Fresh Air Only a Resp

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Most people know better than to drive their car without an air filter. So, why would they work around toxic-airborne hazards without wearing a respirator? I don't have the answer, but I do know it happens, as shown by the following excerpts from mishap reports received at the Naval Safety Center.

A Sailor assigned to paint a cofferdam below an AFFF-storage tank was using enamel, semi-gloss paint. The compartment was a confined space without any supply or exhaust ventilation, and the Sailor wasn't wearing respiratory protection. After he had been working for two hours, shipmates found him semiconscious. One minute later, he lost consciousness, began convulsing, and stopped breathing. A medical team revived and stabilized him, then took him to a hospital, where doctors said he was suffering from acute hydrocarbon intoxication because of his exposure to the paint.

Another Sailor was removing paint with paint thinner when he became dizzy and nauseated from breathing the vapors. He wasn't wearing any PPE, even though it was available. Doctors treated him for acute chemical inhalation and assigned him to 24 hours SIQ.

A supervising BM3 and four non-rated Sailors were tasked with painting a boatswain's storeroom after normal working hours. The four non-rated personnel had been trained and fit-tested for respiratory equipment; the BM3 hadn't. Ventilation for the space consisted of only a vent trunk in the passageway outside the storeroom.

All five Sailors worked in the storeroom, but only the four non-rated personnel wore respirators. These devices had been issued the previous day with HEPA dust cartridges, but they weren't returned to the central-issue point as required. Therefore, the respirators had not been cleaned and re-certified safe for use.

Originally, the five Sailors were supposed to use paint rollers for most of the job even though there was to be some minor spray-painting. Overhead cableways hindered use of the rollers, so

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Illustration by DM1(AW) Eulogio Devera, USS *Nimitz*

the Sailors decided to spray-paint the entire space. They now no longer had only the wrong filter cartridges, they also should have switched to airline respirators but didn't.

After painting for an undetermined period, the BM3 left the space for a departmental duty muster. The duty officer noticed he was glassy-eyed and asked what kind of work he was doing. The duty officer then stopped the painting and ordered all five Sailors to medical, where doctors diagnosed them with toxic exposure. They were treated and released with no duty for 24 hours.

Finally, an E-1 was painting in a poorly ventilated storeroom without wearing respiratory protection. After completing the paint-job, she began hyperventilating, began to feel lightheaded, and she developed nasal irritation (symptoms of over-exposure to paint vapors). The young Sailor's supervisor sent her to medical, where she was treated and placed SIQ for 24 hours.

Knowing when a respirator is required and why it's needed is a critical first step in wearing the device. An effective respiratory-protection program provides this first step and makes proper protection available to Sailors.

The best respiratory-protection programs are often the simplest ones. A designated respiratory-protection manager, or RPM, will find that, although a respiratory program creates initial administrative requirements, its day-to-day management is easy if the program is given proper attention. Before taking over a ship's respiratory protection program, the RPM must attend training and be appointed by the CO. Once this is done, the necessary components of a respiratory-protection program can be assembled.

The next step is to determine the command's respiratory-protection needs. An industrial-hygiene officer usually helps with this task. Respiratory requirements are detailed in the ship's baseline industrial-hygiene survey report. This report includes situations which require respirator-use aboard your ship, and it outlines what workcenters

require respiratory protection, for what operation, and the specific types needed.

After the industrial-hygiene evaluation is completed, copies of the report can be sent to the appropriate workcenter supervisors. They then create a list of all workcenter members who will perform tasks most likely requiring respiratory protection; these people then become the initial enrollees in the respiratory-protection program.

The medical department then can screen listed Sailors. Everyone in the program must be screened to make sure they are physically capable of wearing a respirator. Those who pass screening will receive respirator fit-testing and training. Fit-testing and training are required annually, while medical screenings are age-dependent and may be required only once every five years.

A database with names of enrolled workers then can be generated; it will contain workers' medical screening, fit-testing and training dates, and the model and size of the respirator for which they were fitted. This roster should be sent monthly to supervisors so they can manage their people and thereby keep the enrollment list current.

Meanwhile, the respiratory-protection manager will know from the baseline industrial-hygiene survey exactly the types of respirators and filters required at the command, and the RPM then will be sure they are stocked. The RPM also must make sure all respirators are NIOSH- and MSHA-certified. At least two different brands of respirators must be available, thus ensuring all crew members requesting a respirator can be properly fitted.

The program manager will establish a central-issue-and-storage space, with regular issue-and-return hours. Some managers have found a drop box works well for returned respirators. Maintaining an effective respiratory-inventory control means a respirator must not be left hanging by its straps or laying in a toolbox. That condition threatens the respirator's ability to protect people and reflects poorly on the program. For inventory control, it helps to number each respirator. By doing so, supervisors can determine how many respirators were not turned in and who signed them out.

Respirators should be stowed and issued in zip-lock bags, and users should document the number of hours they used the respirator. This helps to determine when filters must be replaced.

When cleaning respirators, disassemble and hand-wash the facepiece and its parts in warm water, using a mild dishwashing detergent. Do not use strong cleaning agents and solvents that can damage rubber and other parts. Sanitize the facepiece by using warm water (110 degrees F), hypochlorite or iodine solution, or a SHML-approved disinfectant. Finish cleaning by rinsing in warm water. Reassemble the respirator and replace any missing or worn parts, such as the inhalation or exhalation valves and head straps. Do not issue respirators with damaged or missing parts, and dispose of respirators which cannot be repaired. Return atmosphere-supplying respirators to the manufacturer for all repairs and adjustments on reducing valves, regulators or alarms.

When issuing a respirator, supervisors must check the enrollment roster and make sure the requesting Sailor is qualified to use it. Anyone not qualified simply doesn't get a respirator. You also must be sure the safety officer has evaluated work for which Sailors request respirators. The safety officer also can evaluate new work which might require respiratory protection, identify training needs, or clarify other occupational-health hazards.

After completing these initial steps, the RPM must then maintain the currency of the respirator-users' list and fit-testing and training is updated annually. Train your supervisors and safety petty officers to make sure people use respirators correctly when required.

If questions or problems arise, work with your safety office, consult the *NavOSH Program Manual for Forces Afloat*[1], or contact the local industrial-hygiene officer. Once you have done these basic steps, you'll have an effective program, and everyone will be breathing fresh air.

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For More Info...

[1] Refer to Chapter B6 of OpNavInst 5100.19D for guidance about the respiratory-protection program.