DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
1333 ISAAC HULL AVE SE
WASHINGTON NAVY YARD DC 20376-0001

9555 IN REPLY TO
Ser: 05P6/39
01 April 2003

From: Commander, Naval Sea Systems Command

Subj: ADVANCE CHANGE NOTICE (ACN) 1/A TO NSTM 074V3R3, ACN 1/A TO NSTM 077R4, AND ACN 2/A TO NSTM 555V1R9 - CHANGES TO EMERGENCY ESCAPE BREATHING DEVICE AND MACHINERY SPACE FIRE EVACUATION DOCTRINE

Ref: (a) Naval Ships' Technical Manual, NAVSEA S9086-CH-STM-030, Chapter 074, Volume 3 "GAS FREE ENGINEERING", Revision 3 Dated 23 April 1998
(b) Naval Ships' Technical Manual, NAVSEA S9086-CL-STM-010, Chapter 077, "PERSONNEL PROTECTION EQUIPMENT", Revision 4 Dated 30 May 2002
(c) Naval Ships' Technical Manual, NAVSEA S9086-S3-STM-010, Chapter 555, Volume 1 "SURFACE SHIP FIREFIGHTING", Revision 9 Dated 1 December 2001

Encl: (1) ACN 1/A to NSTM 074 Volume 3 Revision 3
(2) ACN 1/A to NSTM 077 Revision 4
(3) ACN 2/A to NSTM 555 Volume 1 Revision 9

1. This letter provides Advance Change Notice (ACN) 1/A (NSWC Port Hueneme control number N00024-03-LW01) to reference (a), ACN 1/A (NSWC Port Hueneme control number N00024-03-LW02) to reference (b) and ACN 2/A (NSWC Port Hueneme control number N00024-03-LW03) to reference (c). These ACNs will be incorporated into the next revisions to references (a), (b) and (c).

2. These ACNs change guidance on machinery space fire evacuation doctrine for surface ships. They provide information on new belt-worn Emergency Escape Breathing Devices (EEBDs) and accounts for procedural differences for belt worn versus non-belt-worn EEBDs. They also reflect current Fleet consensus on abandoning in-use firefighting equipment during evacuation.

3. These ACNs do not authorize modification of existing Government contracts, project orders, work requests or allotments. Therefore, requests must be made to cognizant authorities for authorization and funding as may be required to accomplish these ACNs. Cognizant authorities are requested to authorize accomplishment of these ACNs as appropriate.

4. The NAVSEA points of contact are: Mr. Hank Kuzma, NAVSEA 05P6, DSN: 326-3634, commercial (202) 781-3634, email: kuzmahj@navsea.navy.mil for NSTMs 074 Vol. 3 and 077; and Mr. David B. Satterfield, NAVSEA 05P6, DSN: 326-3647, commercial: (202) 781-3647, email: SatterfieldDB@navsea.navy.mil for NSTM 555 Vol. 1.

D. McCrory
by direction

Subj: ADVANCE CHANGE NOTICE (ACN) 1/A TO NSTM 074V3R3, ACN 1/A TO NSTM 077R4, AND ACN 2/A TO NSTM 555V1R9 - CHANGES TO EMERGENCY ESCAPE BREATHING DEVICE AND MACHINERY SPACE FIRE EVACUATION DOCTRINE

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Copy to:
NSWC, Port Hueneme, CA (Code 5B32)

Subj: ADVANCE CHANGE NOTICE (ACN) 1/A TO NSTM 074V3R3, ACN 1/A TO NSTM 077R4, AND ACN 2/A TO NSTM 555V1R9 - CHANGES TO EMERGENCY ESCAPE BREATHING DEVICE AND MACHINERY SPACE FIRE EVACUATION DOCTRINE

Blind copy to:
SEA 04M1
04R
05P
05P6 (file)
05P6 (H.Kuzma, D.Satterfield)

NOTE

Space permitting, each person inside the IDLH space shall have one attendant at the space access to tend that person's air hose and lines. At a minimum, two attendants shall be located at the space access.

NOTE

The safety line shall be ½-inch diameter (or larger) nylon line (length determined by size of space) and attached to the harness with a snap hook.

(e) Erect and man hoisting equipment in case personnel must be retrieved vertically from the space.

6. Rescuers – Rescue personnel shall be stationed near the access to the IDLH space wearing (in standby) the respiratory protection specified for IDLH spaces. Rescue personnel shall be ready to enter the IDLH atmosphere as directed by the GFE/GFEA in the event that the atmospheric testing personnel within the space require assistance. The first rescuers comprise the initial response team, which includes the investigator and one rescue. The number of required rescuers shall be determined by the GFE/GFEA. If rescue personnel are required to enter the IDLH space at least one additional rescuer shall be stationed near the access to the IDLH space wearing (in standby) the respiratory protection specified for IDLH spaces.
7. DC central phone talker – a support person stationed in DC central who maintains communication with the attendant phone talker. Additionally, the phone talker passes status to the quarterdeck or bridge to expedite call-away of rescue personnel if directed by the GFE/GFEA. Other shipboard radio communications may be used if so equipped.
8. MDR – advises the GFE/GFEA regarding aid to the victim and continues aid once the victim is removed from the space.
9. Electrician – provides assistance as directed by the GFE/GFEA.

d. The GFEP shall assemble and check the equipment required for atmospheric testing of the space. The equipment to be used will include:
   1. Respiratory equipment worn by all personnel who enter the IDLH atmosphere. If SAR/SCBAs are used, two breathing air supply manifold enclosures, spare air bottles, and five carry pouch back-up supplies with face piece and hose sections for each shall be available at the scene. One manifold enclosure shall be used for the entry and one shall be utilized as a back-up unit for potential use during rescue.
   2. Safety harnesses with attached safety lines and intrinsically safe communication devices.
   3. Intrinsically safe inspection and support equipment, such as combustible gas indicator, oxygen monitor and portable explosion-proof lighting.

~~WARNING~~

~~Use of emergency escape breathing device(s) (EEBDs) in the rescue operation must be authorized by the GFE/GFEA. EEBDs shall not be used in atmopsheres which are potentially explosive or if the victim must be transported on a stretcher (EEBDs interfere with stretcher head support).~~

   4. Rescue equipment, such as ~~EEBDs~~, hoisting equipment and stretcher. Prior to entry, erect and man hoisting equipment for retrieving personnel vertically from the space.

e. Personnel who enter IDLH spaces shall be equipped with:

e. Master at Arms – assists the GFE/GFEA in management of personnel and crowd control in the vicinity of the confined space.

f. MDR – advises the GFE/GFEA regarding medical aid in the event there is a victim(s) in the space and continues aid once the victim(s) is removed from the space. The MDR shall also monitor the victim's use of ~~EEBDs or~~ other emergency breathing equipment and advise the GFE/GFEA when replacement is required.

g. Electrician – provides assistance as directed by the GFE/GFEA.

h. DC central phone talker – maintains communications with the scene and the bridge or quarterdeck. Additionally, this person directs personnel or equipment to the scene as requested by the GFE/GFEA.

i. OOD – maintains communications with DC central on the current status of the operation and provides additional assistance as directed by the GFE/GFEA.

74-25.3 EQUIPMENT

The following equipment shall be used to support personnel rescue from the confined space:

WARNING

Equipment carried into space must be tethered to personnel to prevent loss of or damage to the equipment.

a. Respiratory equipment worn by all personnel who enter the confined space. If SARs/SCBAs are used, two primary air supply packs (PASPs), spare air bottles, and a total of five backup SCBAs with full facepieces and hose sections for each facepiece shall be available at the scene.

~~WARNING~~

~~Use of EEBDs in a rescue operation must be authorized by the GFE/GFEA. EEBDs shall not be used in atmopsheres which are potentially explosive or if the victim is to be transported on a stretcher (EEBDs interfere with stretcher head support).~~

~~b. EEBDs to don as necessary.~~

c b. Safety harnesses with attached safety lines.

NOTE

Because of time required to don safety harness, it should be among first equipment to arrive at the scene.

NOTE

The safety line shall be ½ inch diameter (or larger) nylon line (length determined by size of space) and attached to the harness with a snap hook.

cue team (an investigator and one rescuer) is on standby near the space access. When these rescue personnel must enter the confined space, there must be at least one additional rescuer on standby near the access to the confines space.

Rescue personnel shall maintain the respiratory protection equipment on standby and not enter the space until directed by the GFE/GFEA. Refer to paragraph 074-25.5 for rescue procedures.

74-25.4 RESCUE PROCEDURES

The procedures for entering the space to rescue victim(s) follow:

NOTE

Rescue personnel shall enter the confined space only when directed by the GFE/ GFEA.

a. The primary rescue team shall don safety harnesses and safety lines with the assistance of the attendant(s).

b. The primary rescue team shall don the respiratory equipment in standby mode with the assistant of attendants(s).

c. The primary rescue team shall check operation of all communications equipment.

d. The GFE/GFEA shall assess the situation and determine if a potentially explosive atmosphere may be present Inside the confined space. ~~The GFE/GFEA shall prohibit the use of EEBDs for supplying breathable air to the Victim(s) if an explosive atmosphere is suspected~~.

WARNING

To ensure the safety of rescue personnel, a rescue team shall always consist Of at least two rescuers inside the space.

WARNING

If any problems arise with the respiratory equipment, rescue personnel being supplied breathing air shall exit the space immediately. If equipped with an SAR/SCBA, activate the backup air supply, disconnect the supply air hose and exit the space immediately. Rescue personnel may re-enter the space after the problem has been resolved, breathing air is restored and the backup air supply is fully charged.

e. When directed by the GFE/GFEA, the primary rescue team shall activate their air supply and enter the space, equipped with explosion-proof lighting and communications ~~equipment and an EEBD (if authorized by the GFE/ GFEA)~~ for each victim. Before entering the space, each person shall ensure that air is being supplied to the facepiece.

f. When inside the space, the investigator shall locate the victim(s), assess the situation and identify any poten-

tial hazards to the rescue operation. During the rescue operation, the investigator shall update the GFE/GFEA regarding the status of the rescue and request any required assistance.

g. Secondary rescuers, equipped with respiratory equipment, harnesses and safety lines shall enter the space when directed by the GFE/GFEA. If these rescue personnel must enter the confined space, there must be at least one additional rescuer stationed near the access to the confined space wearing (in standby) the respiratory protection specified for spaces.

h. The GFE/GFEA shall direct, as appropriate:
   1. The electrician to check, deenergize or energize ship's circuits to assist with rescue.
   2. Attendant personnel to erect and man hoisting equipment at the access in order to remove victim(s) from the space.

i. The GFE/GFEA shall request DC Central to provide additional equipment and personnel as required to assist with the rescue.

j. The GFE/GFEA shall report the status of rescue efforts to DC Central. DC Central shall relay these reports to the bridge or the quarterdeck, as appropriate.

74-25.5 ATTENDING TO VICTIMS

The procedure for rescue of personnel from the space shall be as follows:

a. The primary rescue team shall locate the victim(s), and determine if the victim(s) is alert.

~~b. In the event the victim(s) is not equipped with respiratory equipment or if the victim's respiratory equipment is suspected to be faulty, the rescuer(s) may put an EEBD on the victim(s) if the time to place the EEBD on the victim(s) and activate the device is less than the time required to remove the victim(s) from the space.~~

e b. Once it is established that the victim is being provided an adequate supply of air for breathing, the investigator may check the victim for broken bones and lacerations. The purpose of this check is to determine whether first aid must be administered while the victim is in the space.

~~d~~ c. If it cannot be established that the victim is being provided an adequate supply of air for breathing, ~~and use of an EEBD is prohibited in the space~~, the priority of the investigator and rescuer(s) shall be to provide another source of breathing air for the victim. ~~Without the use of the EEBD~~, Three options are available:

   1. Removing the victim(s) from the confined space.

WARNING

If an SAR/SCBA is used on the victim, the backup SCBA carry pouch shall not be placed on the victim. If the victim is dragged or carried, the carry pouch shall be carried by one of the rescuers. If the victim is transported on a stretcher, the carry pouch shall be secured to the stretcher at knee level after the victim has been secured to the stretcher.

NOTE

If it is requested that an SAR/SCBA air supply be provided for the victim(s), an attendant shall activate the air supply to the facepiece and check that adequate breathing air can be provided to the facepiece before it is brought into the space.

Warning – precedes
QDR process To:
Commanding Officer
NAVICP-M Code 05614
QDR Branch 5450 Carlisle Pike
Mechanicsburg, PA 17055

077-3.4.1 GENERAL. The Emergency Escape Breathing Device (EEBD) is part of the allowance for all surface ships. The EEBD is a self-contained, emergency breathing device used for escape from compartments contaminated by smoke, fluorocarbon refrigerants, or other atmospheric toxic gases. There are currently two manufacturers producing EEBDs for the U.S. Navy: Ocenco, Inc and Scott Aviation. Each manufacturer's device will be discussed in the following paragraphs. The EEBDs are illustrated, in Figure 077-3-11. Additional details on the Ocenco M-20.2 unit can be found on MIP 6641/004-28 and for the Scott Aviation unit P/N 802300 in the technical manual, NAVSEA SS600-AF-MMO-010.

NOTE

EEBD's are not provided for submarine personnel because sufficient quantities of Air-line masks are available for all personnel and, in an emergency, it is quicker To move from compartment to compartment without taking the time to don an EEBD.

077-3.4.2 QUANTITY AND LOCATION. The total shipboard quantity for EEBDs were determined by the Damage Control Type Commander Representatives for each ship class and are found on the AELs below:

Ship Class	AEL #
LHA-1	2-330024201
LHD-1	2-330024202
LPD-4	2-330024203
LST	2-330024204
LSD	2-330024205
MCS-12	2-330024206
MCM	2-330024207
MHC	2-330024208
AGF	2-330024221
ARS-50	2-330024222
CG-47	2-330024223
DD-963	2-330024224
DDG-51 thru 78	2-330024225
DDG-79 and follow	2-330024226
FFG-7	2-330024227
LCC-19	2-330024228
CV	2-330024230
CVN	2-330024231
AOE	2-330024241
AS	2-330024242

EEBDs shall be provided in the following locations in priority sequence:

77-3.4.3 OCENCO (M-20.2) EEBD UNIT. The Ocenco EEBD is a phased replacement to the Scott Aviation EEBD P/N 802300-14. The Ocenco EEBD meets the new stringent U.S. Navy specification, which includes Grade A Shock and Vibration. Naval message 092016Z NOV02, EEBD and SEED Guidance states that for ships with Ocenco EEBDs in engineering spaces, personnel shall use the Ocenco EEBD as a belt-worn emergency escape device on watch or working in main propulsion or auxiliary machinery for a maximum of five consecutive years before returning to bulkhead storage and shall be clearly marked with initial date of belt-worn service. SEEDs are not required and are not to be used if Ocenco EEBDs are installed/used in engineering spaces on surface ships.

77-3.4.3.1 DESCRIPTION. The Ocenco EEBD consists of an orange stowage case, a clear cover and base, a latch, a nose clip, a mouthpiece, a carbon dioxide scrubber, a breathing bag, a relief valve, an oxygen cylinder, a regulator assebmly with gauge and an optional Teflon hood (face shield) to protect face and eyes from smoke and fire. The Ocenco EEBD will operate for 10 minutes after it is activated, which satisfies the time requirement to egress from engineering or berthing spaces. The Ocenco EEBD can be belt-worn continuous for 5 years in engineering spaces or confined spaces before returning to bulkhead mounted brackets for the remainder of its shelf life.

77-3-4.3.2 DONNING AND PLACING INTO OPERATION. The donning of the Ocenco EEBD is quick and simple. Ocenco EEBD can be bulkhead mounted (orange case) or belt-worn for quick and easy access. To don and activate the Ocenco EEBD, use the following procedure:

1. To begin, remove the Ocenco EEBD from the orange stowage case.

WARNING

The Ocenco EEBD cannot be turned off once it has been activated.

2. Lift yellow lever on the latch. Discard the latch and clear cover case, make sure that the unit is completely Separated from the clear base, which will automatically start oxygen flow into the breathing bag.

3. Remove unit by pulling on yellow neck strap upward, or mouthpiece upward and place neck strap over head. Oxygen flow will begin automatically when the unit is removed from its clear base. You should not expect to Hear the flow of oxygen or to see the breathing bag inflate.

4. Immediately insert yellow mouthpiece into mouth (mandatory).

5. Fit yellow nose clip (mandated by NISOH). When donned properly the nose clip will feel tight.

6. Inhale through mouth and immediately escape.

7. There are two additional features of the Ocenco EEBD, an adjustable neck strap and a face shield that may be used during escape. If necessary, adjust the neck strap by pulling upward on the o-ring, this may be helpful when crawling is required to escape. To fit the face shield, simply pull it over head and pull outward on the o-rings to tighten the face shield around neck, this may be helpful to protect eyes from smoke irritation and avoid contact with direct flame.

WARNING

Don an EEBD before climbing up ladders. Do not attempt to use an EEBD for firefighting.

77-3.4.4 SCOTT AVIATION (P/N802300-14) EEBD

77-3.4.4.1 DESCRIPTION. The Scott Aviation EEBD consists of a hood and life support pack. The hood is Made of a flame-resistant material. The hood also has a flame-resistant, clear window for viewing. The life sup-

port pack consists of an generator and a scrubber element for removing CO_2 and water vapor. The system maintains a positive pressure inside the hood to prevent smoke and toxic gases from entering. The Scott Aviation EEBD will operate for 15 minutes after it is activated. Naval message 092016Z NOV02, EEBD and SEED Guidance states that for ships with Scott EEBDs in engineering spaces, personnel are to continue to use SEEDs when on watch or working in engineering spaces until Scott EEBDs are replaced with Ocenco units.

77-3.4.4.2 DONNING AND PLACING INTO OPERATION. The donning of the Scott Aviation EEBD is quick and simple. This makes it suitable for situations where there is little time to seek safety from contaminated atmospheres. To don the Scott Aviation EEBD, use the following procedure:

1. Remove the Scott Aviation EEBD from its orange, plastic stowage case and grasp the vacuum-sealed bag in one hand. Pull tear strip off to fully open bag.

NOTE

The Scott Aviation EEBD cannot be turned off once it has been activated.

2. Remove the Scott Aviation EEBD from the bag. To start the Scott Aviation EEBD, put a finger in the actuating ring with the red tape marked PULL TO ACTUATE. Pull hard until the actuation pin separates from the unit. A hissing sound will be heard indicating that the EEBD has been activated.

3. Using both thumbs spread the neck seal apart.

4. Lean forward and put the Scott Aviation EEBD up to your face and place chin in the opening of the neck seal. Pull the hood up and over your head.

5. Stand straight up and pull hood down unit the head straps (see Figure 077-3) fit snugly around your head. Be sure the neck seal is in contact with your neck, and there is no clothing or hair between the neck and the neck seal.

NOTE

Personnel with glasses may find it easier to don the Scott Aviation EEBD while standing straight up. Place chin in the hole and stretch the hood up and over the head.

WARNING

If the hissing sound stops before reaching a safe atmosphere, remove the Scott Aviation EEBD in an area away from flames. The wearer will suffocate if the Scott Aviation EEBD is worn after the hissing stops. If an unused EEBD is available, put it into operation and don it immediately.

77-3.4.5 EMERGENCY ESCAPE BREATHING DEVICE USE. Immediately don an EEBD when the atmoSphere becomes life threatening or when ordered to evacuate the space by the watch supervisor. Don the EEBD prior to exiting a space via a vertical ladder. This is necessary due to the possibility of encountering smoke while climbing such ladders and the inherent awkwardness associated with this type of egress. Additional guidance for propulsion spaces can be found in NSTM Chapter 555, Volume 1, Surface Ship Firefighting, or Volume 2, Submarine Firefighting, the main space fire doctrine. If a situation warrants exiting a space but an EEBD is not yet require, carry the EEBD and don it at the first encounter with smoke or other toxic atmospheres.

When response or equipment repair teams enter an area or space where there is the possibility of a life threatening situation arising, they shall bring sufficient EEBDs for all team members. The quantities of EEBDs are in addition to the EEBDs stowed in the area or space for assigned personnel. Keep these EEBDs nearby and readily available for use by team members. When the work has been completed, return the unused EEBDs to their normal stowage location.

77-3.4.13 Repacking the Ocenco EEBD Training Unit. To repack the training unit, lay the training unit, mouthpiece up on a table with the bag flat. Fold the breathing bag (comes in black or tan) into thirds lengthwise and roll it up.

77-3.4.14 Scott Aviation EEBD Training Unit. The Scott Aviation EEBD training unit has several replacement parts, so the trainer may be used over and over. These parts include the following:

a. Neck Seal

b. Laynard

c. Stowage Bag

The replacement training unit stowage bags are commercial resealable type and come in boxes of 500. For more realistic training, notch the bag on each end below the sealing mechanism and attach a 9- x 1-inch strip of adhesive-backed non-skid deck covering (folded in half and pressed on each side of the tear strip) above the notches. There is no substitute for realistic training. Take the time to conduct emergency egress using training EEBDs.

77-3.5 SUPPLEMENTARY EMERGENCY EGRESS DEVICE (SEED)

77-3.5.1 GENERAL. The Supplementary Emergency Egress Device (SEED) provides an emergency air supPly for personnel standing watch or working in all main propulsion and auxiliary machinery spaces on surface Ships. This device is not a replacement for the Emergency Escape Breathing Device (EEBD), however, for ships with OCENCO EEBDs in engineering spaces, SEEDs are not required and are not to be used if OCENCO EEBDs are installed/used in those spaces, see Naval message 092016ZNOV02, EEBD and SEED Guidance. For ships with SCOTT AVIATION EEBDs in engineering spaces, continue to use SEEDs. The SEED, which is worn on the belt of the watch stander and can be donned rapidly, augments the SCOTT AVIATION EEBD's fifteen (15) minute supply of oxygen by providing an immediate short duration air supply. The SEED is used in conjunction with escape procedures contained in **NSTM, Chapter 555, Volume 1**.

77-3.5.2 DESCRIPTION. The SEED, which is stowed in a holster and worn on the belt, allows for rapid donning. The SEED weights 1.3 pounds, is 8.75 inches long by 2.25 inches in diameter, and holds 1.7 standard cubic feet of air at 2000 pounds per square inch (psi). It provides one and a half to three minutes of air depending on the user's respiration rate and volume. A pressure indicator on the side of the regulator has a green area that highlights the operating pressure range, 2600 psi to 3000 psi. If the pressure of the device drops below the green highlighted area (below 2600 psi) at 70°F or higher, the SEED must be removed from service and refilled. The device, after bing filled to 3000 psig, is designed to remain above its minimum operating pressure for at least one year. The SEED has a single-stage regulator which is always pressurized and ready for use. The mouthpiece is protected by a removable cover which is attached to the SEED holster with a lanyard. The lanyard pulls the mouthpiece cover from the mouthpiece when the SEED is removed from the holster. Figure 077-3-12 illustrates the SEED without the mouthpiece cover in place. The SEED's were delivered with tamper seals; however, the requirement for a tamper seal has been eliminated.

77-3.5.3 INSPECTION. Inspect and clean SEED's in accordance with Planned Maintenance System (PMS) requirements. In addition, each oncoming watchstander is required to inspect the SEED as follows:

1. Inspect regulator and cylinder for external damage, dents, cracks, and corrosion. Replace unit if damaged.

2. Inspect regulator for signs of dirt or salt contamination. If contamination is evident, remove from service until cleaned.

1. Typically in ships equipped with a collective protection system (CPS), machinery spaces have a lower level of CBR protection than other spaces in the ship. Evacuation and firefighting actions may compromise the CPS boundary between the affected machinery space and the total protection zones in which accesses to the affected machinery space are located. Therefore, as soon as a machinery space fire is reported, personnel in total protection zones in which accesses to the affected machinery space are located should don CBR protective gear appropriate to the CBR threat level and the contamination likely to occur in a machinery space.
2. The anticipated sequence of events when a CBR threat exists and a fire is reported in a machinery space normally would be as follows:
   (a) First, personnel in total protection zones with accesses to the affected machinery space don CBR protective gear.
   (b) Second, fight the fire, set fire and smoke boundaries, isolate the space, etc.
   (c) Third, if necessary, evacuate the machinery space.
   (d) Fourth, evaluate the situation with respect to the CBR threat as well as the fire. Continue with firefighting and re-entry.
   (e) Fifth, if CBR boundaries are considered necessary, re-establish CBR boundaries around the pressure zone affected by the fire. When areas protected from CBR contamination are determined to be clear, personnel in protected areas may return to the mission oriented protective posture (MOPP) level appropriate for protected areas and the CBR threat level.
3. Paragraph 555-7.13 provides guidance on CBR boundaries, ventilation systems and smoke control for ships equipped with a collective protection system (CPS) when a CBR threat exists. Ships without a CPS may be able to apply some of the techniques discussed in paragraph 555-7.13 to mitigate the consequences of a CBR threat.
4. Ships should conduct fire drills simulating various CBR threats and protective postures and simulating firefighting where CBR contamination exists. Where the ship design supports establishing zones that are clear of CBR contamination when a CBR threat exists (such as a CPS), drills should include setting CBR boundaries.

555-10.3.6 OUT-OF-CONTROL CLASS BRAVO FIRE SCENARIO. A class B fire, especially one that has burned for a period of time or is fed by an unsecurable oil source, can be out of control within seconds. When this happens, operating machinery and the plant should be secured and the space evacuated. In addition, the following guidelines are provided for consideration when faced with an out-of- control fire.

555-10.3.6.1 Size of the Fire. If the fire occupies a large area, is fed by an oil source which cannot be secured, or is threatening firefighting and escape, the space should be evacuated. Even a small fire, if not extinguished rapidly, can generate large volumes of smoke and toxic gases that can force a space to be evacuated.

555-10.3.6.2 Evacuation. Once the decision is made by the EOOW or Space Supervisor to evacuate the space, all personnel should cease firefighting efforts, abandon all firefighting equipment (unless required to protect egress), don emergency breathing device and exit using the nearest safe access.

555-10.3.6.2.1 For ships with Ocenco EEBDs, the watchstander should don his belt-worn EEBD to evacuate the space. Supplementary Emergency Egress Devices (SEEDs) are not required on ships using Ocenco EEBD.

555-10.3.6.2.2 For ships with Scott EEBDs, which are not belt worn, the watchstander should don the EEBD to evacuate the space. If at any time, life-threatening conditions inhibit the watchstanders ability to locate and immediately don a Scott EEBD, he should utilize the belt worn SEED. **NSTM 077-3.5** requires machinery space watch standers on ships with Scott EEBDs to carry belt-worn SEEDS. **NSTM 077-3.5** does not require SEEDs in CVN nuclear machinery spaces since the lack of hot surfaces makes an out-of-control class B fire on CVNs very unlikely. The watchstander should use the SEED and proceed to the nearest access. He should obtain a SCOTT EEBD, if not already shouldered. The Scott EEBD should be donned when out of danger of immediate harm from heat or flames, if a breathable atmosphere cannot be reached using SEED. Because the SEED lacks protection for the eyes and nose and has a short operational time, it is a supplemental device. However, it is immediately available and is easily operated on the run.

555-10.3.6.2.3 Factors to consider when using these devices include (a) how quickly conditions are deteriorating, (b) ease of egress, including travel time to a breathable atmosphere, (c) operating times for each device, and (d) capabilities and limitations of each device. Do not breathe through the nose and breathe only through the mouth, when using the SEED or Ocenco EEBD. EEBDs and SEEDs shall not be used for firefighting purposes.

555-10.3.6.3 Agent Application. Halon and AFFF bilge sprinkling shall be activated (if installed), concurrent with evacuating the space, as soon as possible after determining that the fire is out of control. Activation can be accomplished either by the watchstander evacuating the space or, if necessary, by supervisory personnel.

555-10.3.6.4 Isolation During Evacuation. Supervisory personnel must weigh the impact of their actions for space isolation, such as electrical isolation, securing ventilation and firefighting system isolation, against the safety of space watchstanders who are engaged in firefighting or evacuation.

555-10.3.6.5 Actions Outside The Machinery Space During Evacuation."

555-10.3.6.5.1 Non-CBR Threat Environment. Access doors, hatches and scuttles shall be secured when all personnel are out of the space. At this time, ventilation in the affected machinery space shall be secured for ships without Halon. The escapees should congregate at a safe, predetermined location outside the space, where EEBDs can be removed and a muster taken. History indicates that the damage control deck is not always a safe haven. A safe location is outside fire and smoke boundaries or a weather deck.

555-10.3.6.5.2 CBR Threat Exists. If protective masks are already being worn, switch breathing protection from MCU-2/P protective masks to EEBDs; an MCY-2/P protective mask does not protect against carbon monoxide nor does it provide oxygen. See **NSTM Chapter 077** for guidance on switching breathing protection. Access doors, hatches and scuttles shall be secured when all personnel are out of the space. At this time, ventilation to the affected machinery space shall be secured for ships without Halon. The escapees should congregate at a predetermined location outside the space, where EEBDs can be switched for appropriate breathing protection (MCU-2/P protective mask or breathing apparatus) and a muster taken. The significant factors to consider in determining where escapes should congregate are as follows:

a. Evacuees should congregate outside of designated smoke and fire boundaries.

b. Generally, evacuating to a predetermined location inside the ship would be preferred because it generally poses less of a CBR threat to evacuating personnel than exiting to the weather. The CBR threat should be evaluated and as evacuating personnel arrive at the location, they should be evaluated and directed to either a decontamination station, medical, a safe area of the ship or duty as the situation dictates. The evacuation route may become contaminated.

c. On ships not equipped with CPS, breathing protection must be maintained while at MOPP Level 4. Escapees will need to switch from EEBDs to either a MCU-2/P protective mask or a breathing apparatus before the EEBD's 15 minute supply of oxygen runs out.

d. On CPS-equipped ships breathing protection should be maintained consistent with the protection required in the machinery space until an area of the ship which is known to be clear of contamination is reached. Total protection zones that have accesses to the affected machinery space should be considered contaminated by the evacuation.

555-10.3.6.6 Muster Location. Ships should designate a location for evacuees to congregate for each machinery space considering the foregoing factors. Different locations may be designated for use when a CBR threat exists than for use when there is no CBR threat. In any case, the location should be outside of designated fire and smoke boundaries for the affected machinery space.

555-10.3.6.7 AFFF Operation. To prevent running the system dry, operate AFFF bilge sprinkling no longer than 4 minutes. In no case operate the system when the concentrate level in the tank sight glass is not visible. Immediate manning of the AFFF proportioner station is essential to expedite tank replenishment.

555-10.3.6.8 Notification. The EOOW and Repair Five Party Leader shall be notified that the following actions were taken: