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**DE-SMOKING PLAN**

**NOTE:** SHIPS SHALL PREPARE DE-SMOKING PLANS FOR EACH OF THE FOLLOWING CONTINGENCIES:

- a. USE OF POSITIVE VENTILATION/OVER-PRESSURIZATION.
- b. USE OF INSTALLED VENTILATION.
- c. USE OF PORTABLE DE-SMOKING EQUIPMENT.

**COMPARTMENT      PROCEDURE**

(SPACE)            a.  
                         b.  
                         c.

(SPACE)            a.  
                         b.  
                         c.

(SPACE)            a.  
                         b.  
                         c.

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**ATMOSPHERIC TESTING**

**NOTE:** *SHIPS MUST LIST THE ATMOSPHERIC TESTS WHICH MAY BE REQUIRED DURING POST-FIRE GAS FREE TESTING FOR EACH MACHINERY SPACE. DIFFERENT SPACES MAY REQUIRE DIFFERENT GAS FREE TESTS BASED ON THE POTENTIAL HAZARDS CONTAINED WITHIN THAT PARTICULAR SPACE. (e.g., IF HALON 1301 HAS BEEN DISCHARGED, A TEST FOR HYDROGEN FLUORIDE SHALL BE DONE) REFER TO NWP 3-20.31 SERIES FOR GUIDANCE.*

**SPACE                      REQUIRED TEST(S)**

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**OBA RELIEVING PROCEDURES**

**NOTE:** *IN A MAIN SPACE FIRE, PERSONNEL STAY TIMES MAY BE AS SHORT 3-10 MINUTES IN LENGTH. THE DRIVING FORCE FOR OBA RELIEVING PROCEDURES IS NOT NECESSARILY GOVERNED BY OBA CANISTER DURATION BUT BY HEAT INTENSITY IN THE AFFECTED SPACE.*

**OBA RELIEVING PROCEDURES WILL OCCUR AS FOLLOWS:**

<b>DCRS #5 POSITION</b>	<b>1ST RELIEF</b>	<b>2ND RELIEF</b>
<b>#1 NOZZLE MAN</b>		
<b>#2 NOZZLE MAN</b>		
<b>TEAM LEADER</b>		
<b>SCENE LEADER</b>		<b>XXXXXXXXXXXXXXXXXX</b>
<b>DCRS OFFICER</b>		<b>XXXXXXXXXXXXXXXXXX</b>

RELIEF'S FOR AT LEAST THOSE POSITIONS LISTED ABOVE SHALL BE APPOINTED IN WRITING, BY POSITION. RELIEF'S FOR OTHER HOSEMEN MAY BE APPOINTED IN WRITING OR MAY RELIEVE THROUGH NORMAL BUMP-UP PROCEDURES. RELIEF'S MAY COME FROM ANY OTHER REPAIR STATION OR DCRS #5 ITSELF. IF FROM ANOTHER DAMAGE CONTROL REPAIR STATION, THESE INDIVIDUALS MUST PARTICIPATE IN REGULAR DCRS #5/ MAIN SPACE FIRE TRAINING. **THE FOCUS ON THIS PROCEDURE IS THAT CRITICAL BILLETS LISTED ABOVE WILL HAVE AT LEAST TWO QUALIFIED RELIEF'S.** THE SCENE LEADER AND DCRS OFFICER MAY HAVE ONLY ONE ASSIGNED TEMPORARY RELIEF SINCE THESE INDIVIDUALS WILL NOT NORMALLY BE DIRECTLY EXPOSED TO RADIANT HEAT BUT ARE STILL WITHIN THE BUFFER ZONE.

**EXAMPLE:**

<b>DCRS #5 POSITION</b>	<b>1ST RELIEF</b>	<b>2ND RELIEF</b>
<b>#1 NOZZLE MAN</b>	<b>DCRS 2 #1 NOZZLE MAN</b>	<b>DCRS 3 #1 NOZZLE MAN</b>

ROTATION OF PERSONNEL OR OTHER FACTORS MAY PERIODICALLY CAUSE THIS LIST TO CHANGE. RECOMMEND COMPLETION OF THIS SHEET AFTER LAMINATION.

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CHAPTER ANNEX 4-7

HALON FLOODING SYSTEM ACTUATION STATIONS

<u>REPAIR</u>	<u>STATION</u>	<u>LOCATION/FRAME</u>	<u>COMPARTMENT SERVED</u>
2		2-40-2-L FR 45 (S) 3-43-0-L FR 45 (S)	FLAM LIQUID STRM 3-32-1-K
3	1-255-1	1-250-3-L	PAINT MIX/ISSUE RM 1-240-1-K
3		2-238-2-L FR 360 (P)	GAS CYLINDER STRM 2-355-2-K

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CHAPTER ANNEX 4-8

FIXED CO2 FLOODING SYSTEM ACTUATION STATIONS

<u>REPAIR</u>	<u>STATION</u>	<u>LOCATION/FRAME</u>	<u>COMPARTMENT SERVED</u>
2	RLSE 2	2-64-0-L FR 64 (S) 4-64-0-Q FR 64 (S)	INNER GMLS
2	RLSE 4	2-64-0-L FR 64 (S) 4-64-0-Q FR 64 (S)	OUTER GMLS
3		2-464-01-L FR 468 (P) 3-464-0-Q FR 473 (P)	FLAM LIQUID STRM 6-464-4-K

CHAPTER ANNEX 4-9

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SMOKE REMOVAL CHANNELS

<u>FROM</u>	<u>VIA</u>	<u>TO</u>
1. Compartment #	WTD - Passageway WTD - Passageway WTD -	Portside weather deck WTD -
2. Compartment #	WTD - Passageway WTD - Passageway WTD - Passageway WTD - Passageway	Starboard weather deck WTD -

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**SHIP STABILITY AND FLOODING CONTROL**

**501. REFERENCES**

- (a) NWP 3-20.31, Surface Ship Survivability
- (b) NSTM Chapter 079, Volume 1, Stability and Buoyancy
- (c) Ship's Damage Control Book
- (d) OPNAV P-03C-01-89, U.S. Navy Cold Weather Handbook for Surface Ships

It cannot be over-emphatized that the information and instructions in the Damage Control Book Section II(a) (Stability and Loading) must be completely understood and followed by ship's personnel. Section II(a) contains comprehensive instructions tailored to each ship in "Procedures After Damage".

**502. Required Chapter Annexes**

- a. None

**503. Required and Available Stability**

- a. Every crewmember should be confident in the ship's ability to survive severe weather conditions while intact, and to survive massive amounts of damage in moderate sea conditions. For the ship to have its required stability and reserve buoyancy, both before and after damage, the following must be observed:
  - (1) The limiting drafts specified in ref (c), section II(a), are not exceeded before damage.
  - (2) There are no excessive or unusual topside weights or deck loads, such as icing.
  - (3) The liquid and dry cargo loading instructions contained in ref (c), section II(a), and Damage Control Diagram 1 (Liquid Loading Diagram) are followed , and
  - (4) A proper degree of watertight integrity is maintained. (Watertight fittings are effectively maintained and personnel are adequately trained to set the required material condition).
- b. The Damage Control Assistant shall determine the ship's stability and complete a draft report at least daily, and following any major alteration to

the ship's loading. If the liquid and dry cargo loading instructions are followed, only the drafts, trim and displacement need to be determined. If these instructions are not followed, the DCA must also calculate the position of the center of gravity (KG) and Metacentric Height (GM). All values shall be compared to the acceptable limits prescribed in the Damage Control Book, Section II(a).

**504. Procedures After Damage**

- a. Ref (c), section II(a), provides detailed instructions and procedures to be followed in the event of damage. The following is a generic sequence of events:

**Step 1. Isolate the Flooding**

- a. Set flooding boundaries  
b. Isolate electrical power  
c. Isolate mechanical systems

**Step 2 Determine Impact of Flooding and Prioritize De-watering Efforts**

- a. De-water spaces colored pink on the Flooding Effects Diagram which can be made sufficiently tight to allow pumps to be effective.  
b. De-water spaces which have the greatest Free Surface Effect first.  
c. Use locally prepared stability data cards, if applicable, to assess impact of flooding.

**Step 3. Evaluate Critical Stability**

**NOTE:** *STABILITY IS CRITICAL WHEN IMMEDIATE IMPROVEMENT IS NECESSARY TO AVOID LOSS OF THE SHIP. STABILITY SHOULD BE CONSIDERED CRITICAL IF ANY OR ALL OF THE FOLLOWING CONDITIONS EXIST:*

**(1) Small or negative metacentric height**

- a. The ship is lopy, with a slow erratic roll period and a tendency to hang at the end of the roll.  
b. The ship has a tendency to list at the same angle to either side.  
c. The ship has a list which cannot be accounted for by off-center weight.

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- (2) **Approach or Exceed floodable length**
  - a. The extent of flooding approaches or exceeds the maximum amount of flooding tabulated in ref (c), section II(a).
- (3) **Excessive list**
  - a. The ship lists to a static heel of 15 degrees or more.
- (4) **Heavy winds and seas**
  - a. Heavy winds and rough seas are prevailing or are anticipated.

**Step 4. If Stability is Critical**

- a. Suppress free surface effect by de-watering or filling partially flooded compartments.
- b. Strike down solid weights, such as ammunition, from upper deck handling rooms to magazines.
- c. Ballast tanks according to the ship's Liquid Loading Instruction.
- d. If freeboard is adequate, fill completely those compartments which will improve stability when flooded solid. (Yellow or green compartments on the Flooding Effects Diagram).
- e. Favor stability in the handling and maneuvering of the ship. Limit speed and rudder angle to reduce dynamic forces.
- f. Jettison topside weights if items (1) and (2) are insufficient or impossible. This is a difficult and timely procedure. Concentrate on heavy items and plan ahead considering the effect of removing various items.

**Step 5. Eliminate or Reduce List**

- a. **List caused by off-center flooding only:**
  - (1) Counter-balance on the high side to reduce the list. Add only that amount that would correct for one-half the list, evaluate the effect of this action and then proceed to correct the list.

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b. **List caused by negative Metacentric Height (GM) only:**

- (1) **DO NOT** add weight to the high side to correct for this list. Take action to lower the ship's center of gravity by ballasting low tanks symmetrically, jettisoning topside weight symmetrically, shifting weight low symmetrically, and at all times by suppressing free surface effect.

c. **List caused by a combination of off-center loading and negative metacentric height (GM):**

- (1) First, take all corrective actions listed above to restore positive GM. Secondly, proceed with corrective actions to correct for off-center flooding.

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**CHAPTER 6**

**REPAIRING DAMAGE IN ACTION**

**601. References**

- (a) NSTM Chapter 079, Volume 2, Practical Damage Control
- (b) NSTM Chapter 079, Volume 3, Engineering Casualty Control

**602. Required Chapter Annexes**

- a. 6-1, Sample Casualty Power Routes
- b. 6-2, Sample Casualty Power Checklist

**603. Use of Shoring**

- a. Shoring is the process of placing supports against the side, beneath, or above a structure to prevent metal fatigue, sagging and bulging. Ships often have had to support ruptured decks, build up temporary bulkheads and decks against the sea, to support hatches and doors, and to provide supports for equipment that has broken loose. This is accomplished largely by shoring.

**604. When to Shore**

- a. Shoring is not an immediate action to be initiated after flooding damage. Ships are designed with inherent structural strength to resist flooding. All principle transverse and longitudinal structural bulkheads and all watertight decks are designed to stand the maximum static pressure which any conceivable flooding can place on these structures. Provided the bulkhead or deck is in a proper state of preservation, this pressure may result in deformation but there will be no serious threat of failure. Failure of a bulkhead may occur, however, from one of the following causes:
  - (1) If the structure is old, it may have been subjected to considerable corrosion and so weakened.
  - (2) The damage itself may cause some local weakening of the structure and this is particularly liable to occur for those structures close to an explosion.
  - (3) The static pressure due to flooding may be increased by a dynamic pressure due to the ship's movement, either by her speed or her behavior in a seaway.

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Unless one or more of the above conditions exist, there should be no reason for shoring bulkheads or decks. Shoring is not required as a matter of routine.

- b. Exercise good judgement when inspecting the damaged area. Deep bulges in plating bowed frames and stanchions, loose rivets, cracked seams, and panting bulkheads are indications for the need for shoring. Panting is a dangerous condition. It results in metal fatigue which eventually causes cracking and splitting.
- c. Carefully inspect equipment whenever damage is sustained in their vicinity. Weakened supports under guns and machinery may not be readily noticed. These must be shored whenever necessary so that further operation will not cause greater damage.
- d. Due to ship construction, each shoring structure will be different. Many shoring situations will require the removal of interference's such as equipment, ventilation ducting, or even cable ways. Damage Control Central must approve and coordinate interference removal to avoid further damage or impact on other damage control evolution's in progress.
- e. When in doubt, always shore!

**605. Casualty Power System.** Ships are designed with an installed casualty power system which provides a means for repair party personnel to quickly respond to a damaged electrical distribution system and provide temporary emergency power to predetermined equipment vital to ship survivability. The system eliminates the need for time consuming cable tracing, cutting, and splicing. The components of the system include permanently installed vertical risers, bulkhead and switchboard terminals, and portable pre-staged cables and switches. Features of the casualty power system are:

- a. Preservation of watertight integrity of the ship.
- b. Simplicity of installation and operation.
- c. Flexibility of application.
- d. Inter-changeability of parts and equipment.

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**606. Casualty Power Bill.** In a damaged condition, the timely and effective response of repair party personnel to rig casualty power may be vital to ship survivability. Safety in rigging casualty power is never to be sacrificed for speed. Experience shows that trained repair parties who are knowledgeable of their system and have practiced for such emergencies will be able to rig casualty power safely and with dispatch while unprepared/untrained repair parties lose critical hours in getting organized. Tables of normal, alternate, and emergency electrical sources, vital loads, casualty power bulkhead and riser terminals ABT's and MBT's are included in the ship's Damage Control Book (Part IV) and Damage Control Plates (13 and 14). Preplanned casualty power cable routes shall be developed and included in the Repair Party Manual Chapter Annex on 6-1 as the ship's Casualty Power Bill.

**607. Procedure for Rigging Casualty Power**

- a. Make sure the power is NOT available at the damaged panel or switchboard.
- b. Make sure that all power supplies are tagged open. If a type "K" switch is installed on the panel, OPEN IT.
- c. Make sure that there are no grounds and no short circuits existing in the panel or equipment. If supply cables are damaged and no switch is available, disconnect the leads.
- d. The Engineer Officer will designate the switchboard and riser to be used as the source of supply.
- e. The casualty power cables should then be taken from their stowage and laid out ready for connecting.
- f. Personnel making the connections must be provided with rubber gloves, a voltage tester, rubber boots or a rubber mat. Rubber boots protect against sea water, a rubber mat DOES NOT.
- g. Connect all horizontal cables BEGINNING AT THE RISER OR BULKHEAD TERMINAL AT THE CASUALTY and work toward the riser or bulkhead terminal entering the compartment from which power will be supplied. (Load to Source)
- h. Test, then connect the equipment to the riser or bulkhead terminal leaving the compartment.

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- i. **UNDER NO CIRCUMSTANCES** is the riser terminal to be used for a connection block unless the other end of the riser is to supply the same piece of equipment.
- j. Install a portable switch in the line near the casualty to kill power in the event of an emergency, or for reversing leads to correct phase rotation.
- k. When all cables have been connected (including the horizontal connections) to the riser leading to the compartment designated as a power supply, inform Damage Control Central.
- l. Hang "DANGER HIGH VOLTAGE" signs every five (5) feet on horizontal connections.
- m. The Damage Control Assistant will request that the bridge pass the word "Stand Clear of Casualty Power Cables Rigged". (If for training only, this should be repeated every 5 minutes).
- n. When the operator of the designated switchboard receives word from Damage Control Central to "Rig and energize casualty power cables", the operator shall perform the following:
  - (1) Test the bulkhead terminal and rig that end ONLY.
  - (2) Rig the cable to the switchboard terminal after checking to make sure the switchboard casualty power circuit breaker is open and after testing the casualty power terminal in the switchboard to make sure the terminal is de-energized.
  - (3) Prior to closing and opening the power switch, pass the word, "STAND CLEAR OF CASUALTY POWER CABLES RIGGED WHILE BEING ENERGIZED."
  - (4) Close and open the casualty power switch momentarily and then close again. This could eliminate serious casualty to personnel in case someone is still working on the casualty cable run.
- o. Report to Main Control "Casualty power riser, or bulkhead terminal, rigged and energized". Main Control then notifies Damage Control Central.
- p. Make sure that motor rotation is in the correct direction. If not, the rotation can be reversed by de-energizing the circuit at the portable switch or the switchboard and reversing any two of the three leads.

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608. Procedures for Securing Casualty Power

- a. The Damage Control Assistant will notify Main Control to "De-energize and disconnect casualty power from riser or bulkhead terminal".
- b. The switchboard electrician will:
  - (1) Open casualty power circuit breaker.
  - (2) Test for de-energization.
  - (3) Disconnect the casualty power cable from the riser (or bulkhead terminal) leading from the switchboard compartment. (Source to Load)
  - (4) Disconnect the casualty power cable from the switchboard terminal.
  - (5) Report to Main Control "Casualty power de-energized and disconnected from riser (or bulkhead terminal) \_\_\_\_\_".
- c. Main Control will notify Damage Control Central of this action.
- d. Damage Control Central will direct the repair party(ies) to unrig and restow casualty power cables.
- e. In unrigging casualty power cables:
  - (1) Test each connection block to make sure it is de-energized before removing the cable.
  - (2) Disconnect cable at the casualty.
  - (3) Then disconnect horizontal cable runs.
  - (4) In disconnecting, keep the leads separated between fingers of the rubber glove. When the three leads are free, they shall be dropped to the deck, making sure that no personnel are in the immediate area of the point of drop. The operator shall turn his head away from point of contact of cable with deck.
- f. After the casualty has been repaired and the casualty power cables have been unrigged, the repair party(ies) will notify Damage Control Central.
- g. The Damage Control Assistant will inform the Engineer Officer who will then direct the energizing of appropriate power supply circuits. The

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Engineer Officer will notify the OOD when the casualty has been repaired and the normal power source has been restored.

CHAPTER ANNEX 6-I **19 MAY 1998**

**CASUALTY POWER ROUTES**

The following pages lay out the various routes to be used when rigging casualty power from designated vital equipment to an available power source. The responsible Damage Control Repair Station (DCRS), and the terminals (Bulkhead Terminals (BT), Riser Terminals (RT)) and cables to be used are listed. These routes are not to be considered binding, but are the "best case", shortest routes available. In case of damage or other obstruction to these routes, the DCA will order an alternate route. The DCRS responsible for rigging casualty power is identified in the column on the left.

**DCRS            FROM #1 FIRE PUMP CONTROLLER TO 1E SWBD**

II                #1 Fire pump to 1E SWBC use cable 3-18-1 (35')

**DCRS            FROM #1 FIRE PUMP TO 1SA/1SB SWBD**

II                #1 Fire pump to RT 3-23-1 use cable 3-18-1 (35')

II                RT 2-23-1 to BT 2-23-3 use cable 2-23-1 (20')

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CHAPTER ANNEX 6-2

CASUALTY POWER CHECKLIST

1. \_\_\_ Damaged Cables to Vital Load
2. \_\_\_ Open power panel breakers to load
3. \_\_\_ Are cables from Normal/Alternate/Emergency power supplies damaged?
4. \_\_\_ DCA recommend to CO the rigging of casualty power
5. \_\_\_ DCA check vital load DC Plate for Normal/Alternate/Emergency power supplies and load circuit breaker numbers
6. \_\_\_ DCA order Main Control to open and tag-out load circuit breakers on Normal/Alternate/Emergency power supplies
7. \_\_\_ Engineer Officer designate source and source riser
8. \_\_\_ DCA designate casualty power route according to Casualty Power Bill
9. \_\_\_ Repair electrician disconnect power feeders from load power panel
10. \_\_\_ Repair personnel rig from load riser to source riser
11. \_\_\_ Rig from load power panel terminal to load riser (install K switch between load power panel and riser)
12. \_\_\_ Switchboard watch rig from source riser to source terminal (make sure casualty power breaker is open and de-energized)
13. \_\_\_ Bridge pass word "Stand clear of casualty power cables rigged between frames \_\_\_ and \_\_\_" every 5 minutes
14. \_\_\_ DCA give permission to flash test - switchboard watch momentarily energizes casualty power breaker (SAFETY PRECAUTION)
15. \_\_\_ DCA give permission to energize cables
16. \_\_\_ Repair electrician operationally test the load

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CHAPTER 7

**CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL DEFENSE (CBR-D)**

**701. References**

- (a) NWP 3-20.31, Surface Ship Survivability
- (b) NSTM Chapter 070, Radiological Recovery of Ships after Nuclear Weapons Explosions
- (c) NSTM Chapter 470, Shipboard BW/CW Defense and Countermeasures
- (d) NAVMED P-5041 dtd 05/94, Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries

**702. Required Chapter Annexes**

- a. 7-1, CBR-D On Station Survey Recording Sheets (Nuclear)
- b. 7-2, Radiological Survey Forms
- c. 7-3, Internal/External Sampling Sheets (Chemical)
- d. 7-4, Damage Control Repair Station CBR Assignments

**703. CBR Defense Bills**

Detailed responsibilities, procedures, action to take, shall be promulgated in the ship's CBR Defense Bill using NWP 3-20.31 (Series) and this manual for guidance.

**704. Mission Oriented Protective Posture (MOPP)**

- a. The MOPP provides the Commanding Officer and/or the Task Force Commander a wide range of protective levels from issuing protective clothing and equipment (MOPP Level 1) to wearing protective clothing and equipment (MOPP Level 4). The ideal situation is to balance the degree of protection (MOPP Level) commensurate with the threat. A detailed check list is provided in ref (a).

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**MOPP LEVELS**

	<b>1 SUSPECTED</b>	<b>2 POSSIBLE</b>	<b>3 PROBABLE</b>	<b>4 IMMINENT</b>
<b>ALARMS/ DETECTOR KITS</b>	<b>FULL ALLOWANCE OF ALL ITEMS STOWED AT BATTLE STATIONS</b>	<b>CONDUCT OPERATIONAL INSPECTION/TEST POST M-8/9</b>		<b>SOUND ALARM VISUAL OBSERVATION M-8/9 PAPER CONTINUOUSLY</b>
<b>WATER WASHDOWN</b>		<b>INSPECT AND MAKE READY FOR USE</b>	<b>ACTIVATE INTERMITTENTLY</b>	<b>ACTIVATE CONTINUOUSLY</b>
<b>MATERIAL CONDITION</b>	<b>YOKE</b>	<b>MODIFIED ZEBRA</b>	<b>SET ZEBRA</b>	<b>SET CIRCLE WILLIAM</b>
<b>DECON STATION</b>		<b>INSPECT AND MAKE READY FOR ACTIVATION</b>	<b>ACTIVATE ALL DECON STATIONS</b>	
<b>M-291</b>	<b>ISSUE TO ALL HANDS</b>			
<b>CHEMICAL SUIT</b>	<b>ISSUE TO BATTLE STATIONS</b>		<b>WORN W/O HOOD UP</b>	<b>HOOD UP AND SECURED (EXTERNAL PERSONNEL (DON RAIN GEAR)</b>
<b>MASK</b>	<b>ISSUE TO ALL HANDS</b>	<b>CARRIED (RECOMMEND FITTED WITH NEW CANISTER)</b>	<b>CARRIED FITTED WITH NEW CANISTER</b>	<b>DONNED &amp; CHECKED FOR SEAL</b>
<b>GLOVES</b>	<b>ISSUE TO BATTLE STATIONS</b>		<b>CARRIED</b>	<b>WORN</b>
<b>BOOTS</b>	<b>ISSUED TO BATTLE STATIONS</b>		<b>WORN</b>	<b>WORN</b>
<b>ANTIDOTE</b>	<b>ISSUED TO ALL HANDS</b>			

**705. Procedures**

**1. CBR Attack Probable:**

- a. Alert personnel to type of attack expected.
- b. Wet down exposed topside surfaces as practicable. Use installed washdown system or fire hoses. CV - Crash and Salvage Team will wet

down the superstructure and all flight deck areas as required in the CBR Defense Bill.

- c. Set condition ZEBRA and prepare to set the weather envelope.
- d. Exposed personnel shall use personnel protective equipment.
- e. To avoid panic keep personnel accurately informed of the situation.
- f. Detection tags should be worn by personnel going topside, in heavy traffic areas, in a control grid on the deck and in the ship's island. This paper tag facilitates rapid evaluation of contaminated personnel and areas. The paper should be either the M9 or M8 type.
- g. Place a high range radiac under surveillance on the bridge or alternate topside station to detect onset and direction of the radiological event. The bridge instrument should be read routinely once during each watch while at sea to assure operability and to familiarize ship control personnel with the procedure.
- h. Provide for distribution of personnel dosage measuring devices as available.

2. **CBR Attack Imminent:**

- a. When considered appropriate, sound alarm and direct personnel to deep shelter.
- b. Set weather envelope.
- c. To prevent heat exhaustion, prepare to relieve certain personnel on watch.
- d. Secure evaporators to prevent contamination of fresh water systems.

3. **Post CBR Attack:**

- a. Survey the ship to determine the extent and amount of contamination or the type of agent contacted.
- b. Determine personnel radiation dosages.
- c. Evacuate and treat the wounded.

- d. Determine the appropriate time to begin personnel decontamination. Keep in mind the effect on the ship's fighting efficiency versus the hazards of delaying decontamination.
- e. Commence primary gross decontamination as soon as practical. Washing is more effective if contaminant has not dried. Keep in mind hazards to personnel conducting the decontamination.
- f. As soon as practical and possible, flush ventilation system with clean air, and sea water systems with uncontaminated sea water.
- g. Primary attention must be given to restoring essential functions contaminated by CBR agent: conn, messing, heads and berthing are functions in this category.
- h. Consider assistance available from other ships for decontamination of topside areas and care of sick and wounded. If necessary transfer injured personnel to reduce exposure time on board.
- i. It must be assumed that biological and chemical attacks will contaminate all food in non-gas tight spaces and render other foods unavailable because of container contamination. Prepare to battle mess, receiving food by transfer at sea from uncontaminated ships. Consider area where food may be eaten with least danger from internal hazards.
- j. Carry out conventional damage control practices.

4. **Monitoring:**

- a. Immediately upon direction, the monitoring team must make a rapid internal survey of assigned areas to determine the presence and the general degree and extent of contamination.
- b. For air burst, the monitoring team can be sent out within four minutes after the nuclear detonation. However, following an underwater detonation, the teams should not be ordered out until the CONN reports the ship is clear of base surge.
- c. When directed, the monitors shall report to their assigned areas as rapidly as possible. Each team shall be composed of four men; a monitor, a recorder, a marker, and a messenger. Each team shall be equipped with protective masks and clothing.
- d. The monitor handles the radiac instrument, chemical agent or biological sampling kit as appropriate. The recorder carries the plan of the area to be

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monitored and records results. The marker will mark in chalk on bulkheads and decks the contamination readings and the time of the reading. The messenger will deliver messages as directed by the monitor.

e. Heavily contaminated areas will be roped off. After determining that an area is contaminated, the monitor will notify persons in charge of stations within the area. They will be advised that their personnel are contaminated and the approximate degree of contamination in the area.

f. When monitoring is complete, or when so directed, the team will report to the nearest personnel decontamination station.

g. Action of Monitoring Teams:

(1) **First Survey.** When ordered, make a rapid preliminary internal survey at assigned check points (vital stations) and report the intensity and time of reading to DCC. This survey should be made from inside the weather envelope.

(2) **Second Survey.** When ordered, make a rapid preliminary external survey at assigned check stations (vital stations) and report the intensity and time of reading to DCC.

(3) **Third Survey.**

(a) Upon completion of primary gross decontamination survey or when ordered, a third survey must be conducted. This survey should be a detailed survey. To ensure coverage of all spaces, equipment, and systems and to simplify accurate reporting, the use of pre-assigned checkpoints are recommended. These points should be located to adequately cover all areas and should be permanently listed on the monitor's detailed survey report form and the DCA's status board.

(b) Upon locating a contaminated area, determine boundaries of the area.

(c) The recorder or messenger will pass the report to DCC as rapidly as possible.

(d) The monitor team will rope off and post the area. "Roping Off" includes positive securing of access to the