

SEA COMPASS

The Naval Safety Center Magazine for Surface, Submarine and Diving Operations

2017 Vol. 6 | No. 2

2011

fair winds and following seas

2017

FAREWELL

“THE END” IS ONLY THE BEGINNING

LEARN MORE ON PAGE 2



Commander, Naval Safety Center
Deputy Commander
Director, Afloat Safety Programs
Department Head, Media and Public Affairs

RDML Christopher J. Murray
Col. Matthew Mowery, USMC
CDR J. Lee Bennett, USN
Maggie Menzies

EDITORIAL STAFF

Head, Media Division: Evelyn Odongo
Editor: Michael J. Morris
Art Director: Allan Amen
Graphics and Design: John W. Williams
Webmaster: Darlene Savage
Social Media Manager: Leslie Tomaino

EDITORIAL OFFICE

Commander, Naval Safety Center
Attn: *Sea Compass*
375 A Street
Norfolk, VA 23511-4399

MEDIA DIVISION

Telephone: 757-444-3520, ext. 7870 (DSN 564) / Fax: 757-444-6791
General email: safe-seacompass@navy.mil
Editor's email: michael.j.morris@navy.mil

AFLOAT SAFETY PROGRAMS

To contact a safety analyst by phone, call the main number 757-444-3520 and dial the extension at any time during the greeting.

Telephone: 757-444-3520 (DSN 564)

Surface Division ext. 7831
safe-afloat@navy.mil

Submarine Division ext. 7838
safe-submarines@navy.mil

Report a Mishap: (757) 444-2929 (DSN 564)

ABOUT SEA COMPASS

Sea Compass (ISSN 1550-1434) is published twice yearly (spring-summer and fall-winter). The editorial content of this magazine is edited and approved by the Naval Safety Center Public Affairs Office. *Sea Compass* is an authorized publication for members of the military services and distributed to ships, submarines, diving commands, shore-based commands, and DoD agencies. Contents and opinions expressed are not necessarily the official views of the U.S. Government, the Department of Defense or the U.S. Navy and do not imply endorsement thereof. Unless otherwise noted, photos and artwork are for illustrative purposes only. Reference to commercial products or links to non-DoD resources do not imply Department of the Navy endorsement. Unless otherwise stated, material in this publication may be reprinted without permission; please credit the magazine and author.

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DISTRIBUTION

To get on our distribution list, email safe-seacompass@navy.mil or download and fill out a form at http://www.public.navy.mil/navsafecen/documents/media/magazines/mag_subscribe.pdf.

Sea Compass is published by Commander, Naval Safety Center, at 375 A Street, Norfolk, VA 23511-4399. Periodical postage paid at Norfolk, Va.

Postmaster: Send address changes to Commander, Naval Safety Center, Attn: *Sea Compass*, 375 A Street, Norfolk, VA 23511-4399.

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Do you have a story about a mishap or near-miss that occurred while off duty during the warmer days? Send your submission for the spring-summer issue. We'll take any topic as long it demonstrates risk-management and lessons learned.

Information

Download the detailed article submission guidelines from http://www.public.navy.mil/navsafecen/documents/media/magazines/Submission_Guidelines.pdf

Contact us at safe-seacompass@navy.mil for more information.

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FAREWELL

“THE END” IS ONLY THE BEGINNING



Michael J. Morris

2011 fair winds and following seas 2016

Since 1955, Naval Safety Center magazines have reached audiences throughout the aviation, afloat, shore, and shipyard communities. Over the years, we have published 12 magazines, including special issues; only four remain in circulation today – Sea Compass, Decisions, Approach, and Mech. Publishing these magazines is not just about reaching an audience; it’s about being relevant and valuable in our mission to prevent mishaps, to save lives and preserve resources. The advice, policies, services, and risk management information and tools the Naval Safety Center provides enhance command safety culture, combat readiness, and the Navy’s global warfighting capabilities

While printed publications are still available today, many Department of Defense publishers have moved their magazine content to an online medium. Two of the driving factors for this shift have been the high cost of printing physical publications and general shift in preference by readership to receive content from an online or mobile platform.

For these reasons, effective Spring of FY17, Sea Compass and Decisions magazine will no longer be published in hard copy format and the content of these magazines will be consolidated into a single online magazine. We anticipate launching a bi-monthly PDF based version of the new publication in March of FY17, with an immersive interactive online version to follow.

Our goal from this point forward is to reimagine naval safety publications - boldly looking forward to mobile technologies, e-pubs, and social media. We will create an integrated multi-tiered network of media that will reach audiences where they read, browse, watch, and listen.

In addition, the safety center will also be launching 360° Safe, our new online safety magazine with the primary focus of communicating NAVSAFECEN’s key mission objectives that support fleet operational priorities by addressing safety assessments, operational risk management, mishap reporting, and high velocity learning. The Naval Safety Center’s overall goal is to enhance the reader(s) ability to make good decisions and manage risk - at work and off duty.

We would like to thank all the subscribers of Sea Compass for five years of loyal readership. We look forward to providing you a fresh take on safety publications coming this Spring.

Until then... Farewell, “The End” is only the beginning.



Michael J. Morris
Editor Sea Compass Magazine

Get a Grip

SLIPS, TRIPS & FALLS CAN KILL



Image source: USS Nimitz PAO

Aviation

**Ordnanceman
Airman Esmeralda
Silvestre** had just
finished lunch and

was heading back to her workspace in a magazine on the seventh deck of USS Nimitz (CVN 68). Access to the magazine was through a vertical trunk that led from the second deck, all the way to the bottom. She mounted the ladder and began her descent, just as she had done hundreds of times before. This time something would go terribly wrong.



CDR Jason Garrett

The ladder rails that transition past the third deck have a cut out. It's a tricky spot to navigate, even if you're used to it. It was at this point that she lost her grip before securing her footing and she began to fall. Her hands reached out for the ladder rungs, but they missed. A petite Sailor, standing just over 5 feet, she easily slipped through the cut outs in the safety nets that were supposed to catch her. She plummeted straight down, falling 45 feet before impacting the steel deck below. Lucky for her, an unlikely hero was nearby.

At the same time she was entering the trunk, a civilian contractor was working below, near the trunk access on the sixth deck. He looked toward the access just as she fell past. An instant later he heard the unmistakable sound of her body hitting the deck. Only a few years earlier, the contractor had been a Navy corpsman and his training instantly kicked in. He scrambled toward the trunk access and looked down, confirming that there was a Sailor sprawled out on the deck below. He yelled up at his partner who was near the top of the ladder and told him to go for help. As his partner ran for the quarterdeck, the contractor descended to the seventh deck.

Silvestre was conscious and semi-coherent. She lay on her side and asked to be rolled onto her back. The contractor had been trained for this type of crisis so he refused to move her. He knew that any movement with a broken back or fractured ribs could cause permanent paralysis or even death. Instead, he checked her vitals, held her hand and kept her company until members of the shipyard's federal fire department arrived. In a short time, they had extricated her from the trunk via a stretcher and hoist and then moved her to the flight deck. Once on the flight deck, the shipyard crane lifted her to the pier and an awaiting ambulance.

After a potentially fatal fall, Silvestre fortunately only suffered from a concussion and minor contusions. She was sick in quarters (SIQ) for several days to recover. Once Medical declared her fit for full duty, she was back to work shortly after.

As with any large ship, slips, trips and falls are the number one cause of injury on USS Nimitz; not surprising considering how many ladder-wells, vertical ladders and trunks we have onboard. While it's important to continuously stress the necessity for maintaining three points of contact anytime a Sailor mounts a ladder, inevitably, someone will fall. That's why it is equally important to stress to our Sailors the importance of learning how to respond when they are the first on the scene of a crisis.

In this case, the hero of the day, a contractor and a prior Navy corpsman, knew exactly what to do. He quickly called for help before rendering aid to the Sailor. When he determined that her injuries were not immediately life threatening, he focused on minimizing any further damage. He made sure that she remained immobile until medical experts were on scene to take charge of the situation. His heroic actions may have saved her life; would you have responded similarly?

During crisis, heroes don't rise to the occasion, they default to their training, just as the contractor did. That is why it's so important to take advantage of the training opportunities offered onboard your ship or installation. Whether it is CPR or advanced first aid, firefighting or damage control, learn how to respond appropriately to a crisis can help ensure that you are prepared to do the right thing. The training and knowledge you attain can save the ship or a shipmate. 

As with any large ship, slips, trips and falls are the number one cause of injury on USS Nimitz...

COMPLACENCY CAN BE A SHOCKING EXPERIENCE

The

morning started out like any other morning during our busy maintenance availability in the shipyard. There were deadlines that had to be met under seemingly impossible conditions, systems were being brought out of lay-up, sponsons needed preservation, and qualifications and training milestones were being pushed. On top of all that, contractors needed to finish up electrical work in several controlled spaces that I worked in. My job, at the end of a long nightshift, was to simply escort three contractors while they completed their work in my office. It was during that one simple task that the following mishap occurred, and why I find myself telling you this story.



FC2(SW) Alexander Thomas

That morning, I unlocked the spaces where the contractors would be working and waited for them to arrive. A short time later I found myself shaking hands with all three of them as they carried in tools ready to get to work. One of the contractors started work on an electrical junction box inside a dimly lit space that adjoined the office. The junction box routed 440-volt electricity to a vent damper system that would secure ventilation during a missile launch; preventing toxic gases from the missile exhaust from entering the skin of the ship and endangering the crew.

I watched the contractor as he worked on the junction box. I quickly assumed that he had tested the circuit and verified that it was dead as he was working without any electrical safety gloves or any other electrical personal protective equipment (PPE).

As I watched, I thought I could speed things along by offering to help. I handed him tools and parts to assist with the job. Seeing how easy the work was, I decided I could help even more. Being a senior technician, trained and experienced in electrical work, I went over to the other junction box and began performing the same repair. My department trains us to tag out all three of the connection boxes whenever any of them are being worked on. Since the contractor's junction box was clearly tagged out, I assumed all of them were. I assumed wrong.

I got to work, making good progress, finally unwiring the third of three wires when the unthinkable happened; I got shocked. I felt a surge of 440-volts coursing through my body. I dropped to my knees and miraculously broke contact with the live circuit. Startled and powered by a quick jolt of adrenaline, I stood up and ran from the space.

Moments later I stood in my office where the light was better and I began to assess the extent of my injuries. My hand felt warm and I saw a chunk of burned flesh missing from the palm. I couldn't believe it. I called out for the contractors to help and thankfully they came quickly, ready to assist. One of them called for my Division Officer who was working in the space directly above us. Normal procedures for a shock on the ship are to stay where you are when shocked and let medical come to you, but that probably wouldn't have worked out well in my situation. As soon as my Division Officer realized what had happened and knew that I needed help, she grabbed me by the arm and escorted me to

Medical herself. She knew from experience that due to the very unusual access requirements to get to our office space, if Medical had tried to come to us, I might have been too late for me.

Medical personnel quickly checked me over; hooking me up to an electrocardiogram monitor to make sure my heart wasn't out of rhythm. They also started treating the burns to my hand. As I sat there being treated, my mind was racing. All I could think about was how lucky I had been to have survived the shock. Even though I knew better, I made several mistakes that nearly killed me.

First, I assumed that the junction box that I was working on was tagged out. Since my earliest memory, my mother had told me never to assume anything. She taught me to divide the word 'assume' to understand the true meaning behind it. After being shocked, her words never felt truer. If you do, it can get you in a lot of trouble. That's good advice worth repeating, never assume anything, instead, always know for certain.

“My hand felt warm and I saw a chunk of burned flesh missing from the palm.”

Second, I ignored the basic safety practices that have been drilled into me since my first day of training in advanced electronics. I've been taught that for anything over 30 volts, do an initial voltage verification (IVV) before working on it and use the proper PPE. If I had followed those procedures, this incident would never have happened.

It's never a good idea to rush or cut corners when dealing with electricity. I wanted to assist the contractors so they could finish their work quickly and I could go home. In my haste, I strayed from procedural compliance and nearly had a lethal-shock. I am not the first person in the U.S. Navy to experience an electrical shock of this magnitude and live to tell the story, but I also know there are many shock victims who were not so lucky, and will never be able to share their experience. I hope you take heed and avoid making the same mistakes that have killed others in the past and that almost killed me. 

CAUTION:



DEVIATION CAN RESULT IN CATASTROPHE!



AT2 Ruben Navarro

The

sun was just starting to peer over the horizon on a day that started like any other aboard the USS Carl Vinson (CVN 70). Gearing up for our fast-approaching workups, the Helicopter Sea Combat Squadron Eight (HSC-8) “Eightballers” were stretching our previously idle sea legs on a brief seven-day Fleet Replacement Squadron (FRS) carrier qualification detachment. FRS students were getting their shot at landing on the carrier, and we were there to provide plane guard support for the young pilots as they caught their first wires.

I thought about the day's upcoming tasks. Day check line personnel were to be sent to the flight deck to start preps, ride brakes, and spread aircraft 620 for the day's upcoming flight schedule – all standard flight deck procedures. Although the HSC Community 4th Quarter Safety Campaign emphasized personnel focus on what differs from day to day, I wasn't too concerned. Yes, we were spread thin at the time for day check personnel, with none of those present personnel having had any previous boat experience, but this was a short detachment with only three aircraft.

On the flight deck, one of the many benefits the MH-60 helicopter is its ability to be completely folded, rotor blades swept directly over the fuselage and tail pylon tucked to the side of the aircraft. This makes the aircraft portable and easily stowed when not in use. To unfold the blades was not a lengthy procedure, but a pivotal one; if the blades and tail are not spread correctly prior to flight, the result could damage the aircraft, increasing maintenance workload and decreasing squadron readiness.

On this particular morning, both the tail pylon and the rotor blades of aircraft 620 were folded, meaning that the day check personnel had to execute a full spread evolution. Ashore, this was not a common occurrence; we typically only folded the rotor blades, and not the tail pylon, for easy towing into the hangar on weekends. However, this was a straightforward procedure and it was a calm and quiet morning on the flight deck. I didn't anticipate any problems, which is precisely when things started to go wrong.

As the supervisor began his pre-spread inspection on the aircraft, one of the newer airmen began to remove the crutches from the rotor blades, as he would have at home. But unlike at home, the tail pylon was still folded. Unbeknownst to my airman, there was a caution statement in a maintenance publication for this exact scenario that states: "CAUTION: Due to proximity of the No. 3 blade (yellow) to tail gear box cowling, removal of blade restraints [crutches] before spreading the tail pylon may result in the No. 3 blade (yellow) trim tab impacting tail gear box cowling." True to the caution statement, the removal of the blade crutch gear caused the yellow blade to drop and hit the tail gearbox fairing,

bending the trim tab. While the trim tab was bent, not broken, it had to be repaired, sending the aircraft into a 'Functional Check Flight' that lasted several days. Since we were embarked with three aircraft, this severely impacted both the maintenance and the operations departments, threatening the smooth flow of the flight schedule we were depended upon to execute.

This incident was extremely close to being a Class D ground mishap. If the HSC-8 maintenance team was unable to fix the trim tab and the blade needed to be replaced, this incident would have cost the Navy over \$30,000. Although no lasting damage happened this time, it is imperative that all squadron personnel review routine procedures and brief their personnel on how these procedures differ when underway. On this day, I failed to challenge my team with, "What is different today?" Personnel under my supervision could have set my squadron, and the Navy, back thousands of dollars but instead increased maintenance hours and removed an asset from the flight schedule for three days.

The difference was a folded tail in this case. What could it be on another day? Another ship? A different day check team? Supervisors need to supervise their personnel and personnel need to identify hazards and meticulously follow procedures. We need to work as a team to identify and mitigate hazards by pausing to understand all aspects of a situation. Prior to our next detachment, maintenance will know what to look for and how to use operational risk management (ORM) to appropriately combat associated risks.

Although this incident did not cause any permanent damage, deviation from standard procedure can result in catastrophe. It is imperative to follow procedures, heed cautions and warnings, and work together to foster a safe working environment in an inherently dangerous workplace. 

If the HSC-8 maintenance team was unable to fix the trim tab and the blade needed to be replaced, this incident would have cost the Navy over \$30,000.

LESSONS LEARNED

ON AN OVERWATER ZERO ILLUMINATION NIGHT



Image source: U.S.Navy

At approximately 2230, on a 0.0 percent illumination night, I experienced many firsts as a pilot qualified in model (PQM) for an FRS CQ Detachment: my first night plane guard flight, my first time taking off Spot 7, and shortly after takeoff, my first real emergency in the MH-60 Sierra – a main transmission chip caution. With 0.0 percent illumination and without a visible horizon, I quickly learned the necessity of trusting your instruments as the primary means of navigating around the ship. After several laps in the Starboard 'D', and roughly six miles off the carrier's starboard side trucking towards it, we noticed the master warning caution and MAIN XMSN CHIP caution illuminated on our flight display. As a crew, it became evident that our mission of flying plane guard had now shifted to successfully fighting the emergency at hand and getting the aircraft on deck safely.



LTJG Eli Sinai

The helicopter aircraft commander (HAC), LT George Meszaros, immediately took the controls, contacted Tower, informed them of our main transmission caution, declared an emergency, and requested a Spot 9 landing. Tower complied and ensured that all jets were clear so that we could make a safe approach. As a crew, we completed all critical memory items and determined our landing criteria. LT Meszaros instructed me to turn on the auxiliary power unit (APU) and check our temperature and pressure indications, which were all normal, and we had no additional advisories or cautions that would suggest our landing criteria was anything other than “land as soon as practicable.” I asked our aircrewmembers if they heard any unusual transmission sounds in the cabin, at which point they informed us that they heard “zipping and grinding sounds” coming from the cabin. Those words changed everything.

Per Naval Air Training and Operating Procedures Standardization (NATOPS), the warning in the emergency procedure reads, “Possible indications of Main Transmission imminent failure may include: yaw attitude excursions with no control input, an increase in power required at a fixed collective setting, failure of a main generator or hydraulic pump, increased noise, increased vibration levels, or abnormal fumes in the cabin.” This warning does not mention zipping nor grinding, however this nonstandard description of the noise our crew was hearing gave us enough reason to believe that our emergency had become more than a “land as soon as practicable” scenario.

We entered a profile of 200 feet above ground level (AGL) and 70 knots indicated airspeed (KIAS) to minimize power required and LT Meszaros informed the crew that he would be making a no-hover landing to Spot 9, which we all agreed was the smart landing decision. The landing itself was safe without issues, and there were maintenance personnel awaiting our arrival on Spot 9 to assist us with fighting the emergency should

any unexpected condition arise.

As we concerned ourselves with shutting down, we were delayed because our plane captain was unaware of the emergency situation that had unfolded due to poor communication with Tower. After several minutes, we were finally given the go-ahead to shut down. As we prepared to begin folding the blades, we once again ran into another delay, as the blade fold cheater box was malfunctioning. Meanwhile, the Alert 30 crew that had rushed to our aid was stalled as it took nearly 25 minutes for flight deck personnel to spot the aircraft. As all of this was happening, flight operations had come to a halt until plane guard could be re-established. As carrier Sierra pilots, we recognize that our responsibility to the Air Wing is to provide a ready and capable platform for search and rescue; as frustrating as it was for us to deal with these obstructions to performing our duties, we were safe on deck and had effectively fought our emergency.

After removal and inspection of the transmission filter, Maintenance found several small flakes and one larger chip, all of which were within limits. Our maintenance team effectively executed corrective actions that included a drain and flush of the transmission oil system, and replacement of the filter. After a penalty turn, the aircraft was declared up the next day.

As a result of this experience, I took away several key lessons learned. Our HAC took charge and made the right decisions, ensuring he aviated, navigated, and communicated

just as we had briefed. We took the appropriate precautions monitoring our instruments for secondary indications and turning on the APU. Even if the chips in the system were technically within limits, we followed NATOPS and used solid crew resource management to make sure our emergency did not evolve into anything worse. In so doing, we certainly made my first night plan guard flight an experience that I will never forget. 

I asked our aircrewmembers if they heard any unusual transmission sounds in the cabin, at which point they informed us that they heard “zipping and grinding sounds” coming from the cabin...

USS NIMITZ (CVN 68) ACHIEVES SAFEST EPIA IN MORE THAN

10 years



Image source: U.S. Navy



MC2 Holly L. Herline

It starts from the day a new recruit gets to boot camp. They're expected to carry out every action, from the way their racks are made to the precise positioning of the recruit manual they must carry in their right hand. Boot camp stresses the importance of following directions closely without making mistakes or missing steps.

Every military evolution has a set of directions, if followed, is intended and proven to prevent injury. It is imperative that a Sailor be able to carry them out without mistake to ensure the safety of themselves and others.

With the completion of USS Nimitz (CVN 68)'s recent extended planned incremental availability at Puget Sound Naval Shipyard (PSNS) comes the recognition of performing the safest aircraft carrier availability in the last 10 years.

This availability comes in as a complete anomaly with nearly half the injury rates of any maintenance period recently recorded at PSNS. Nimitz concluded the yard period with a total case incident rate (TCIR) of 3.02.

The average TCIR for an aircraft carrier going through a maintenance period similar to the one Nimitz just completed is usually in the sixes, according to Cmdr. Jason Garrett, Nimitz' safety office .

TCIR is defined as the average number of work related injuries incurred by 100 workers during a one-year period. Use of the TCIR report allows for the comparison of accident and injury statistics across industries and segments of work.

Due to the inability to accurately track a Sailor's work hours, TCIR only accounts for shipyard worker's work-related injuries. In most cases evidence suggests if required data could have been obtained, a similarly low mishap rate for Sailors would also have manifested itself.

"By the time we hit the four-month mark we already had people coming from all over the place to figure out what we were doing differently to get these results," said Garrett.

Nimitz works hard to cultivate an atmosphere that promotes first time quality while always keeping safety in mind. At the core of one of the safest carriers in the fleet is the Nimitz Safety Department.

"There are many reasons that safety in general is important," said Garrett. "If you work in a very dangerous environment where people are constantly getting injured, the work proficiency, production and morale all go down. There are a lot of things that come as a result of safety and we were dedicated to promoting job efficiency and effectiveness."

Over the course of the yard period, the Safety Department implemented an approach that they referred to as "Find it. Fix It." The idea was that if they found an issue or deviation from the safety standards, no matter how big or small, they would bring it to the attention of the Sailors in charge of the work being done.

"We set incredibly high safety standards from the very beginning and made sure everyone knew it," said Garrett. "We would go looking for the smallest discrepancies to put them into a spreadsheet and send it out the leadership daily. Those issues continuously got fixed.

This process proved to be effective in multiple ways. First, fixing the small things as soon as they were identified, then getting them corrected immediately prevented them from becoming bigger violations and contributed to the rectification of the already existing problems that were out of compliance.

Second, it set a precedent of positive involvement from the Safety Department that sometimes doesn't exist during a yard period. Being approachable about safety questions and always willing to help find the solution to any safety hits they found was one of Safety's largest goals.

"Our approach helped to foster a lot of cooperation between us and the crew and people respected that," said Petty Officer 1st Class Gre Geske, a member of Nimitz' Safety Department. "We rarely got kick back."

Developing and maintaining a culture of safety at a command as large as Nimitz takes a lot of teamwork. Safety teamed up with Code 106, the shipyard's safety team, to help keep safety in the forefront of everyone's mind.

Their collective effort is what kept Sailors informed and gave them the tools and motivation

By the time we hit the four-month mark we already had people coming from all over the place to figure out what we were doing differently to get these results.

to carry out daily tasks free of danger and harm. It also helped that Nimitz Sailors and PSNS contractors accepted the process.

“The leadership setup a culture of safety that went from the very top to the very bottom of the deck plates,” said Garrett. “It came down from the captain and the project superintendent and trickled all the way down from the officers and chiefs to the junior Sailors and those that were doing the work day in and day out.”

The numbers alone prove that Nimitz had safety figured out in the yards. Now that Nimitz is underway, Safety’s newest mission is to maintain that standard while dealing with the new challenges of a fully operational aircraft carrier.

The beginning of Nimitz’ preparation for her upcoming 2017 deployment brings with it added

obstacles as the ship acquires its full capabilities.

“We are going to have to learn how to safely operate side by side with the air wing and strike group,” said Geske. “Integration is our new goal and we’re excited to do it and become a safely operating team.”

While underway, it is Safety’s job to provide a constant presence and be at every major evolution to be the extra set of eyes and make sure the proper procedures are being carried out.

Anyone in the Navy has likely heard the expression “written in blood” time and time again. This saying comes from the fact that every safety rule and regulation the Navy has implemented has come from an injury or life lost. The Sailors of Nimitz’ Safety Department work hard to ensure no more rules are written in the blood of a Nimitz Sailor. 

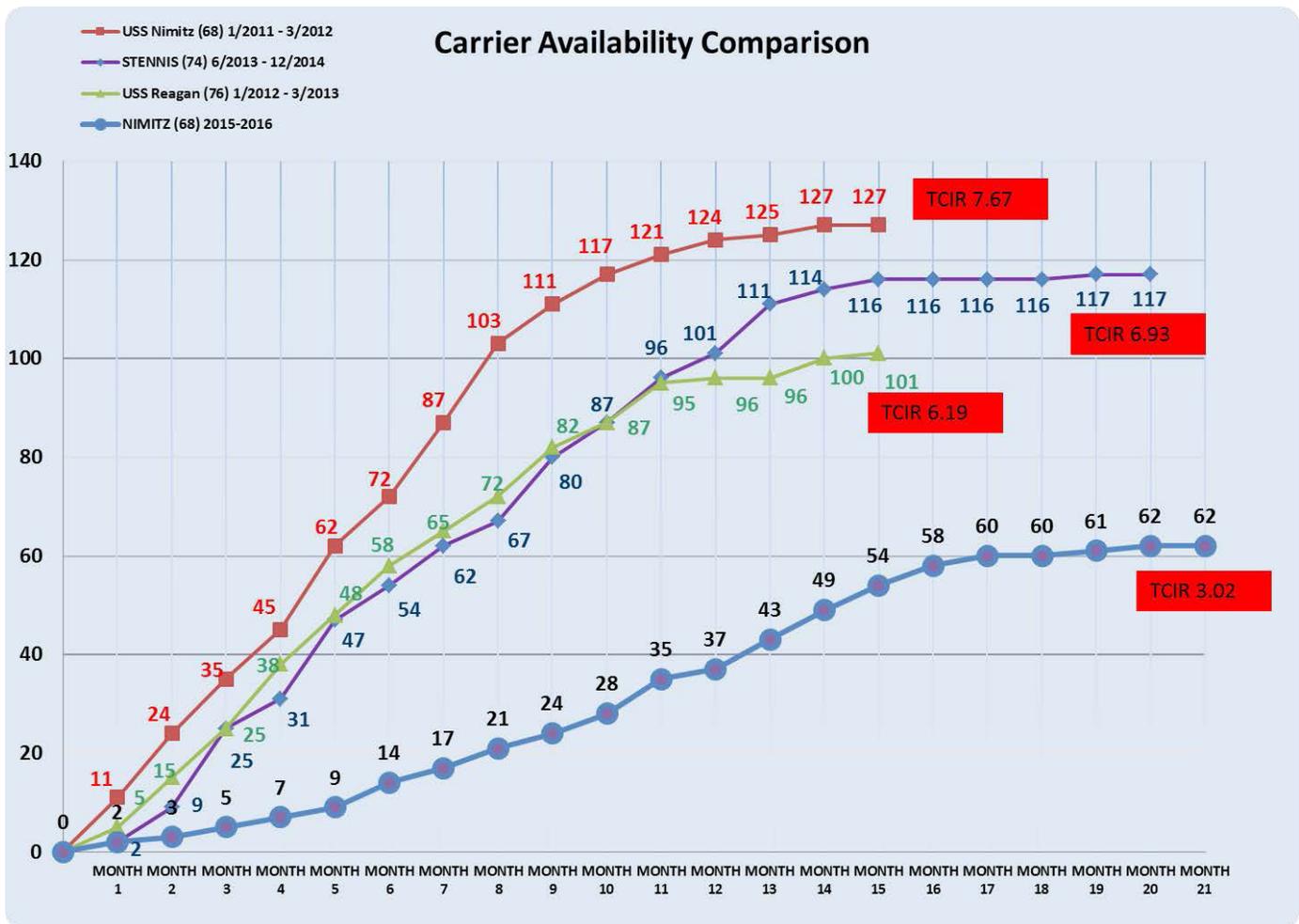


Image source: USS Nimitz PAO



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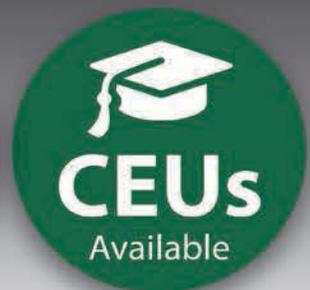
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ONE SPARK TWO SPARK



Image source: U.S.Navy

TO DECLARE AN EMERGENCY OR NOT

The

carrier was setting flight quarters for the first time in almost two years during flight deck certification underway. As an MH-60S squadron, HSC-8 was attached to the aircraft carrier to provide plane guard (PG) and

logistics, but tonight our aircraft was scheduled for just a simple two-hour night deck landing qualification (DLQ) flight to certify Spot 7. Our plan included wagon-wheel landings with our sister squadron, HSM-75, who was flying an MH-60R aircraft and handling PG. Both aircraft were expecting a continuous green deck for multiple landings on Spot 7, while the flight deck was simultaneously landing fixed wing jets for air wing carrier qualifications (CQs).



LT George Guagenti

Shortly after takeoff, both helicopters were informed that the elevator on Spot 7 was needed to move aircraft and Spot 7 would be unavailable for some time. We coordinated airspace deconfliction with the MH-60R and decided to conduct search and rescue (SAR) training until Spot 7 was cleared. After about 30 minutes, the helicopter aircraft commander (HAC) was about to engage an automatic approach when a white flash was seen under the night vision goggles (NVGs) from behind the co-pilot's seat. The HAC called "terminate" and directed the co-pilot to climb to 250 feet, while he began to troubleshoot.

The HAC selected the diagnostics page to look for any systems degradations, but found none. The crew chief (CC), in the left gunner's seat, had also noticed the flash and immediately began using his flashlight to look for any smoke, charring, or additional sparks or flashes. The second crewmen pulled out the portable fire extinguisher as an added safety precaution.

We turned in toward the carrier and asked the MH-60R how much fuel it had remaining in an attempt to minimize the impact on flight operations. Since the flash had only occurred one time, we asked if the MH-60R needed to land first to refuel before we landed at Spot 7 and shut down, but they had enough fuel to continue covering PG duties. Continuing inbound, we also used the forward-looking infrared (FLIR) to see if Spot 7 was clear, but we saw a jet sitting on the elevator marking Spot 7. We also decided to make small maneuvers to ensure that any turns, descents, or changes in pitch would not trigger another spark and we did not see any.

As we got closer to the carrier, we called our squadron representative (Rep) to relay our plan and help coordinate clearing Spot 7. Our Rep informed us that there was no specific timeline for when Spot 7 would be clear. At this point the aircraft received a second spark in the same area as the first. We contacted Tower and requested that Spot 7 be cleared as soon as possible so that we could land and shut down. We did not declare an emergency and did not ask to land on Spot 9 or any other spots due to the impact that would have on air wing CQs. We flew along the starboard side of the carrier for an additional 10 minutes before Spot 7 was cleared and we were called to land.

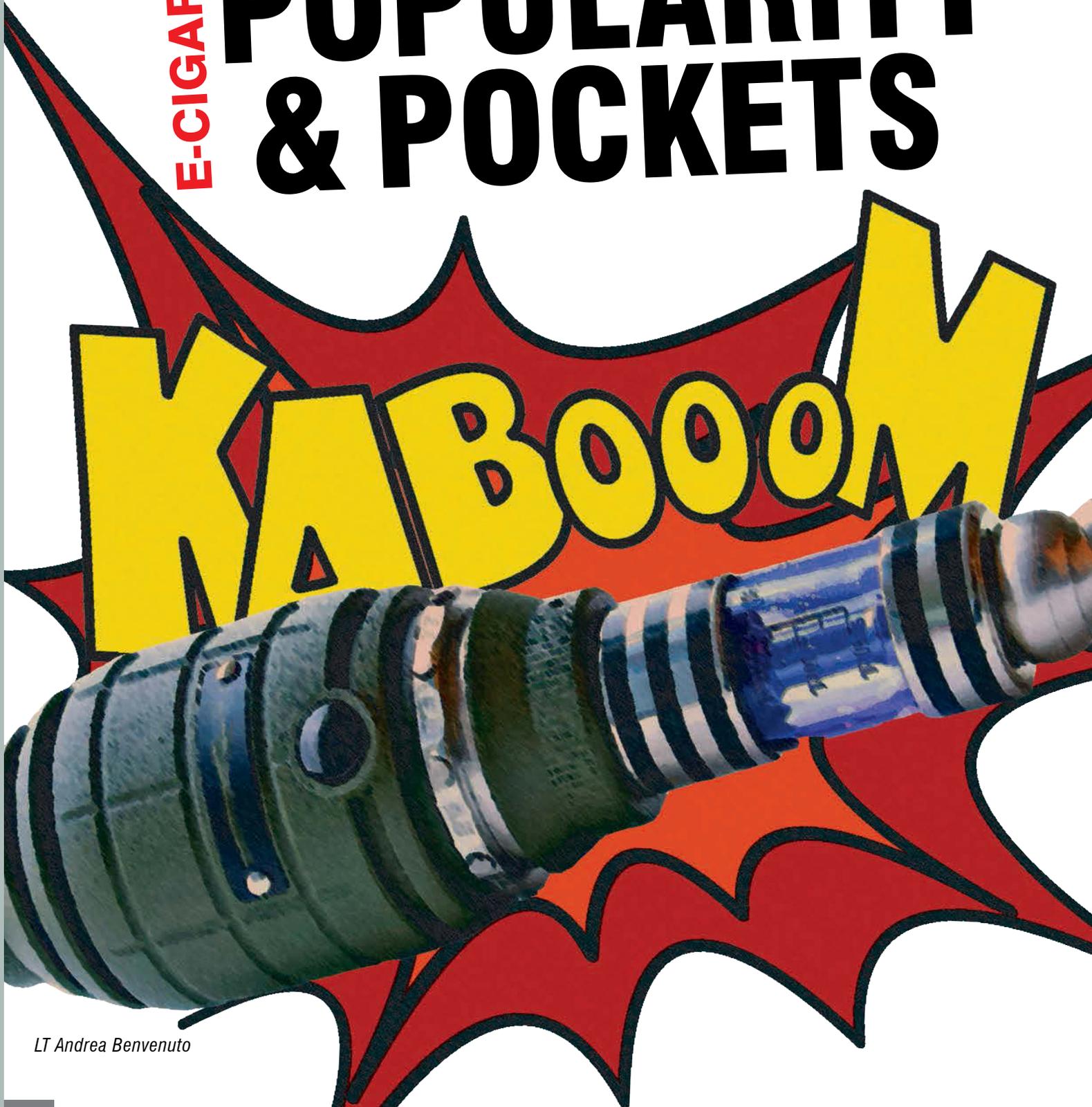
Upon entering translational lift on our approach, the added vibrations resulted in multiple small flashes seen only by the CC. This increased the crew resource management (CRM) required for the landing, as the HAC directed the CC to provide deck calls to back up the co-pilot executing the landing from the left seat. Once on deck, there were no further instances of any flashes or sparks. After shutdown, maintenance discovered that the sparks were due to a harness in the cabin that was not properly secured.

There were several lessons learned from this experience, but most important was the decision to not declare an emergency and land at another spot while Spot 7 was unavailable.

Instead of immediately landing and shutting down, we stayed airborne for approximately 15-20 minutes after the first spark. We had discussed the situation as a crew and decided to stay airborne for an extended period of time because of the reluctance to disrupt Air Wing CQs. After a thorough debrief, the crew concluded that we should have landed sooner by declaring an emergency and landing on Spot 9. Next time, we might not be that lucky when we get that second spark. (S)

After a thorough debrief, the crew concluded that we should have landed sooner by declaring an emergency and landing on Spot 9.

E-CIGARETTES **EXPLODING** IN
POPULARITY
& POCKETS



LT Andrea Benvenuto

“MEDICAL EMERGENCY, MEDICAL EMERGENCY, MEDICAL EMERGENCY IN COMPARTMENT 02-170-1.”

Quick and deliberate actions by witnesses in nearby spaces limited the extent of his injuries until help arrived. What could cause a fire in the pocket of a Sailor’s Navy Working Uniform and result in third-degree burns covering 8.0 percent of his body? The culprit was a set of house keys and a lithium battery belonging to an electronic cigarette.



USS O’Kane (DDG 77) recently completed damage control and medical training events and the crew was ready to respond to a casualty at a moment’s notice. While the Sailor was walking through a passageway, his e-cigarette lithium battery exploded in his hip pocket causing the fabric of his Navy Working Uniform to ignite and subsequently char to his leg. Like a rocket, the white-hot e-cigarette battery traveled down and around his leg, eventually burning through his bloused NWU pants and falling to the PRC deck. The battery was so hot that it even melted a portion of the deck. First responders assisted the Sailor in removing his pants and used his water bottle to cool the still burning battery preventing any further damage. The Sailor was taken to the emergency room, via ambulance, where he was treated for shock and the extensive burns to his leg. He was placed on convalescent leave for over a month and will require extensive skin grafting treatments to recover from the injuries.

With their popularity increasing, Electronic Nicotine Delivery Systems (ENDS), which include e-cigarettes and vaping devices, provide what is thought to be a healthier alternative to regular cigarettes. According to medical professionals, the safety and health effects of these e-cigarettes is still not known. Aside from the lack of cancer-causing tar from tobacco-laden cigarettes, e-cigarettes — because of the need for battery power — pose additional dangers, especially in an industrial environment such as a warship. Many recent incidents, to include the mishap that occurred on USS O’Kane, are attributable to lithium-ion battery failures.

According to the Naval Sea Systems Command (NAVSEA) fleet advisory regarding the usage of ENDS, pen-shaped e-cigarette batteries are often different from batteries in other consumer devices because of their cylindrical design. The result of this cylindrical design is a general weakened structural point at each end of the cylinder. The advisory notes, “When the battery seal (at the end of the battery) disrupts, the pressure within an ENDS cylinder can quickly build and rupture, typically at the end. As a result of battery and/or container failure, one or both can be propelled across the room like a bullet or small rocket.” The components of such lithium ion batteries are highly flammable and combustible contributing to their explosive nature.

After the mishap on USS O’Kane, the command issued a warning to all users and established rules regarding the use of e-cigarettes onboard USS O’Kane. These rules include: storing your device separately from the battery and keeping the battery free from metal objects, only using e-cigarettes on the smoke deck, and keeping e-cigarettes out of all engineering or work spaces.

The Naval Safety Center and Fleet Forces Command have dispersed guidance and warnings for these highly flammable and combustible devices and their associated batteries.

Summary of warnings:

- *Protect loose batteries from damage and short circuit by ensuring terminals do not come into contact with metal objects.*
- *Use only batteries authorized by the e-cigarette manufacturer.*
- *Use only charging cords authorized for charging your specific e-cigarette battery.*
- *Do not use damaged batteries.*
- *Do not expose batteries to extreme temperatures or direct sunlight.*
- *Do not leave charging batteries unattended.*
- *Research the reviews of leading consumer advocacy testing groups before purchasing a particular e-cigarette device.*

...e-cigarettes, because of the need for battery power, pose additional dangers, especially in an industrial environment such as a warship.

E-cigarette usage among Sailors is on the rise, and their popularity has not been deterred by these few isolated incidents such as the explosion that occurred on USS O’Kane. It is up

to everyone, including e-cigarette users and their chains of command, to ensure that these devices are used as safely as possible. (SC)

References:

Naval Sea Systems Command Message “Fleet Advisory Regarding the Use of Electronic Nicotine Delivery Systems (ENDS) (i.e. E-cigarettes, Vaporizers, Vape Pens, Vape Twists, etc.) and Similar Equipment Containing Lithium-Ion Batteries Onboard Submarines, Ships, Vessels, and Aircraft” (dtg 211432Z SEP 16)

Naval Surface Forces Pacific Message “Hazard Report” (dtg 141802ZMAR16)

Quick Facts: e-cigarettes

- More than 2.5 million Americans are using electronic cigarettes (e-cigs or e-cigarettes), and this number is growing rapidly.
- Twenty-five separate incidents of explosion and fire involving an e-cigarette were reported in the United States media between 2009 and August 2014.
- Nine injuries and no deaths were associated with these 25 incidents. Two of the injuries were serious burns.
- Most of the incidents occurred while the battery was charging.
- The shape and construction of e-cigarettes can make them more likely than other products with lithium-ion batteries to behave like “flaming rockets” when a battery fails.
- Lithium-ion batteries must be charged in accordance with the manufacturer’s instructions.
- Using power sources not approved by the manufacturer to recharge a lithium-ion battery can result in an explosion and fire.

U.S. Fire Administration



Image source: U.S. Food and Drug Administration

cue eerie music

fade in on face of Petty Officer Joe Ordinary

voice-over begins

ALLOW

me to introduce Petty Officer Joe Ordinary. He's a typical young Sailor aboard a typical ship in a typical shipyard. But Petty Officer Ordinary is about to experience an event far outside the typical life he's been living to date. Today, Petty Officer Ordinary is about to enter...

The TOILET ZONE



John Mapp

zoom out to show our subject aboard ship

“Hmm. Hmm hmm hmm hmm,” Petty Office Ordinary hummed to himself as he walked along the main deck passageway. “This shipyard period is pretty typical. We eat, sleep, and relax on the berthing barge across the pier. The biggest downside to this otherwise typical routine is the fact that the heads are secured. We have to use the smelly port-a-potties out on the flight deck.

He pauses for a moment to rub his suddenly unsettled stomach. “Now, isn’t that just typical,” he said rhetorically. “I talk about the heads being secured, and start having indigestion. Must have been the burritos I had for breakfast.”

Our subject picks up his pace and heads out to the flight deck. The deck is typically chaotic, since the ship is in a shipyard. Contractor’s work boxes are all over the place. Hoses and pallets of materials are scattered about in a typically random fashion. About halfway across the flight deck is Pett Officer Ordinary s goal: a trio of portable toilets off to one side, sitting in the fixture used to put them i place.

With practiced ease (the ship has been in the shipyard for several months), Petty Office Ordinary wends his way quickly to the portable toilets, only to find that the cross-bar used t prevent the big blue boxes from tipping out of the carry sling has fallen partway down across the doors. Snorting internally at the typically sloppy condition of the carry rig, our subject lowers the bar to the deck so he can enter the portable toilet. This is quickly accomplished, and he settles himself into what certainly seems like a typically uneventful mid-day experience.

enter two shipyard riggers

“Okay. What’s next?” asked Rigger #1.

Rigger #2 consults his clipboard. “We’ll be moving that load there in a few minutes,” he said, pointing across the Flight Deck. “Has it been checked out?”

Rigger #1 nodded vigorously. “Oh, yeah. I did that a little while ago. Should be ready to lift,” said the Rigger #1 as he stopped and cursed a bit. “That bloody cross-bar has come down again.”

“Well, you better get it back in place PDQ,” said Rigger #2. “The boom is already moving into position.”

Rigger #1 and Rigger #2 quickly secure the crossbar in place, incidentally blocking the doors of all three porta-potties. Rigger #1 then deftly attaches the hook to the carry fixture. “ e’re hooked,” he called out to Rigger #2. “Hoist away.”

Modesty and a PG-rating prevent us from looking inside the portable toilet, where Petty Office Ordinary is still sitting. Perhaps he was sleeping, doing a crossword or (more likely) dinkle-dorking around with his smartphone while taking care of business. In any case, between his distraction and the fact that he was wearing his hearing protection, our subject somehow completely failed to notice all the clamor and activity around the porta-privies; until it was too late.

“Isn’t that typical,” he mused for a moment. “Now that my stomach is feeling better, my inner ear is acting up. I could swear this toilet is moving.”

Typically, no one seems to have heard Petty Officer Ordinary s screams as the toilets were picked up and deposited on the pier. The Riggers certainly didn’t hear anything, but the gate guards 50-meters away finally did

Gate Guard #1 said, “Hey, guys? I think there’s somebody in there.” He pointed at the toilets.

“No way!” declaimed Pier Rigger #1. “These things are checked before we lift ‘em. We have a procedure.”

“Then why is there screaming and yelling coming from inside the port-a-potties?” asked gate Guard #2.

Pier Rigger #1 and Pier Rigger #2 look at each other in dawning astonishment. “Oh, bloody Hell!”

begin voice-over

Petty Officer O dinary is duly rescued from his tiny blue plastic prison, only slightly wild-eyed. His typical day and worldview have been upturned during the brief crane ride. Decorum prevents us from commenting on the fortunate fact that our

subject had been located in the one place where the typical response to such a fearsome experience would have been appropriate.

As with all such episodes, whether or not anyone gets physically injured, this debacle had many contributing causes. Petty Officer O dinary failed to pay attention to detail, and never considered that the reason the cross-bar was partly lowered was due to an incipient lift. Our subject certainly should not have been so distracted that he failed to notice the noise and activity of the Riggers as they prepared for the lift. The Riggers failed to follow their own standard operating procedures by not checking all the toilets for occupants or other hazards before locking everything down and attaching the crane hook.

Shipboard life is already inherently dangerous. Adding in a major overhaul at a shipyard, and the Risk-o-Matic™ alarms should be going off almost constantly — which may be part of the problem. Sailors and civilians in a shipyard environment

become accustomed to the dangers around them. They become desensitized to the risks they face every day, because those risks have become familiar. Complacency is one of the best breeding grounds for injuries.

Overall, Petty Officer Joe O dinary was fortunate that his atypical experience didn't end badly. He'll have to put up with lots of jokes and snide comments from his entire command, and will probably receive many ingenious nicknames as a result of his experience, but he is lucky to have not suffered far worse.

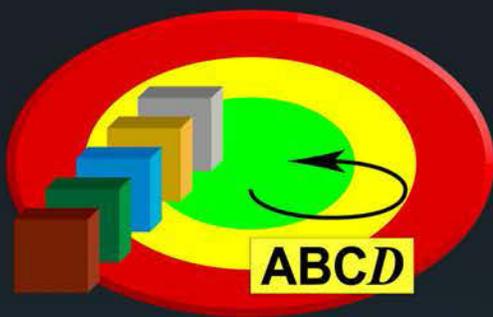
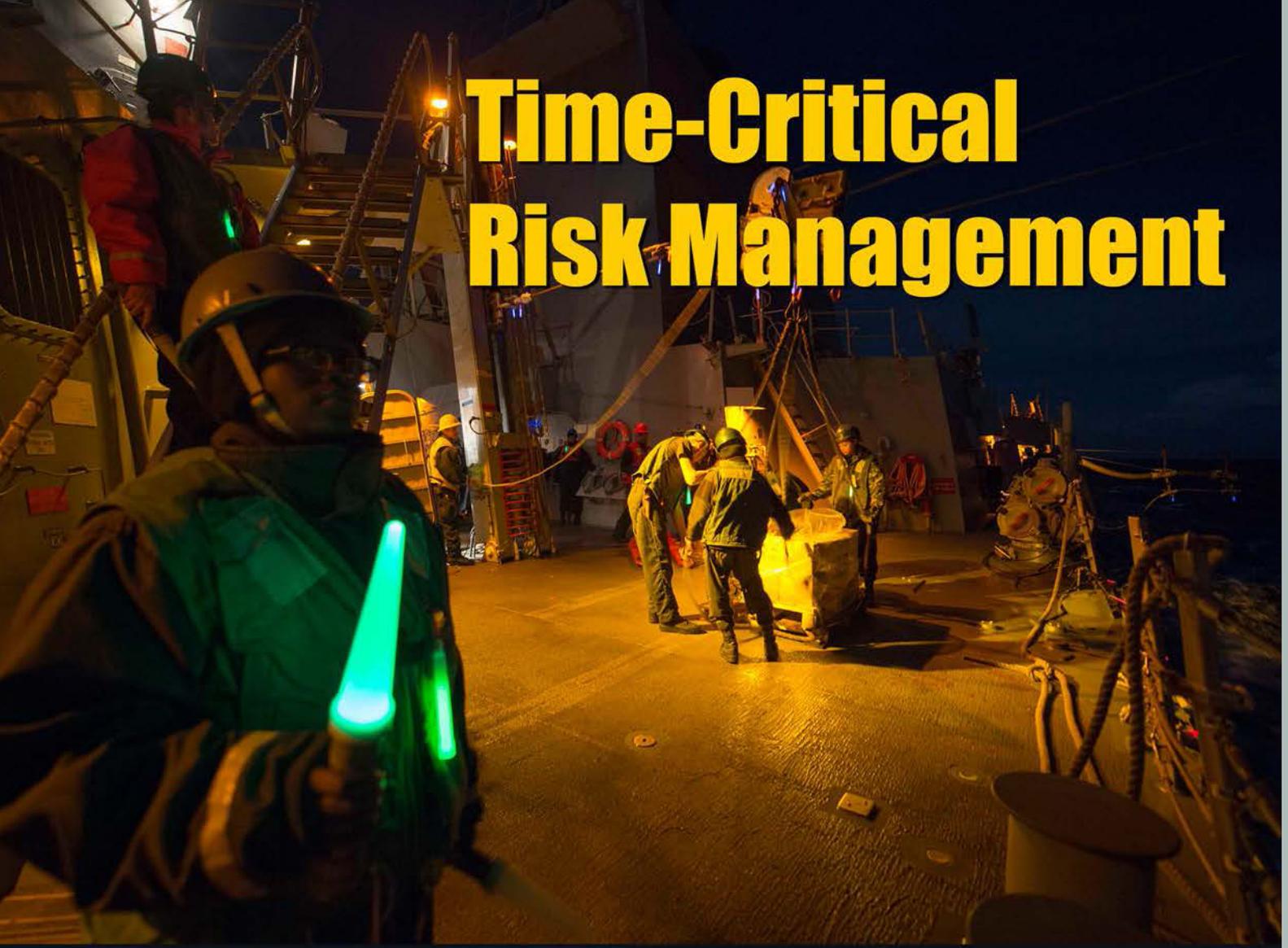
Safety professionals don't like luck. Luck typically comes in three flavors: Blind, Dumb, and Bad. Relying on luck ignores an individual's personal responsibility to look out for themselves and their shipmates. Petty Officer O dinary got a bit of all three in this episode of... The Toilet Zone.

cue eerie music

fade to black 

Complacency is one of the best breeding grounds for injuries.

Time-Critical Risk Management



- A** - Assess the situation.
- B** - Balance resources.
- C** - Communicate to others.
- D** - *Do* and *Debrief* the event.

Because conditions can change with little or no warning, being ready allows you to manage that change and minimize risks associated with it.

The **ABCD** Model provides a common language and structure for a measured response when an individual, team or crew is executing a routine task or when they are under duress from a more complex situation resulting from additive conditions, crew factors, or task loading. Training to the **ABCD** Model will embed a set of patterns that will help personnel recognize and recall a set of actions to counter risk even when distracted. This simple and easy-to-remember mnemonic provides individuals with a means to evaluate risks and formulate mitigation strategies on-the-run and can easily be applied in both on- and off-duty situations.

2011 fair winds and following seas 2017



“THE END” IS ONLY THE BEGINNING



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