SHIPS' SAFETY BULLETIN

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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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Practice Situational Awareness

By CW04 Tony Evans
USS Ronald Reagan

Safety. Having freedom from conditions that could cause death, injury, or occupational illness; or property loss or damage.

Mishap. Any unplanned or unexpected event that causes death, injury, occupational illness, property damage or loss.

Prevention. Being able to anticipate an action and thus be able to stop the action from happening.

If you are aware of a developing situation, planned or expected, you can prevent the action. The key word is "aware."

A common thread in mishap reports is that someone in the chain of command--up to the commanding officer—was unaware of an existing situation that resulted in a mishap. When it concerns workplace or home safety, you must ask yourself if you are practicing situational awareness, or are you content with being "fat, dumb, and happy?" Does your ship's safety council and enlisted safety committee ask situational awareness questions? Is your ship employing all overall risk management (ORM) principles?

Some sources for the right kinds of questions to ask are *Fathom* magazine, *Ships' Safety Bulletin, Deckplate,* type commander bulletins and newsletters, CASREPs, safety advisories, NSTMs, and PMS. After all, if you are not aware about something, you certainly cannot prevent it!

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Q: What is the web address for my type commander?

A: The addresses are:
http://www.surfpac.navy.mil/,
http://www.cnsl.spear.navy.mil/,
http://www.airlant.navy.mil/, and
http://www.airpac.navy.mil/.

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ORM Critical

By LCDR Walter Banks
Naval Safety Center

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. 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 space 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 OPNAVINST 5100.19D both define the respiratory protection program and give 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 requirements 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 this air quality is capable of removing hazardous vapors such as freon and carbon tetrachloride. OPNAVINST 5100.19D, contains information on how to prevent hazardous fumes and gas-spill mishaps.

If you have to secure ventilation for preventive or corrective maintenance on your heating, ventilation and air conditioning (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 heating, ventilation and air conditioning must be operating continuously.

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Sleepy Drivers: Beware!

By Gina Moore
NAVOSH News Editor

Sleepy drivers beware! New Jersey has enacted Maggie's Law—a law against driving while drowsy—and as such is the first state to pass such a law. The law became effective in September of 2003, and was named in memory of a 20-year-old college student killed in 1997 by a van driver who admitted he had been awake for 30 hours.

Under the law, police will not necessarily stop drivers they suspect of starting to fall asleep at the wheel. However, if a deadly crash indicates the cause was a sleepy driver, the law allows prosecutors to charge that motorist with vehicular homicide, and resulting punishment could be up to 10 years in prison and a $100,000 fine.

Studies estimate 51 percent of motorists feel drowsy behind the wheel, and about one of every five drivers admit they fell asleep at some point while driving within the past year. Safety advocates expect the New Jersey law will lead prosecutors to consider sleep deprivation when

investigating accidents. The law might spur other states to crack down on sleepy driving.

The National Sleep Foundation has information on the importance of sleep on their web page at http://www.sleepfoundation.org/about.cfm

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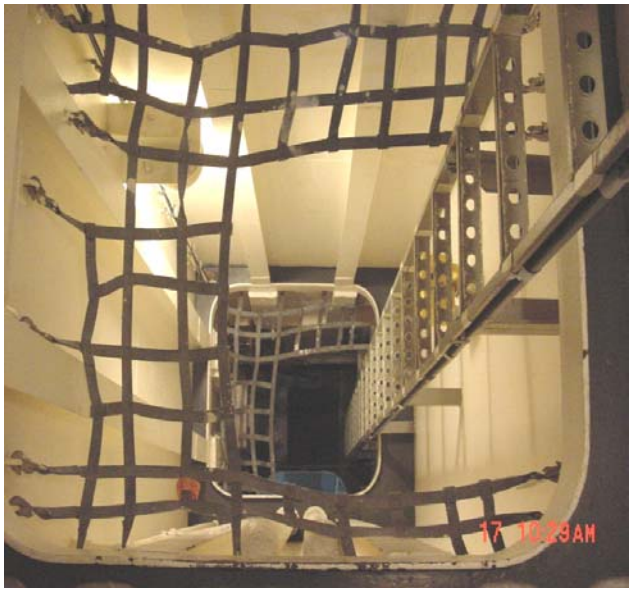
Trunk Safety Nets

By STSCM (SS) Robert Dingmann
Naval Safety Center

Naval Safety Center representatives still see shipboard trunk safety net discrepancies throughout the fleet. Openings are too wide, nets are missing weight test tags and the nets sag too much, among other safety discrepancies. Many Sailors admit they don't know what specific requirements apply to safety nets.



Most nets originally are manufactured and installed in accordance with specifications. However, problems arise when new nets are fabricated using the old nets as a pattern. The webbing stretches over time, and this causes each successive set of nets to become larger. Additionally, most nets are custom made for their intended location; putting them in another spot causes them to fit incorrectly.

NAVSEA STD drawing 804-5184163-Rev A shows the proper net design and installation. The drawing specifies the opening is 24 inches wide, and the distance from the ladder to the opposite edge of the net opening is 16 inches plus or minus two-and-a-half inches. The 16 inch opening is often much too large, meaning that if someone were to fall; the net most likely would deflect the individual against the ladder instead of catching him. Rather than minimizing injury, a net with too big an opening could actually increase the risk of injury.

Note 4 of the same NAVSEA drawing also specifies that the natural sag of the net should be no more than four inches.

Maintenance requirement card (R-1) on MIP 6122/001 specifies; any repaired or replaced net must be weight-tested up to 1,000 lbs. Chapter 2 of the *Joint Fleet Maintenance Manual*, CINCLANTFLT/CINCPACFLTINST 4790.3 Rev A, (paragraph 30.2.2.) requires documentation of the test results on a QA-17, recorded in a permanent shipboard log, and a weight-test tag be attached to the net. The tag must include at least the name of the testing activity, the year and month of the test, and the rated load.

The reference for trunk safety nets is section 612e of General Specifications for Overhaul of Surface Ships (GSO). It states that, for every ladder extending through three or more decks, safety nets must be installed beginning at the topmost deck and placed at every other deck. Invest the effort to have your next set of nets manufactured IAW the drawings and properly fitted for the specific area where they will be installed. That effort could save your life or the life of one of your shipmates.

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Deadly Mistakes

By GMC(SW) Charles Robinson
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Oops! A ship's forward M-14 sentry inadvertently discharges his weapon into the pilothouse overhead and the bullet ricochets, cracking a nearby bridge window.

It seems as though there has been a recent increase in Sailors inadvertently discharging small arms. With today's increased force protection posture, we see more armed security forces and more Sailors standing watches with loaded weapons.

For many of these watch standers, being armed on watch is not routine. Therefore, they might not feel completely comfortable or confident, and for someone carrying a loaded weapon this can be the recipe for tragedy.

Following are some examples:

- That sentry who discharged his weapon in the pilothouse did so because the rifle was in condition I but should have been in condition III. When handing the seaman his weapon, the duty armorer had inserted the magazine, then let the slide go forward, chambering a round. While in the pilothouse, the sentry thought the magazine was too loose and removed it. He then released the safety and pulled the trigger. "He hadn't realized the weapon was loaded," stated the investigating officer in the explosive mishap report.

- A petty officer third class was affixing a scope to his M-4 rifle-M203 grenade launcher without having cleared the weapon. While the weapon was pointing toward his leg, he dragged it across some wooden footlockers. It discharged and hit him in the leg.

- Another petty officer third class accidentally discharged his 12-gauge shotgun in the security guard shack at the end of a quay wall and shot through a window. Investigators concluded the Sailor was given the weapon when it was in condition III (safe) but he had inadvertently chambered a round while on watch. When he leaned against a guard shack ledge, he disengaged the weapon's safety and pulled the trigger when grabbing the weapon.

- A corporal-of-the-guard improperly cleared a 9mm pistol before putting it in the security locker, removing the magazine but not removing a chambered round. A few days later, another corporal-of-the-guard discharged a round while dry-firing the weapon without having checked the chamber.

- During a small arms assessment, a magazine loaded with grenade or line-throwing rounds (NALC G841) was inserted into an M-16 rifle and the weapon discharged in the armory. Fortunately no equipment damage or injuries resulted from the incident.

Why did these avoidable mishaps even occur? Let's review the last M-16 mishap in more detail.

The M-16's material assessment had just been done to train and familiarize ship's security force members with the weapon. The assessment team member asked the duty gunner's mate to give him a magazine loaded with dummy M-16 rounds. The gunner's mate retrieved a magazine from storage but failed to verify if it contained dummy rounds.

He handed the magazine to another gunner's mate in the armory and asked if the magazine had dummy rounds. The second gunner's mate replied it did, so the first gunner's mate laid the magazine on the workbench.

A post-mishap critique indicated the second gunner's mate didn't look at the rounds and assumed they were dummy rounds because of where the magazine had been stowed. Nevertheless, the assessment team member picked up the magazine and inserted it into the M-16, failing to double check if magazine had dummy rounds. The weapon was then handed to a GM3 and the order was given to "cycle" the weapon. Again during the post-mishap critique, the assessment team member explained that when he used the term "cycle" he meant for the GM3 to only "verbalize" the weapon's operational cycle:

(1) feeding
(2) chambering
(3) locking
(4) firing
(5) unlocking
(6) extracting
(7) ejecting
(8) cocking

The GM3 understood "cycle" to mean physically demonstrating chambering an "imaginary" round, releasing the safety and pulling the trigger—which he did, inadvertently discharging the loaded M-16.

As in all the mishaps, this last one resulted from negligence and human error by trained Sailors. The human errors included failing to make sure the weapons had no chambered rounds, not engaging safeties, and failing to make sure weapons were handled strictly according to safety procedures. Negligence included deviating from the two following critical small-arms general safety rules:

- A weapon must be considered loaded until determined otherwise by conducting a thorough inspection following weapons procedures.

- No weapon should be transferred from one person to another in any condition other than condition IV: safety on, magazine removed, bolt locked open, and the chamber verified to be clear.

Also contributing to these mishaps was the fact that Sailors involved were too comfortable and overly confident while handling the weapons.

What can we learn from these mishaps? We must conduct extensive and regular small arms safety training and ammunition recognition, and we must emphasize the potentially high price of negligence, it could be your life or your buddy's life.

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Q: Where can I find information on proper weapons handling and turn over procedures for security watch-standers?

A: You can find a detailed break down of all force protection weapons handling procedures in NTRP 3-07.2.2*, Force Protection Weapons Handling Standard Procedures and Guidelines, August 2003*. You can download this publication at https://intranet.nossa.navsea.navy.mil/default.asp

Beware of Multiple Cable Penetrators (MCP) "Sailor-alts"

By EMC(SW/AW) Manuel P. Carretero
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The safety survey team has seen numerous unauthorized ship alterations during our afloat visits. Everyone affectionately terms them as "Sailor-alts." For multiple cable penetrators (MCPs), we found that Sailor-alts were installed instead of the proper cable penetration material. Crew members or repair activities drilled holes through blanking insert blocks to pass cables thru the MCP. This shortcut is costly! The potential exists to drill into another electrical cable, compromising watertight integrity, or cause a class Charlie fire and major repairs/man-hours in replacing damaged electrical cable.

DoD-STD-2003-3 (Chapter 3.4) defines MCP as a system of passing multiple cables through watertight--and non-watertight--bulkheads and decks to provide watertight, airtight, and fire-tight penetration of an electrical cable. MCP is used for watertight cable penetration for the spaces listed in Paragraph 320-1.6.11.11 of NSTM 320, *Electric Power Distribution Systems.*

- Watertight cable trunks
- Watertight decks and bulkheads surrounding compartments subject to sprinkler flooding
- Bulkheads and decks exposed to weather
- Bulkheads designed to withstand a water head
- Bulkhead portions specified to be watertight to a certain height
- Bulkheads portions below the height of the sill or compartment access coamings
- Cable penetrations into garbage rooms, battery charging shops, medical operating rooms, and medical wards
- Multiple cable penetrations used in decks or bulkheads exposed to the weather shall have CRES or glass-reinforced plastic (GRP) accessories.

The blanking cable insert block is a solid block with no passages, as defined in MIL-P-24704A (SH). The insert block is a one- or two-piece block with single or multiple passages to accommodate a cable or cables. The block fits around the cable or cables to form an airtight, flame tight, watertight, and fire tight seal when installed in a MCP assembly. The correct assignment for a typical multiple cable penetration insert block is as per DOD-STD-2003-3. Further cable information and assignment for multiple cable penetrator insert blocks in the DOD-STD-2003-3 (NAVY) (Fig. #3B26, #3B41, and #3B42).

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Do You Have a Lifeline?

By LCDR Frank Bulges
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On your way to do PMS, you are walking on a wet weather-deck with worn non-skid. Suddenly, the ship makes a hard turn creating a heavy list. You begin to slide and then your feet come out from under you. The next thing you know, you are headed over the side and the only thing between you and the deep blue sea are the lifelines.

Are they there? Will they hold?

Most of us take lifelines for granted and assume they will always be there to do what they're designed to do. Recent surveys have shown this is not always true: During one survey, surveyors found 20 lifelines missing or broken. Aboard another ship, the top lifeline on the after lookout's watch station was broken.

Are your end-run stanchions (like those next to pilot-ladder rigging positions) bent and bowed?

The bracket on the deck and the bracket on the stanchion are designed to have a brace fitted between them to support the stanchion. I have counted as many as 15 missing braces on one ship. Most of the end-run stanchions are bent and the lifelines are slack. If the brace is not in place, then tightening the turnbuckle eventually will bend the stanchion.

Other noted lifeline issues are:

- Stanchion toggle pins either are missing or toggle pins are broken which allow the lifeline to work itself free.
- Synthetic lifelines are too long and have too much slack. Mid-stanchion J-hooks are not at a 45-degree forward angle.
- Lock-nuts are being used on turnbuckles. This is prohibited.

Lifeline repair and maintenance references are General Specifications for Overhaul of Surface Ships (GSO), *Liferails, Stanchions, Lifelines and Safety* Nets and PMS MIP 6121 series. Your ship's drawings are in Section 612 of GSO. Meanwhile, Para C0102a of OPNAVINST 5100.19D also requires you to have your commanding officer's permission before removing any permanent lifelines. Division officers and CPOs must pay more attention to lifeline and life-rail material conditions during space walk-troughs. Make lifelines a CO's focus during your next zone inspection to make sure your ship has them where they are supposed to be, and that they are in working material condition.

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Do You Have All the Correct Tag-Out Documents?

By EMC (SW) Robert Hill
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During fleet visits we find many ships are not up-to-date with their Tag-Out User's Manual (TUM) because they don't have the most current version Revision 1 of June 2003.

You can download the TUM revision 1 at the *SUBMEPP* website. The link is http://www.submepp.navy.mil. All tag-out program managers periodically should check this site to make sure they have, and are following, the most current version.

We also receive many requests on stock numbers for the forms, tags, and stickers used in the tag-out system. The following is a list of required stock numbers.

Danger/Caution Tag-out Index and Record of Audits:	0116-LF-983-7900
Tag-Out record sheet:	0116-LF-981-9800
Danger Tag:	0116-LF-115-4300
Caution Tag:	0116-LF-114-0100
Instrument Log:	0116-LF-981-8600
Out of Commission sticker:	0116-LF-114-0200

Out of Calibration sticker: 0116-LF-092-1025

Tag Guide List: 0116-LF-983-6700

You can purchase these forms from the following website: http://forms.daps.mil/order. Contact your supply department for account establishment and purchase information.

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How is Your Spray Shield Integrity?

By LCDR Jerry Chapmon
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Recent shipboard safety surveys have uncovered degradation in the material condition of spray shields. Additionally, there has been confusion over which spaces and systems require protection when located outside of main and auxiliary machinery spaces. The following information taken directly from paragraphs 505-7.9.1.4 through 505-7.9.4.5.4 of NSTM 505, *Piping Systems* outline the exact requirements concerning spray shields.

Spray shields reduce the risk of fire by preventing atomized flammable fluid spray from coming into contact with a hot surface or energized circuit and igniting. These shields do not stop leaks but prevent flammable fluid from atomizing. When spray shields become wet from a leaking joint or fitting, repair the leak immediately and replace the soaked spray shield. Spray shields require quarterly inspection and immediate replacement when losing their ability to retain leaking flammable fluids.

Spray shields will ". . .cover the perimeter of the flanged joint with an overlap sufficient enough to achieve complete enclosure. The side overlap will extend down to cover the bolts and nuts of the bolt circles on either side of the joint." If the joint is butted against machinery such as lube oil piping fastened to a reduction gear, ". . .tightly secure the flange shield to the flange by fitting a metal band or hose clamp arrangement around the shield, and over the perimeter of the flanged joint." Avoid painting spray shields. However, painted spray shields do not require replacement.

Where are spray shields required? They must be installed in areas outside main machinery and auxiliary spaces. Spray shields also are required when a flammable system pipe flange or valve bonnet flange is in the direct plane of an electrical switchboard, electrical equipment and enclosure, or a motor. For main and auxiliary spaces on fossil fuel surface ships, spray shields will be on all flammable system pipe flanges and valve bonnet flanges.

On nuclear-powered surface ships, spray shields are required for pipe flanges and valve bonnet flanges on lubricating oil and hydraulic systems in the "direct plane of, or 10 feet or less from an electrical switchboard, electrical equipment enclosure." For a detailed description of systems requiring spray shields and exclusions, review GSO 505(7e).

Spray shields are fabricated according to NAVSHIPS drawing No. 808-2145518. The drawings in ASTM F-1138 are repeated in NSTM figure 505-7-15. Order spray shields in 5-inch to 12-inch widths and 20 to 30 foot lengths through the supply system (NSTM table 505-7-2 refers). Shore Intermediate Maintenance Activities no longer manufactures spray shields but will purchase them against a ship's JSN.

The bottom line: Frequently inspect your spray shields and don't wait to be "told" during your engineering assessment to install missing or worn spray shields.

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