SHIPS' SAFETY BULLETIN

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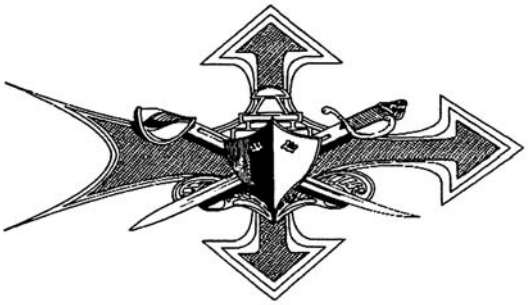

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Suggested routing should include CO, XO, department heads, division officers, CMC, CPO mess, petty officers' lounge, work-center supervisors, and crew's mess.
Blanks provided for initials following review:

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Basic Shipboard Safety

By LCDR Walt Banks
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Shipboard life is one of the most hazardous working and living environments that exist. While the ship conducts its normal daily routine, the existence of hazardous materials and equipment, and the fact that the ship is constantly moving, present unique risks to shipboard personnel. Sailors must follow practical safety and the prescribed safety regulations to prevent death, injury, illness or equipment damage.

"**Safety Is Paramount!**"

Do we live by these words? Some of us do. Others however, tend to flirt with disaster just for an adrenalin rush. What am I talking about? **Safety!**

Our people are our most valuable asset. For this reason, the Navy has established guidelines and rules to follow to protect them. Although most of the standards listed in paragraph C0102 of OPNAVINST 5100.19D are covered during basic training and in other Navy training courses; new crew-members, upon reporting on board, should be given a brief orientation as to the importance of these safety requirements and where to find them aboard ship. Some places to discuss safety include the Plan of the Day (POD), divisional training, quarters, safety stand-down, and indoctrination training.

If these standards are not followed, it should be brought to your supervisors' attention before a mishap occurs. Train crew-members to understand shipboard life is dangerous! Not following practical safety requirements could get someone injured or killed. That someone may be you.

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SHIP'S BOAT AND EMERGENCY BILL

By LT William Thomas
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Every ship evolution in the U.S. Navy is governed by standard operating procedures (SOP). These SOPs have certain bills and instructions available to the crew explaining aspects of the evolution that must be met to complete the process safely. Chapter 6 of OPNAVINST 3120.32C, *Standard Organization and Regulations of the U.S. Navy* (SORM), delineates the elements of a ship's bill and provides a baseline for required ship's bills. Although this manual outline the requirements for the ship's bills, instructions, and other SOPs, ships surveyed by the Naval Safety Center are still found missing these documents. This article will discuss two requirements of the SORM, the Boat Bill and the abandon ship section of the Emergency Bill.

Boat Bill

Whether lowering the rigid hull inflatable boat (RHIB) for force protection, or conducting a small boat recovery during a man-overboard, boat operations are an important and integral part to naval evolutions. Almost every ship in the U.S. Navy will conduct small boat operations, and for some, such as amphibious ships, boat evolutions can become routine. Therefore, it is necessary to think about safety and avoid complacency.

Ships that perform small boat operations are required to have a Boat Bill. You can find the format for the Boat Bill in Article 630.1 of OPNAVINST 3120.32C. The SORM delineates everything you should include in the Boat Bill and it is a good starting point for creating one unique for your ship.

The Safety Center looks for several things in a ship's Boat Bill during a safety survey. One thing we check is a requirement to inspect the wire rope for proper spooling on the cable drum before and during hoisting and lowering (paragraph C0402f of OPNAVINST 5100.19D). Simply stated, "Is there a winch checker during hoisting and lowering of the boat." Any time the span-wire is paid out and retrieved, there is a chance of it bird caging, or becoming tangled on the cable drum. If this happens, undue stress will be put on the wire causing it to part.

Another item we check is if the maximum personnel hoisting and waterborne capacity provided for all boats (paragraph C0404d of OPNAVINST 5100.19D and paragraph 5 of NSTM 583). Hoisting and waterborne capacities are different for different types of boats, therefore each hoisting capacity must be posted for each. You can find the maximum capacity for every boat in the Navy in Table 583-3-1 of NSTM 583.

Another item we check is to ensure personnel assigned as boat crewmembers qualified as second class, or above, swimmers (paragraph C0404y of OPNAVINST 5100.19D and paragraph 630 of OPNAVINST 3120.32C).

Emergency Bill

There are several dangers inherent to shipboard life. Grounding, collision, battle damage, fires, explosions, or any other life-threatening emergency always is waiting to challenge the crew's ability to respond in an emergency. For this reason, a ship's crew must know what to do. The SORM's Emergency Bill should addresses each of these emergencies.

When writing or reviewing your ship's Emergency Bill, ensure that it lists each method of releasing the lifeboats (paragraphs 640 of OPNAVINST 3120.32C and GSO 583G). Currently in the US Navy there are two types of hydrostatic release devices, the can type (NSN 1H-4220-01-279-7287) and diaphragm type (NSN 1H-4220-00-269-7950). Clearly state the release methods in the Emergency Bill. The instructions should include the primary and secondary release methods, capacities and locations of designated lifeboats, and the locations of each abandon ship station (paragraph 640 of OPNAVINST 3120.32C).

Finally, here are a few other things to keep in mind when composing bills:

1. Each unit's bill must provide sufficient guidance to permit assignment of personnel by name. (paragraph 600b of OPNAVINST 3120.32C).
2. Most of the unit bills listed in the SORM can be used as is, however, it is prudent to tailor them specifically to your ship
3. Copies of PowerPoint presentations do not count as bills. They are, however, good tools for training and briefs.
4. Unit bills should be readily available to the entire crew. Posting them on the ship's shared drive or adding them to the ship's SORM will make them easily accessible.

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CSOOW Aloft Responsibilities

By ETC (SW) Leon DuPlantier
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Although not required, many ship's working aloft instructions, particularly on Aegis platforms, require the combat systems officer of the watch (CSOOW) to maintain control of placards. These placards are placed on emission capable radar and radio equipment to help prevent personnel radiation hazards by warning personnel to keep equipment in standby and non-rotate. Step "c" in Appendix C8-A of OPNAVINST 5100.19D requires personnel going aloft to place a sign on all radio and radar antennas whose danger zone encompasses the work area. The instruction however, does not say where to stow these placards when not in use or if it is required to maintain inventories of the placards.

As part of safe and efficient operating procedures, CSOOWs are becoming accountable for aloft placards as outlined by ship's SORM or other instruction's. Many ships' instructions require the placards to be

prefabricated and serialized with equipment name, serial number, and placard number with a date, time, and initial blocks available for filling out when hanging the placard. The placards are kept for issue in combat systems maintenance central (CSMC) as part of watch turn over. The CSOOW are responsible for inventorying these placards at turn over to ensure an accurate assessment of personnel aloft, equipment condition, and antenna condition. In other words, this ensures that equipment has been placed in a safe condition while personnel are aloft as well as ensuring it has been placed back to normal operations once personnel have returned with all placards in hand. This system builds accountability to the CSOOW and also holds the CSOOW accountable for any aloft process being accomplished or conducted during their watch.

You can find more information about aloft instructions, aloft requirements, and fall protection at http://www.safetycenter.navy.mil under the Combat Systems link in the Afloat Directorate. Also refer to Chapter 8 of OPNAVINST 5100.19D for all guidance concerning aloft procedures.

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How Does Your Ventilation Program Stack Up?

By LCDR Walter Banks
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A Sailor was brazing in an evaporator and became ill from the heat and brazing-rod fumes. This should not have happened. Several minor oversights combined to result in the mishap, and an operational risk management (ORM) assessment would have identified them beforehand.

The Sailor failed to rig localized ventilation before he began brazing. Localized ventilation is a shipboard-installed system for removing toxic fumes such as those from welding and brazing. Also, he didn't use a respirator while brazing, and his workspace was confined and poorly ventilated. An ORM assessment would have made him realize this.

Also remember that any confined spaces must be gas-freed and certified to be safe for work before work actually begins. A properly routed and signed, gas-free chit posted in the space also should have stated ventilation and fire-watch requirements; a safety observer would have helped to avoid what happened.

Then there is the baseline industrial hygiene survey: It provides operational respiratory protection guidance and the type of respirator required in specific work. NSTM 074 (Vol. 3, *Gas Free Engineering)* and Chapter B6 of OPNAVINST 5100.19D both define the metrics by which the programs should operate. Meanwhile paragraph 510-1.6 of NSTM 510, *Heating, Ventilation, and Air Conditioning Systems for Surface Ships*, states that a ventilation system should provide oxygen in adequate quantity to let the body maintain proper heat balance and the oxygen should be free from harmful components.

On surface ships, odor and temperature control should result in a supply of outside air exceeding oxygen renewal requirements (two cubic feet-per-minute of fresh air per person). However, do not assume the ventilation system is capable of removing hazardous vapor and gases, such as Freon and carbon tetrachloride.

If you have to secure ventilation for preventive or corrective maintenance on your HVAC system, or if your CO has ordered ventilation to be secured, you must take specific steps to prevent mishaps like that of the Sailor brazing in a confined space. Otherwise, your ventilation HVAC and air conditioning must be operating continuously.

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DRIVING SAFE

By GSCS (SW) Joe Petraglia
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DO YOU KNOW WHAT GOES INTO STOPPING YOUR VEHICLE?

Stopping your vehicle may seem like an easy task but what exactly is involved?

Suppose you are driving the posted speed limit of 55 mph on the freeway and you are two car lengths from the car in front of you. All of a sudden, the car in front of you brakes unexpectedly. You might be able to brake in time to avoid the car in front of you if you considered many factors, such as (Did you react in time**?** Are your brakes in top working condition**?** Do you have passengers**?** Were you distracted**?** What is the road condition**?** and What if a vehicle in the next lane merges in front of you**?** All of these things can affect the time it takes to stop a vehicle and can be categorized into four factors.

The total stopping distance of a vehicle is made up of four components.

Human Perception Time – Is how long the driver takes to see the hazard, and the brain to realize it is a hazard requiring immediate reaction. This perception can be as long as ¼ to ½ a second.

Human Reaction Time - Once the brain realizes danger, the human reaction time is how long the body takes to move the foot from accelerator to the brake pedal. This reaction time can vary from ¼ - ¾ of a second.

Vehicle Reaction Time - Once the driver presses the brake pedal, there is the vehicle reaction time. This depends on the brake pedal free-play, hydraulic properties of the brake fluid and working order of the braking system.

Vehicle Braking Capability - The last factor that determines the total stopping distance is the cars braking capability. It depends on factors such as:

- Type of braking system
- Brake pad material
- Brake alignment
- Tire pressure
- Tire tread and grip
- Vehicle weight
- Suspension system
- Co-efficient of friction of the road surface
- Wind speed
- Slope of the road
- Road surface smoothness
- Braking technique applied by the driver

Now, look at the table below to see the speed/stopping distances of a mechanically sound vehicle with optimal road conditions.

Speed (Miles Per Hour)	Speed (Ft Per Second)	Perception + Reaction Distance	Effective Braking Distance	Total Stopping Distance
15	22.0	33	11	**44**
20	29.3	44	19	**63**
25	36.6	55	30	**85**
30	44.0	66	43	**109**

Speed (Miles Per Hour)	Speed (Ft Per Second)	Perception + Reaction Distance	Effective Braking Distance	Total Stopping Distance
40	58.6	88	76	**164**
50	73.3	110	119	**229**
55	80.6	121	144	**265**
60	88.0	132	172	**304**
65	95.3	143	202	**345**
70	102.7	154	234	**388**
75	110	165	268	**433**
80	117.3	176	305	**481**
85	124.7	187	345	**532**
90	132	198	386	**584**

You can see there is a lot involved in stopping a vehicle. It is not as simple as it may seem. When you factor in all the variables associated with stopping a vehicle, it is harder than what most of us realize. In addition, the type of vehicle you are driving will alter the associated times in the total stopping distance. There are methods you can use to judge safe stopping distances. As a rule of thumb for following another vehicle; one car length per every ten MPH or two seconds from the vehicle in front of you at any speed. The two-second rule is probably easier to do because we really cannot judge car lengths. Observe a point on the road that the vehicle in front of you just passed and count two seconds to yourself (ONE – ONE THOUSAND, TWO – ONE THOUSAND). If it takes less than two seconds for your vehicle to get to that point, you are driving too close.

Remember, these two rules are for dry road conditions. If you are in wet or snowy conditions, allow for greater distances.

To find out more information about vehicle stopping distances and other useful driving information, visit your state's highway patrol or department of motor vehicle website or office.

http://www.ncdot.org/dmv/driver_services/drivershandbook/ provides information on vehicle stopping distances by Department of Motor Vehicles, North Carolina.

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YOU ARE CHEATING YOURSELF

By LCDR Walter Banks
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Since reporting to the Naval Safety Center, I have come to really understand why bad things happen to our people and equipment. It's quite evident that not enough attention is being assigned to the complete and correct execution of PMS.

To start, I will give you some background on how I arrived at this conclusion. I have conducted over 200 safety surveys with the Naval Safety Center's survey team on all class of ships. One constant discrepancy is the failure to complete PMS. More than ninety percent of the discrepancies are PMS related. The comment often heard by a ship's crew when we identify serious deficiencies is, "We just completed a 3-M assessment, and the assessors didn't hit us on that." Understand, the safety survey team will assess operational and safety-related maintenance for trend analysis and

training. If it is identified that neither of these reflect evidence of proper accomplishment, it becomes a safety concern.

Before we arrive on your ship, we spot-check the ship's master PMS deck to ensure that it is current and verified by the division responsible. Two weeks prior to our visit, we will send our arrival message, and request specific PMS. The intent is to help the ship identify PMS that is not carried onboard or show a trend of not being properly completed.

The following are some discrepancies noted and trended during recent surveys. The discrepancies listed are by no means all inclusive:

- (All classes of ships) The semi-annual PMS system operational test (SOT) for package conveyors: The maintenance requirement card specifically states that the division should place the completed checklist in the 43P1 and retain it for six months, 95 percent of the ships surveyed did not read the last step of this MRC.
- Personnel conducting PMS without being qualified in QA (quality assurance) maintenance person 301 PQS.
- Ship FR has not been validated and does not have PMS assigned to support all equipment installed onboard.
- Cycle, quarterly and weekly schedules were not available for daily use by the maintenance personnel.
- Ship's operating schedule was not documented on the quarterly schedule.
- The spot check program is not being properly conducted and real time spot-checks do not note discrepancies in most cases.
- Tools listed on the MRC are not being used when conducting the assigned check.
- PPE required is not being used and safety precautions are not being adhered to.
- Equipment appearance does not reflect that PMS is being conducted (e.g., undisturbed paint, fasteners, and access covers).
- The lack of proper system or equipment isolation (tag-out).
- PMS cards being used which cannot be followed step-by-step due to the procedure not being validated by the maintenance man.

The proper, complete, and honest execution of assigned PMS is the responsibility of the entire chain of command and direct senior supervision. Without the consistent daily involvement and the use of the spot-check program, your systems and equipment will be mediocre at best. PMS spot-checks provide senior leadership a tool to check a number of things in the PMS program; most of them are listed above. To cheat the PMS system is to cause injury to a shipmate or damage to major equipment or systems. The physical appearance of your equipment and systems will normally give a good indication as to how well the ship is conducting PMS! Remember, first impressions say a lot. So, do not cheat the PMS system.

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Hazard Abatement Plan

By LCDR Jerry Chapmon
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In addition to performing safety surveys, publishing safety informational materials, and investigating mishaps, the Naval Safety Center collects, analyzes, and stores data. The data in turn is used to determine trends with the goal of preventing mishaps. Similar to the Naval Safety Center, each ship's safety organization is required to identify hazards, collect and trend safety data and then present to the safety council and chain of command. This identification and

collection of safety hazards is referred to as the NAVOSH Deficiency Abatement Plan (NAVOSHDAP) as described in the , paragraphs A0203c(6) and A0404b of OPNAVINST 5100.19D and paragraph, 303.15b(6) of OPNAVINST 3120.32C, Standard Organization and Regulations of the U.S. Navy (SORM).

The deficiency abatement plan is intended to be a consolidated list of safety hazards that is maintained by the safety officer. There are a number of methods by which safety hazards are reported to the safety officer. Input commonly is received from workspace inspections such as from zone inspections and outside visits. Hazards that are found during zone inspections and documented on Zone Inspection Deficiency Lists (ZIDL) shall be routed to the safety officer. The safety officer should also be reviewing results from inspections and surveys to identify noted safety hazards and add them to the hazard abatement plan. Zone inspections and outside inspections and surveys are two methods used to identify safety hazards. The hazard reporting form is another effective method for reporting safety hazards

The crew holds a vital role in identifying safety hazards through the use of the Hazard Report Form (OPNAV 3120/5). This form should be centrally located and its location and use thoroughly discussed during indoctrination. The safety petty officers and the master-at-Arms force should also be using the Hazard Report Form to report hazards they discover during their daily rounds. The forms are given to the safety officer for evaluation to assign a risk assessment code (RAC) and enter the deficiency into the hazard abatement plan. Because of collected hazards from zone inspections, outside inspections and surveys, and Hazard Report Forms, the safety officer will have a comprehensive list of the ship's safety hazards and can ensure prompt corrective action is taken to correct the deficiency.

As hazards are reported and collected by the safety officer, he or she will assign each deficiency a RAC and enter the deficiency into the hazard abatement plan. Division officers are responsible for continuously reviewing the hazard abatement plan and correcting deficiencies located within their spaces. The safety hazard remains on the deficiency abatement plan until the safety officer and his organization can verify the safety hazard no longer exists.

The format of the deficiency abatement plan is not important as long as the safety officer can provide a single consolidated list of identified hazards with the an up-to-date status on removing the hazard. We have seen every thing from simple Microsoft Word documents to sophisticated digital cameras with palm pilots. The Safety Center, Afloat Division has an Access database that is available upon request. The format you use is not important. How well you identify all safety hazards, document, and correct those hazards will determine the effectiveness of your hazard abatement plan.

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Q. How can I obtain information on having a ventilation assessment performed for my (ship) workspace?

A. Contact the industrial hygiene department at your local branch medical clinic or naval hospital. Navy industrial hygiene officers (IHO) are assigned to type commanders, aircraft carriers, submarine tenders, and RSO/RSGs. An IHO is trained to conduct the ventilation assessment and assist in corrective actions if required.