. Don't forget this is a required school per the STMPS report and is available at all bases. If you cannot find this course in the normal catalog call your local training facility and attempt to schedule a special convening.

Range Guard PMS – MIP 5556 has some really interesting reading in it. Little things like replacing the fusible link every 6 months and placing a metal tag near the assembly to document the replacement date. The best maintenance in the world can be called into question if the documentation is not done correctly. Also, on the range guard there is a requirement to maintain 3" of cable travel to allow for proper bottle actuation. If there is any question in your mind how to measure this clearance, please refer to the MRC. To give an illustration of the importance of this system, a Navy barge recently had a deep fat fryer fire. The fusible links had been removed for some reason (therefore, automatic actuation was not going to happen). Three PKP extinguishers were used and the fire continued to burn. Someone was smart enough to manually actuate the APC system and the fire went out almost immediately.

Steam Suits - As some of you may already know, there is a new style steam suit for use with the FFE and SCBA modification. Unfortunately for those of you without SCBAs, the MSA air-fed oven suit is no longer available in the supply system. To help with this NAVSEA issued a letter COMNAVSEASYSCOM LTR Ser 92T1H-167 of 11 APR 02, that reduced the number or air fed suits required on board. They followed up with a message, 291618Z APR02 (NOTAL), which recommends COMSUBLANT and COMSUBPAC collect the extra suits and disperse them to units in need of air-fed suits in good repair. If you have an MSA air-fed suit on order, you may grow old before it comes in from supply. The best course of action for you is to work with your squadron and TYCOM representatives to attempt to get one of the air fed suits collected from another unit. The SCBA install is being worked as quickly as possible and should include the new style steam suit with the SCBA modification; therefore, keep those air fed suits you have in good shape!!

OBA Material Problems – Discrepancies that can be fixed by following Q-8R of MIP 6641/009 are commonly found on safety surveys and INSURV inspections. Some of the leaders are bent guide rods and latch adjustments. Q-8R is a fairly involved PM and should be done by two people. This is a great time for yet another plug for the DCPO class being as this is one area specifically covered there.

PMS Documentation – As stated earlier, the lack of documentation can bring down a strong damage control program quickly. There are numerous PMs required after use, even during a drill. For example, **EVERY TIME A FIRE HOSE IS CHARGED WITH SEAWATER, IT MUST BE BROKEN DOWN, INSPECTED, AND LUBRICATED (A-21R and R-19)**. It is the responsibility of the command to recognize this fact and ensure adequate time is put aside during the day to accomplish these items on drill days. It is the responsibility of the damage control petty officer to ensure the chain of command is informed of the requirements and properly documents these maintenance items.

Submersible Pumps – Most submersible pumps on board are in good mechanical shape. Let's face it, there is not a lot that can go wrong with the pump mechanically if PMS is done. The main problem noted is the electrical safety check is either not done within periodicity or is

not accurate. By accurate, I mean that the requirement is that there be no exposed wiring at a plug, on the pump, or at the control box. Think about it, if you submerge this pump in a bilge with four feet of water in it do you want to be in the area on a metal deck plate, above a pump with 440VAC applied that has exposed wires leading into said submerged pump (and no placing electrical tape around the exposed wires does not help)? One boat even had the electrical safety tag tied around the exposed wires.

The above-mentioned items are not the only things that are checked or are in need of repair in the world of damage control. These are only the most common that have been observed lately. Please take the time to prove that we as a submarine community are smart enough to let others break something and learn from them and the past.

Combat Systems Recurring Deficiencies

MMC(SS) Shull

Each year we, at the Naval Safety Center (NSC), have the misfortune of reviewing the statistics, and write about the year in review as it pertains to reoccurring deficiencies. Sadly one of our top combat systems deficiencies has been on this list for greater than five years. Let's take a look at the top three.

- Forty percent of the submarines are failing to have complete Otto fuel spill kits available.

Solution: Refer to NAVSEA OD 44979 Vol. 4 Appendix C for the specific requirements of <u>both</u> spill kits. Additionally, MRC 7500/ADC-C3 R-5**(for scheduling purposes only) and MRC 7500/R48-C3 R-5** have you inspect the condition of and inventory the Otto fuel spill kit IAW OD 44979 Vol. 4, Appendix C. Accomplish this prior to getting underway and after each use. I have yet to see either R-5** documented as completed on a PMS schedule. The stock numbers for components of Otto fuel spill kits are contained in table 3-3 of SG340-AA-MMA-010, technical manual for Otto fuel II and OD 44979 Vol. 4 appendix B (This item is the recipient of this award for five consecutive years!).

- Forty percent of the submarines we surveyed failed to ensure that all rubber gaskets on magazine doors were free of paint and breaks.

Solution: Refer to paragraph 700-5.13-4 of Naval Ships Technical Manual (NSTM) 700 and MRC 7000/X04 D-1, D-2 and D-3. Inspect gasket and knife edge for damage. Verify the locker door gasket is clean and in good condition to form a proper seal when the door is shut and dogged. Ensure dogs are tight and form a secure seal of the door (First time nominee for this one!).

- Twenty-seven percent of the submarines surveyed failed to ensure that all MK 15 Otto fuel detectors on board are calibrated.

Solution: Refer to MRC 7500/ADC Q-2** and MRC 7500/R48 Q-3**. Review the calibration recall schedule. The Otto fuel vapor detector, MK 15 Mod 0, should be calibrated prior to the expiration date or when the expiration date will be exceeded before completion of deployment or operations. <u>Reminder</u>: Ensure that an electrical safety check has been done. If it has, make sure that it is within the periodicity (first time nominee for this one!).

The combat systems safety survey checklist is an excellent tool you can use to check on the status of required items. Correct any deficiencies you may find and check your program often. **Be proactive not reactive!**

Diving Recurring Deficiencies

CWO2 Birmingham

Diving safety surveys performed this past year have identified several recurring discrepancies in the following three areas:

1. Administration
2. Training
3. Scuba

This article will address the common discrepancies identified in each of these three areas.

Administration

- Divers not performing minimum number of dives IAW MILPERSMAN 1220-260 and re-qualifications are not updated in divers' service records.
- Diving officer/diving supervisor are not formally qualified or does not have a letters of designation.
- Diving manual not up to date with current changes.
- Minimum number of qualified divers not onboard.
- Dives are not reported in a timely manner to the Naval Safety Center.
- Command does not have complete file of "Diving Safety Line Messages" sent to AIG 7702.
- Command does not have the current issue of "Diving Safety Lines."
- Required diving instructions are not available.
- Diving smooth logs are not filled out correctly and are not signed by the diving supervisor or the diving officer.
- Diving physical has expired.

Training

- Divers not CPR qualified.
- No short/long range training plan.
- Core diving subjects not included in training plan.
- Emergency diving drills not performed on a regular basis.
- No diving supervisors onboard.

Scuba

- No PMS coverage for scuba equipment.
- Scuba equipment not approved for Navy use.
- Scuba equipment PMS records do not accurately reflect completed situational requirement maintenance checks.
- Scuba equipment is not serialized.
- Scuba regulator over-bottom test gauge is OOC, not calibrated, or command does not have one onboard.
- Scuba bottle pressure gauge is OOC.
- Scuba depth gauges out of calibration.
- Scuba bottles out of static test periodicity and are still in use.
- Inadequate/improper stowage of dive equipment.
- Full facemask regulators not covered by PMS.
- Latest PMS force revision not implemented.
- Divers not issued wet suits.

All of these discrepancies must be corrected to ensure your diving locker operates safely. If you have any questions about the above discrepancies or any other questions pertaining to diving contact us and we will do our best to answer your questions.

Phone: (757) 444-3520 Ext. 7606, DSN 564
E-mail: safe-divesalvage@navy.mil.

Hazardous Material Control and Management Recurring Deficiencies

LT Romano

The main culprit involved in the recurring deficiencies noted for hazardous material (HM) control and management programs are inattention to detail in meeting the requirements from HM labeling and stowage. Seventy-nine percent of the ships surveyed in 2003 had atmosphere contaminates that were not labeled in accordance with article 7-3.3.B of the Submarine Atmosphere Control Manual (item B7F0 of our safety officer checklist). As with most of the common HM issues noted, it's not the supply lockers that are harboring the unauthorized HM. These unlabeled contaminates are stashed away in the E Div calibration gear locker, in the overhead in the machinery space, or more often in the laundry area.

Seventy-one percent of ships surveyed in 2003 had HM containers not marked in accordance with the requirements of section D1502e of OPNAVINST 5100.19D (item B5C1 of the safety officer checklist). These requirements include clearly identifying the material name (nomenclature), manufacturer's name and address, and the nature of the hazard presented by the HM including the target organ potentially affected by the HM. If HM is transferred to a container that is too small to label with all the required information, it should include the material name, manufacturer's name, and stock number as a minimum. The remaining information should be available in close proximity to the secondary container.

Sixty-four percent of ships surveyed in 2003 had HM stowage locations missing the appropriate warning caution signs required by paragraph D1503 of OPNAVINST 5100.19D. These signs are easily attainable from the supply system using the following information:

For 10 X 7 inch sign NSN 9905-01-342-4851.
For 3 X 5 inch sign NSN 9905-01-342-4859.

As with all NAVOSH programs onboard, the key to success is maintaining a vigilant supervisory review of how the end users are handling, stowing, and controlling HM. Safety officers and HM coordinators need to look beyond how supply department does business to where the problem areas exist.

Mechanical Recurring Deficiencies

ETC (SS) White

In 2003, we surveyed fourteen submarines for mechanical safety. From those surveys, the three top recurring deficiencies were improper steam kettle maintenance, non-ferrous material evident in the grinding wheels of bench grinders, and face shields and goggles not available in the trash room.

Eighty-six percent of the submarines surveyed had not completed the annual maintenance on the kettle's steam jacket and discharge piping IAW MIP 6520/001 series and COMSUBLANT 212244Z NOV 01 (NOTAL). The discharge piping and steam jacket require hydrostatic testing separate from the pop test required for the pressure safety relief valve. The piping and the valves require tags with the hydrostatic test data and test date individually. Since the valve is

pop-tested by IMA and the hydro completed by ship's force, the dates on the tags should not necessarily be the same. If IMA completes the maintenance on both then the possibility exists that the tags would have the same date. The discrepancy normally discovered is the valve or the piping having the test tag hanging from it instead of both having tags indicating incomplete maintenance of one or the other.

Bench grinders on 79% of the submarines surveyed were considered out-of-commission due to non-ferrous material in the grinding wheels. IAW D0804g(3)(f) of OPNAVINST 5100.19D only ferrous material should be ground on bench grinders. Non-ferrous materials become embedded in the wheel possibly causing the material to come loose and become a missile hazard.

Safety goggles were not available in the trash room in seventy-one percent of the submarines surveyed. D0805h of OPNAVINST 5100.19D requires safety glasses to be worn while compacting trash. Along with goggles are Kevlar gloves for handling TDU cans and other sharp objects.

Medical Recurring Deficiencies

ETCS(SS) Monsam

Over the past year I have performed numerous safety surveys from Kings Bay to Pearl Harbor. The TOP THREE medical department recurring deficiencies have all been addressed in previous issues of FLASH. Since the FLASH has gone to electronic delivery I believe the information presented is not reaching our target audience, which are the deck plates of our submarines. Previous issues of FLASH can be downloaded from our web site at www.safetycenter.navy.mil. I encourage each command to print and distribute these articles to promote a safer working environment onboard our submarines. The following is a brief review of these recurring discrepancies.

The number one problem area in 2003 has been EYE WASH STATIONS. All of the requirements for fixed and portable, or personal eye wash bottles as well as NSN for the personal bottles were provided in FLASH (Jan-Mar 2004). I strongly recommend you download the previous FLASH article for a more specific and in-depth description of eye wash stations. Personal eye wash bottles are required in the vicinity of nucleonics and at the secondary sample sink. The NSN for these bottles is 6515-01-393-0728 or 6540-01-353-9946. Additionally, these stations and the fixed eyewash stations are required to have a distinctly marked and highly visible green sign with white letters. The NSN for the sign is 9905-01-345-4521. The fixed eyewash station should not be used as a storage area and periodic operational checks should be conducted to ensure that the water has not been inadvertently secured. One of our shipmate's vision could hinge on whether these stations are in good working order.

The second area of concern is control of calcium hypochlorite or HTH. This highly corrosive super chlorinator has recently changed from Class II hazardous material to Class I. This change means that its shelf life can no longer be extended. This chemical is consistently found to be expired and improperly stored. The HTH box is required to be white with red letters stating "HAZARDOUS MATERIAL - CALCIUM HYPOCHLORITE." It must have three holes drilled in the bottom of the box to ensure adequate ventilation. The bottles are required to be stored in sealed plastic or zip-lock bags. The box should never be stowed in an area where it

could come in contact with paint, solvent, oils, grease, or combustible materials or where temperatures could exceed 100 degrees. Additionally, this locker is required to be inspected monthly by the MDR. All of the requirements for HTH can be found in COMNAVSUBFORINST 6000.2A and NSTM 670-5.5.

The third area of concern is the national poison control hotline telephone number has been changed to (800) 222-1222. You can call this number to get new stickers sent to your command. These stickers are required to be on the front of the antidote locker. They will also send at your request, refrigerator magnets to provide for the crew so that they have this important telephone number available to them at home.

Complacency and inattention to detail in PMS completion are serious concerns in our submarine force. The loss of one of our shipmates is one too many. Our safety survey attributes checklists can be downloaded from our web site and used in conjunction with Appendix A3-A of OPNAVINST 5100.19D self-assessments. If you have any questions regarding these issues please contact the submarine division at the Naval Safety Center at DSN 564-3520.

Electrical Recurring Deficiencies

ETC(SS) White

Submarine electrical rates continue to toil to produce effective electrical safety programs. The areas of most concern and reoccurrence are with electrical safety checks of personal portable electrical/electronic equipment, power strips, and proper maintenance of 31 MC batteries.

Properly identifying, checking and tagging personal portable electrical equipment IAW Chapter B7 of OPNAVINST 5100.19 (NAVOSH Manual for Forces Afloat) and section 2.7 of NSTM 300 continues to plague electrical rates.

Fifty-six percent of the submarines surveyed in 2003 were deficient in this area. The requirement for periodic checks of personal portable electrical/electronic equipment was removed from the Planned Maintenance System by the CNO in 1999. Since its deletion, there has been some misinterpretation of the requirements.

The NAVOSH manual states, "Electrical safety checks for personal electrical/electronic equipment are not required." However, it also references NSTM 300 as the primary reference for the electrical safety program. Section 300-2.7.5.2.1d of NSTM 300 requires personally owned equipment/appliances to be inspected and tagged when initially brought aboard. This one-time check also ensures compliance with paragraph B0702e(3) of the NAVOSH Program Manual for Forces Afloat requirement that division officers ensure personal equipment is authorized for shipboard use.

Use of equipment guide lists (EGL) assists in ensuring that all electrical/electronic equipment is inspected and tagged.

Fifty-six percent of the submarines surveyed were not using marine grade power strips. An authorized power strip is one that breaks both legs when the breaker is tripped and has a double-poled switch to break both legs when switched off. The Navy supply system carries the only authorized six-outlet strip with a 6-foot cord (NSN 6150-01-362-7192). Using unauthorized power strips increases the risk of damage to equipment and is an electrical shock hazard to personnel.

31MC batteries are vital equipment and should be considered a damage control item. Properly maintained, 31MC batteries ensure

required communications flow. Sixty-two percent of the submarines surveyed in 2003 had improperly maintained 31MC batteries. Corrosion buildup, dirt inside the box, or broken fasteners for the cover were among the worst discrepancies discovered. Completed properly, the box and cells will be free of debris and corrosion, the cells lightly coated in petroleum jelly, and the cells filled to the proper level.

Afloat Safety Climate Assessment Survey

LCDR Tupman

To date, 2,295 submarine Sailors have taken the afloat safety climate assessment survey, nineteen submarines have completed the survey, and three submarines are taking the survey now.

SUBFOR

1. The afloat safety officer position is a sought after billet in my command. (Command & Control) Thirty-five percent responded to the negative.
2. Crew rest standards are enforced in my command. (Command & Control) Thirty percent responded to the negative.
3. I am provided adequate resources to accomplish my job. (Risk Management) Twenty-seven percent responded to the negative.
4. My command does not hesitate to temporarily restrict individuals from watch standing who are under high personal stress. (Command & Control) Twenty-four percent responded to the negative.
5. Lack of experienced personnel has adversely affected my command's ability to operate. (Risk Management) Twenty-four percent responded to the positive.

SUBPAC

1. The afloat safety officer position is a sought after billet in my command. (Command & Control) Thirty-five percent responded to the negative.
2. Crew rest standards are enforced in my command. (Command & Control) Thirty-one percent responded to the negative.
3. I am provided adequate resources to accomplish my job. (Risk Management) Twenty-seven percent responded to the negative.
4. My command does not hesitate to temporarily restrict individuals from watch standing who are under high personal stress. (Command & Control) Twenty-five percent responded to the negative.
5. Lack of experienced personnel has adversely affected my command's ability to operate. (Risk Management) Twenty-three percent responded to the positive.

SUBLANT

1. The afloat safety officer position is a sought after billet in my command. (Command & Control) Thirty percent responded to the negative.
2. Crew rest standards are enforced in my command. (Command & Control) Twenty-nine percent responded to the negative.
3. I am provided adequate resources to accomplish my job. (Risk Management) Twenty-five percent responded in the negative.
4. I am not comfortable reporting a safety violation, because people in my command would react negatively toward me. (Risk Management) Twenty-five percent responded to the positive.
5. Lack of experienced personnel has adversely affected my command's ability to operate. (Risk Management) Twenty-four percent responded to the positive.

Effective COMNAVSAFECEN Submarine Safety Advisories

17-00	201959Z DEC 00	Contract Liberty Boat (Water Taxi) Safety
1-04	051505Z JAN 04	Effective COMNAVSAFECEN Afloat Safety Advisories for Surface Ships and Submarines

To download you must be on a .mil domain terminal. Go to our secure web site by selecting the DoD menu link. Once you are on the secure site select the Afloat Messages link and then select the Submarine effective advisories link.

Naval Safety Center
375 A Street
Norfolk, Virginia 23511-4399
Phone: (757) 444-3520 (DSN 564)
Fax: (757) 444-8636 (DSN 564)

submarines@safetycenter.navy.mil
www.safetycenter.navy.mil

FLASH Editor: ETC(SS) Bryan White Ext. 7202
E-Mail: bryan.c.white@navy.mil

Afloat Directorate Head: CDR Ritch Martel Ext. 7127
E-Mail: richard.martel@navy.mil

Commander Naval Safety Center
RADM R. E. Brooks Ext. 7000

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 are 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.

THE SURVEYORS

Safety Officer/General Departmental

LT Vic Romano Ext. 7201
victor.romano@navy.mil

DC/Mechanical/Electrical/Electronic

MMCS(SS) Bob Morrow Ext. 7073
robert.e.morrow@navy.mil

ETC(SS) Bryan White Ext. 7202
bryan.c.white@navy.mil

Medical

ETCS(SS) Pete Monsam Ext. 7098
peter.monsam@navy.mil

Combat Systems/Deck/Divers

FTCM(SS) Chris Clements Ext. 7099
chris.clements@navy.mil

MMC(SS) Ed Nixson Ext. 7104
edwin.nixson@navy.mil

MMC(SS) Jeff Shull Ext. 7091
jeffery.shull@navy.mil