

APPENDIX I

GLOSSARY

- 3-M PROGRAM**—Program that requires the testing of damage control equipment and preparation of inspection reports. These actions improve the reliability of systems and equipment through documentation of maintenance information for analysis.
- ABSORPTION**—Penetration of solid materials or liquids by a foreign substance (such as a chemical agent) without a chemical reaction.
- ACCESSMAN**—The accessman will open doors, hatches, and clear routes as necessary to provide access to the fire when directed by the scene leader.
- ACTIVE DESMOKING**—Removing smoke and heat from the smoke control zone between the inner smoke boundary and outer smoke boundary before extinguishing the fire, aiding fire-fighting efforts, and reducing smoke spread in the ship. Active desmoking is applied only for fires that involve primarily class ALPHA and class CHARLIE materials.
- ACUTE EXPOSURE**—Those in which doses are received in a short time, normally less than 24 hours, as a result of exposure to initial radiation, base surge, or fallout, or combinations thereof.
- ACUTE RADIATION DOSE**—A dose of ionizing radiation that is received over a period of time that is too short for biological recovery to occur.
- ADSORPTION**—Adhesion of molecules of a foreign substance (such as a chemical agent) to the surface of solid materials (including crevices) or liquids without a chemical reaction.
- AEROSOL**—A suspension of fine liquid droplets or solid particles in a gaseous medium, the particles being small enough to remain suspended for a significant period of time and behave like a vapor; examples of solid particulate aerosols are dust and smoke; common liquid droplet aerosols are perfumes, oil mists, and fog.
- AEROSOLIZATION**—The physical process of breaking up solid or liquid into small particles or droplets and suspending them in air.
- AFFF SINGLE-SPEED INJECTION PUMP**—Permanently mounted, positive displacement, electrically driven, sliding-vane type of pump.
- AFFF SPRINKLER SYSTEM**—An AFFF sprinkler system is a subsystem of AFFF generating systems.
- AFFF STATION OPERATOR**—The AFFF station operator ensures that there is a constant supply of AFFF to the hose team for fire fighting.
- AFFF TANKS**—The tanks are rectangular or cylindrical in shape and are fabricated out of 90/10 copper-nickel or corrosion-resistant steel. Each service tank is located inside the AFFF station and is fitted with a gooseneck vent, drain connection, fill connection, liquid level indicator, recirculating line, and an access manhole for tank maintenance.
- AFFF TRANSFER PUMPS**—Permanently mounted, single-speed, centrifugal type, electrically driven pump. These pumps are provided in 360 gpm capacity. The transfer pump moves AFFF concentrate through the AFFF fill-and-transfer subsystem to all AFFF station service tanks on a selective basis.
- AFFF TRANSFER SYSTEM**—The transfer system can deliver AFFF concentrate to on-station service tanks via a transfer main. The transfer main consists of a large pipe with smaller branch connections interconnecting the AFFF service and storage tanks.
- AFFF TWO-SPEED INJECTION PUMP**—Designed to meet the demand for either a low or a high fire-fighting capability. The two-speed AFFF pump consists of a positive displacement pump rated at 175 psi, a motor, and a reducer, coupled together with flexible couplings and mounted on a steel base.
- AFLOAT TRAINING GROUPS (ATG)**—Provide Navy ships with examples and packages of recommended damage control drills.
- AFTER WELL DECK**—Between the upper deck and the poop deck.

AIR BLAST—The shock wave that is produced in the air by an explosion. The shock wave initially travels outward at a velocity of approximately seven times the speed of sound at high overpressures. It will then gradually slow down to a sonic speed of about 1,000 fps at low overpressures.

AIR BLAST INJURY—Personnel can be picked up and thrown by the blast. They receive their injuries upon landing. The extent of the injuries will depend upon the velocity of the body's movement, the nature of the object with which the body collides, and the nature of impact, whether glancing or solid.

AIRBURST—A burst where the point of detonation is below an altitude of 100,000 feet, and the fireball does not touch the surface of the earth. Air blast, thermal radiation (heat and light), electromagnetic pulse, and initial nuclear radiation (neutron and gamma rays) are produced around the point of detonation.

AIR CHANGE—The process of introducing a volume of air into a compartment that is equal to the volume of the compartment while simultaneously removing an equal volume. Because of mixing, only 65 percent of the air originally in the compartment is removed in one air change.

AIR CONTAMINANT—A substance or material that is foreign to the normal composition of the atmosphere, usually occurring in the form of aerosols, dusts, fumes, mists, gases, and vapors.

AIR LOCK—A shipboard passageway with a quick-acting watertight (QAWT) door on either end. Only one door is opened at a time to prevent the flow of air from a pressurized part of the ship to an unpressurized area. Air locks are also equipped with fittings to allow purging of contaminated air.

ALPHA (A) FIRES—Those that occur in such ordinary combustible materials as wood, cloth, paper, upholstery, and similar materials.

ALPHA PARTICLES—A form of ionizing nuclear radiation consisting of positively charged subatomic particles emitted by some radioactive materials. An alpha particle is identical to the nucleus of a helium atom in mass, structure, and electrical charge but an alpha particle's energy level is higher due to its speed.

ANTIFLASH CLOTHING—Intended to protect personnel from transient high temperatures that may occur from the use of high explosive weapons and from being burned in a fire. Antiflash clothing consists of an antiflash hood and antiflash gloves.

APPROVED (FOR THE PURPOSE)—Equipment or materials that have been tested, evaluated, and determined to be acceptable by a recognized testing laboratory or inspection agency according to the requirements of a particular code or specification for a particular purpose, environment, or application.

AQUEOUS FILM-FORMING FOAM FIRE EXTINGUISHER (AFFF)—Used to provide a vapor seal over a small fuel spill, to extinguish small class BRAVO fires (such as deep-fat fryers), and for standing fire watch during hot work.

AQUEOUS FILM-FORMING FOAM (AFFF)—AFFF, also known as "light water," is a synthetic, film-forming foam designed for use in shipboard fire-fighting systems.

AQUEOUS POTASSIUM CARBONATE (APC)—Are installed in Navy ships to provide protection for galley deep-fat and doughnut fryers and their exhaust systems. Aqueous potassium carbonate is specifically formulated to extinguish fire in the reservoirs by combining with the hot cooking oil surface to form a combustion-resistant soap layer, thereby cutting off the grease from its source of oxygen.

AQUEOUS SOLUTIONS—A pH of 7 indicates a neutral solution; values below 7 indicate acid solutions and values above 7 indicate basic solutions.

ATHWARTSHIP—The athwartship structure consists of transverse frames and floors and is the crosswise portion of the ship.

ATMOSPHERE—The immediate gaseous surrounding of a particular location or confined space, including normal air plus any air contaminants and oxygen deficiency/excess.

ATMOSPHERIC IONIZATION—An increase in the density of electrons in the atmosphere around a nuclear burst. These electrons affect radio and radar signals by removing energy from the waves.

ATOM—An atom is made up of tiny particles known as electrons, protons, and neutrons. The relative number of these small particles determines the attributes of an element.

ATTACK TEAM—One or two fully manned hoses, according to *NWP 3-20.31*.

ATTENUATION—The reduction in the intensity of nuclear radiation as it passes through a substance.

AUTOGENOUS IGNITION TEMPERATURE—The temperature just adequate to cause the vapors from a petroleum product to burst into flames without the application of a spark or flame.

AUTO-IGNITION POINT—The minimum temperature required to initiate self-sustained combustion of a substance independent of external ignition sources of heat.

AUTO-IGNITION/SELF-IGNITION POINT—The lowest temperature to which a substance must be heated to give off vapors that will burn without the application of a spark or flame.

AUXILIARY CIRCUITS—Auxiliary circuits duplicate primary circuits. This helps to minimize the danger of both the primary and the auxiliary circuits being placed out of commission at the same time. An X in front of the circuit designator identifies auxiliary sound-powered circuits.

BACKDRAFT—An explosion that results from combining fresh air with hot flammable fire gases when they have reached their auto-ignition temperatures.

BACKGROUND RADIATION—Low-level radiation from natural sources in the environment that is always present. The intensity varies in different regions of the world.

BACTERIA—Very small single-cell organisms, large enough to be visible through an ordinary microscope.

BALANCING VALVE—Automatically proportions the correct amount of AFFF concentrate with seawater. The balancing valve is a diaphragm-actuated control valve that responds to pressure changes between the AFFF concentrate supply line and the firemain.

BASE SURGE—Is from an underwater burst and is a rapidly expanding cloud or mist of water droplets. This cloud is produced by the collapse of the water column that was thrown up by the underwater detonation.

BATTLE BILL—The ship's Battle Bill is tailored to your ship for battle organization. You may need to provide information to the operations department when it is updated.

BATTLE DRESSING STATIONS—Most ships have a minimum of two battle dressing stations equipped for emergency handling of personnel battle casualties. Each battle dressing station must be accessible to the stretcher-bearers from repair parties within the vicinity. Medical department personnel as assigned by the senior member of that department should man each battle dressing station.

BATTLE LANTERNS—Provided throughout the ship for emergency lighting whenever normal lighting is unavailable.

BATTLE TELEPHONE CIRCUITS—The battle telephone circuits are sound-powered circuits. Therefore, they require no outside source of electrical power. The transmitter of a sound-powered telephone transforms sound waves into electrical energy. The receiver transforms this electrical energy back into corresponding sound waves.

BETA PARTICLES—A form of ionizing nuclear radiation consisting of negatively charged subatomic particles emitted by some radioactive materials. A beta particle is a high-speed electron. The mass and electrical charge of a beta particle is the same as those of an electron but a beta particle's energy level is higher due to its speed.

BIOLOGICAL VECTORS—These are animals in whose bodies the infecting organism develops or multiplies before it can infect the recipient animal.

BLACKOUT—Disruption of electronic emissions from radio and radar after a nuclear weapon explosion. It is caused by changes in atmospheric ionization.

BLISTER—An enclosed bulging bubble-like projection (as in paint) that may be filled with a liquid (saltwater or solvent) or a gas (air). Blisters can occur in any painted tank (that is, JP-5, gasoline) due to improper painting procedures, such as poor ventilation during application and curing or incomplete surface preparation. Broken blisters must be repaired because of potential for occurrence of rusting.

BLISTER AGENTS—Chemical agents that affect the eyes and lungs and blister the skin, producing long-term incapacitation or death. Blister agents are odorless and vary in duration of effectiveness. The primary blister agents, HD and HN, are most effective for general use.

BLOOD AGENTS—Chemical agents that enter the body through the respiratory tract. Most blood agents act rapidly and are normally nonpersistent. In general, a victim who does not die quickly will recover within a few hours.

BLUEOUT—Acoustic reverberation (echoes) from underwater explosions (nuclear and conventional weapons) that masks the sounds sonar is supposed to detect.

BOUNDARY (SPACES)—The outermost border or limit immediately surrounding a confined space, above, below, and on all sides, such as the outside walls of a fuel tank.

BOX PATCH—Effective for use over holes that have jagged edges projecting inboard.

BRAVO (B) FIRES—Those that occur in the vapor-air mixture over the surface of flammable liquids, such as gasoline, jet fuels, diesel oil, fuel oil, paints, thinners, solvents, lubricating oils, and greases.

BUFFER ZONE—The area between the inner and outer smoke boundaries established for a class BRAVO fire in a machinery space.

BULKHEADS—Vertical walls that run both transversely and longitudinally through the interior of a ship which divide it into compartments.

BULWARKS—Solid fencing along the gunwale of the main (weather) deck.

BUOYANCY—The ability of an object to float.

C2 CANISTER—The canister used as part of a protective mask for CB warfare.

CALCIUM HYPOCHLORITE—The standard shipboard decontaminant for chemical and biological agents.

CANISTER (AIR PURIFYING)—A container with a filter, absorbent or catalyst, or any combination thereof, which removes specific contaminants from the air drawn through it.

CANISTER (OXYGEN-GENERATING)—A container filled with a chemical that generates oxygen by chemical reaction.

CARBON DIOXIDE (CO₂)—An effective agent for extinguishing fires by smothering them and also produced by a fire when there is complete combustion of all of the carbon in the burning material. CO₂ is a colorless and odorless gas.

CARBON DIOXIDE (CO₂) FIRE EXTINGUISHER—Used on small electrical fires (class CHARLIE) and has limited effectiveness on class BRAVO fires.

CARBON DIOXIDE (CO₂) HOSE-AND-REEL SYSTEM—Consists of two cylinders, a length of special CO₂ hose coiled on a reel, and a horn-shaped nonconducting nozzle equipped with a second control valve.

CARBON MONOXIDE (CO)—A colorless, odorless, tasteless, and nonirritating gas. However, it can cause death even in small concentrations.

CASCOR—A CASCOR (Casualty Correction) is submitted when equipment, which has been the subject of casualty report, is back in operational condition. This report shall be submitted as soon as possible after the casualty has been corrected.

CASREP—A CASREP (Casualty Report) is submitted to report the occurrence of a significant equipment casualty or malfunction which cannot be corrected within 48 hours and which reduces the ship's ability to perform its mission.

CASUALTY EXPOSURE—The total gamma exposure that the commanding officer has established to identify radiological casualties; once an individual's accumulated exposure has reached this level, that person cannot be assigned duties involving additional radiological exposure without command approval.

CASUALTY POWER SYSTEM—One of the most important shipboard damage control systems. The system is a simple electrical distribution system. It is used to maintain a source of electrical power for the most vital machinery and equipment needed to keep the ship afloat or to get the ship out of a danger area. The casualty power system is intended to provide power during real emergencies only. It must NOT be used as a means of making temporary routine repairs.

CASUALTY—A person unavailable for duty because of injuries.

CEILING LIMIT—Concentration of a substance above which personnel should not be exposed, even instantaneously.

CENTER OF BUOYANCY—When a ship is floating at rest in calm water, it is acted upon by two sets of forces: (1) the downward force of gravity and (2) the upward force of buoyancy. The force of gravity is a resultant or composite force, including the weights

of all portions of the ship's structure, equipment, cargo, and personnel. The force of gravity may be considered as a single force, which acts downward through the ship's center of gravity (G).

CENTER OF GRAVITY—The point at which all the weights of the unit or system are considered to be concentrated and have the same effect as that of all the component parts.

CENTIGRAY (cGy)—An international unit of measure for absorbed radiological dose, used by other U.S. military services and allies; equivalent to a rad. One roentgen of exposure to gamma radiation results in an absorbed dose of approximately one cGy.

CENTRIFUGAL DRY SPARK ARRESTER—A device used to remove particulate suspended in incinerator smoke. It works by drawing the smoke through a cyclone chamber where the heavier particulates are thrown to the sides of the chamber by centrifugal force and then are collected and removed.

CHALK TEST—A simple means of determining if the gasket is in continuous contact with the knife-edge when a closure is dogged.

CHARLIE (C) FIRES—Fires that occur in electrical wiring or equipment.

CHEMICAL AGENT POINT DETECTOR SYSTEM (CAPDS)—The CAPDS is a local sampling detection device. It is used to detect the presence of chemical agents in the air.

CHEMICAL AGENTS—Agents that produce harmful physiological reactions when applied to the body externally, inhaled, or swallowed. Most military chemical agents cause disorganization of the functioning of the body.

CHEMICAL AND BIOLOGICAL (CB) WARFARE—To deny entry or neutralize contamination so the mission of the ship can be carried out without endangering the life or health of assigned personnel.

CHEMICAL PROTECTIVE ENSEMBLE (CPE)—The combination of all individual chemical protective equipment including suit, boots, gloves, and mask.

CHEMICAL PROTECTIVE OVERGARMENT—The chemical protective overgarment (CPO) is made of material that is permeable to water vapor; that is, it allows the escape of moisture from perspiration. The function of the CPO is to protect the wearer from threat levels of chemical agents in liquid form and from the associated vapor.

CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL (CBR) BOUNDARY—A physical barrier that isolates an area not protected against CBR contamination from an area that is protected against CBR contamination.

CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL (CBR) DEFENSE BILL—The CBR Defense Bill constitutes the hull-specific application of doctrinal concepts and technical procedures.

CHOKING AGENTS—Choking agents, sometimes called lung irritants, primarily injure the respiratory tract which includes the nose, the throat, and particularly the lungs where it causes pulmonary edema. In extreme cases, membranes swell, lungs become filled with liquid, and death results from lack of oxygen; thus, these agents choke an unprotected man. Fatalities of this type are known as "dry-land drownings."

CIRCLE WILLIAM—The material classification of openings and ventilation systems between the interior of the ship and the outside atmosphere that are secured to minimize the penetration of nuclear fallout, chemical agents, or biological agents.

CIRCLE XRAY—Fittings marked with a black X inside of a black circle. These modified closures are secured during conditions XRAY, YOKE, and ZEBRA.

CIRCLE YOKE—Fittings are marked with a black Y inside of a black circle. These modified fittings are secured during conditions YOKE and ZEBRA.

CIRCLE ZEBRA—Fittings are marked with a red Z inside a red circle. These modified fittings are secured during condition ZEBRA. CIRCLE ZEBRA fittings may be opened with the commanding officer's permission during prolonged periods of general quarters.

CLOSED COMPARTMENT OPENING REQUEST—A form submitted to the GFE via the chain of command requesting gas free engineering services in support of opening a closed space. This request only allows opening. Entry is authorized using the gas free certificate. This form may also be used to request other gas free engineering services, such as ventilation or planning for cold work.

CLOSURE SYSTEM—Protects the interior of the ship against the entry of aerosols and gases.

- COFFERDAM**—A protective space or shell surrounding a gasoline storage tank and filled with an inert gas, such as nitrogen or carbon dioxide.
- COLD WEATHER BILL**—The Cold Weather Bill is used to prepare the ship for cold weather operations.
- COLD WORK**—Operations that involve only inspections, cleaning, or minor repair where no hot work will be conducted. Examples are space inspections, spray painting, chemical cleaning, and the use of any strippers, thinners, paints, or cleaners that produce vapors.
- COLLECTION, HOLDING, AND TRANSFER SYSTEM (CHT)**—The system for handling sewage and wastewater.
- COLLECTIVE PROTECTION SYSTEM (CPS)**—A system of air locks, high-pressure fans, and high efficiency filters providing pressurized, filtered air to total protection (TP) zones and filtered air to limited protection (LP) zones. *See* TOTAL PROTECTION ZONE and LIMITED PROTECTION ZONE.
- COMBAT SPECTACLES**—Combat spectacles are for use with CW protective masks. The medical department is responsible for ordering and issuing combat spectacles.
- COMBUSTIBLE DUST**—Particles capable of undergoing combustion or burning when subjected to a source of ignition.
- COMBUSTIBLE LIQUIDS**—Any liquid having a flash point at or above 37.8°C (100°F) comfort of personnel.
- COMBUSTION**—A rapid chemical reaction that releases energy in the form of light and noticeable heat. Most combustion involves rapid OXIDATION, which is the chemical reaction by which oxygen combines chemically with the elements of the burning substance.
- COMPARTMENT AIR TEST**—A test of watertight compartments using compressed air.
- COMPARTMENT CHECK-OFF LIST**—Provides an itemized listing of all classified fittings and closures used in damage control to set the specified material condition of readiness.
- COMPLETE DECK**—A deck that extends from side to side and stem to stern.
- CONCENTRATION**—The quantity of a substance per unit volume. Examples of concentration units are milligrams per cubic meter (mg/m³); parts per million (ppm) for vapors, gases, fumes, or dusts; fibers per cubic centimeter (fibers/cc) for vapors or gases.
- CONDUCTION**—Transfer of heat through a body or from one body to another by direct physical contact.
- CONFINED SPACE**—A space which has restricted openings for entry and exit and in which hazardous contaminants could be expected to be produced but not removed by ventilation; or in which oxygen could be expected to be depleted or enriched.
- CONTACT HAZARD**—A skin hazard that exists when exposure to a chemical or biological agent can result from touching a contaminated surface.
- CONTAMINANT**—A material or agent that is foreign to a specified or desired condition or circumstance.
- CONTAMINATION CONCENTRATION**—Amount of a chemical agent vapor or aerosol present in a unit volume of air; usually expressed in milligrams per cubic meter (mg/m³).
- CONTAMINATION CONTROL AREA (CCA)**—The CCA is used to control access to the ship of all personnel exposed to the weather during or after a chemical, biological, and radiological attack.
- CONTAMINATION CONTROL**—Procedures to avoid, reduce, remove, or render harmless, temporarily or permanently, biological, chemical, or radiological contamination for the purpose of maintaining or enhancing the efficient conduct of military operations.
- CONTAMINATION DENSITY**—Amount of liquid or solid agent in a unit area; usually expressed in milligrams or grams per square meter (mg/M² or g/M²).
- CONTAMINATION**—The deposition on and absorption of biological or chemical agents or radioactive material by shipboard structures, areas, personnel, or equipment; the presence of chemical or biological agents in the air in the form of vapors (chemical) or aerosols (chemical or biological).
- CONVECTION**—Transfer of heat through the motion of circulating gases or liquids.

CONVENTIONAL DECONTAMINATION (DECON) STATION

—Conventional decontamination stations generally have saltwater nozzles in the shower stalls in addition to freshwater nozzles. Large ships may have additional saltwater decontamination stations. Multiple decon stations and the availability of both salt and fresh water provide for working around contaminated areas and battle-damaged areas.

CORROSIVE MATERIAL—A solid, liquid, or gas that degrades other substances (especially metals) through chemical action. It can burn, irritate, or destructively attack organic tissue.

COSINE—The cosine is the ratio expressed by dividing the side adjacent to the angle θ by the hypotenuse.

COUNTERMEASURES WASHDOWN (CMWD) SYSTEM

—A dry-pipe sprinkler system that provides a moving screen of seawater over the weather surfaces of the ship. The flowing water carries away most of the liquid and solid contaminants that fall on the decks or bulkheads.

CPS DECONTAMINATION STATION

—Four-compartment decon station with access to the weather deck in each TP zone.

CRITERIA—Those parts of a standard that establish a measurable quality; that is, specifications and inspection intervals.

CROSS CURVES OF STABILITY—For each waterline the value of the righting arm is calculated, using an ASSUMED center of gravity, rather than the TRUE center of gravity. A series of such calculations is made for various angles of heel—usually 10°, 20°, 30°, 40°, 50°, 60°, 70°, 80°, and 90°—and the results are plotted on a grid to form a series of curves.

DAMAGE CONTROL ASSISTANT (DCA)—The DCA is the primary assistant to the damage control officer in the areas of damage control; fire fighting; and chemical, biological, and radiological defense.

DAMAGE CONTROL BOOKS—These books contain descriptive information, tables, and diagrams. Each book is pertinent to an individual ship. The information given covers the following six subjects: “Damage Control Systems,” “Ship’s Compartmentation,” “Ship’s Piping Systems,” “Ship’s Electrical Systems,” “Ship’s Ventilation Systems,” and “General Information.”

DAMAGE CONTROL CENTRAL (DCC)—The primary purpose of DCC is to collect and compare reports. Location onboard ship where damage control operations are coordinated through and also where direction is given to repair teams.

DAMAGE CONTROL CLOSURE LOG—All ships are required to prepare and maintain a damage control closure log. The closure log is maintained at all times, whether the ship is in port or under way. The closure log is used to show where the existing material condition of readiness has been modified, the fitting’s type, number, and classification, the name, rate, and division of the person who requested permission to open or close the fitting, the date and time the fitting was opened or closed, the date and time the fitting was returned to its specified material condition of readiness setting, the name and rate/rank of the person granting permission.

DAMAGE CONTROL KITS—At each repair locker a number of repair kits are made up and stowed in canvas bags. These kits are kept ready to be taken to the scene of damage. The kits should be constructed and packaged so they will fit through the smallest watertight scuttle on your ship. These kits are commonly called plugging kits, pipe-patching kits, and shoring kits.

DAMAGE CONTROL ORGANIZATION—The damage control organization consists of two elements—the damage control administrative organization and the damage control battle organization.

DAMAGE CONTROL SELECTIVE RECORDS—There is technical documentation onboard which must be maintained current for the life of the ship. Throughout the life of a ship, there may be major equipment changes or even compartment or system modifications.

DAMAGE CONTROL TRAINING—Consistent training produces an optimal level of readiness that prepares members of repair party teams to react more efficiently and effectively to actual casualties.

DAMAGE CONTROL TRAINING TEAM (DCTT)—Composed of qualified senior members of the ship’s crew specifically tasked to ensure the ship’s company maintains the highest level of battle readiness. This training is maintained through comprehensive training programs, which include lectures and drill scenarios.

- DARKEN SHIP BILL**—The Darken Ship Bill is used to ensure that all DOG-ZEBRA fittings are closed by applicable divisions whenever darken ship is ordered.
- DCTT TEAM LEADER**—The executive officer serves as the chairman of the planning board for training and team leader of the DCTT. The executive officer will coordinate the planning and execution of the ship's training effort. The team leader of the DCTT is responsible for the management of the training team.
- DCTT TEAM COORDINATOR**—The ship's senior Damage Controlman or Hull Maintenance Technician normally hold the position of DCTT team coordinator.
- DECAY (RADIOLOGICAL)**—The decrease in the level of radioactivity from nuclear fallout as fission fragments decompose to a more stable state.
- DECKS**—The floors of a ship.
- DECONTAMINANT**—Anything used to break down, neutralize, or remove a chemical or biological material posing a threat to personnel or equipment.
- DECONTAMINATION**—The process of removing radiological contaminants from a person, equipment, or structure. The process of making any person, equipment, or structure safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents.
- DECONTAMINATION EFFECTIVENESS**—The degree to which decontamination reduces a radiation hazard. The ratio of the radiation intensity after decontamination to what it would have been without decontamination.
- DEEP SHELTER**—Compartments that provide shielding against radiation.
- DEFICIENCY OF OXYGEN**—An atmosphere where the oxygen content has been reduced below the point at which a person may work comfortably (approximately 19.5% by volume).
- DELAYED FALLOUT**—Fallout from a nuclear explosion that does not fall to the surface until 24 or more hours after the explosion.
- DELTA (D) FIRES**—Those that occur in combustible metals, such as magnesium, titanium, and sodium.
- DENSITY**—The density of any material, solid or liquid, is obtained by weighing a unit volume of the material.
- DEPOSIT RADIATION**—Radiation from radioactive particles that have landed on the ship.
- DETECTOR**—Any mechanism by which the approach or presence of a chemical or biological agent is made known.
- DETECTOR PAPER**—A specially treated paper used to determine the presence of liquid chemical agent.
- DETECTOR TUBE**—A glass tube that uses a sensitive chemical (in a suspension of silica gel) which produces color change whenever contaminated air is pulled through it.
- DETERGENT**—A synthetic cleaning and emulsifying substance usable in either fresh water or seawater for decontamination.
- DIFFUSION**—A process to disperse and equalize a physical state (such as temperature) or a gas (when one gas is introduced to another).
- DILUTION VENTILATION**—Introduces air into a space to dilute the contaminated air within the space to an acceptable level. Generally used for the control of flammable, oxygen-deficient or oxygen-enriched areas, rather than control of toxicants.
- DIRECT FIRE ATTACK**—A method of attacking a fire in which fire fighters advance into the immediate fire area. The extinguishing agent is applied directly onto the seat of the fire to extinguish the fire or spray a water fog (fog attack) into the hot gas layer over the seat of the fire to gain control.
- DISPLACEMENT**—The weight of the volume of water displaced by the hull.
- DOG ZEBRA**—Fittings marked with a red Z inside a black D. These modified fittings are secured during condition ZEBRA and darken ship conditions. You must have proper authorization to open fittings with this classification when the ship is at either condition ZEBRA or darken ship.
- DOSE (CHEMICAL OR BIOLOGICAL)**—The amount of biological or chemical agent to which a person is exposed in a given period of time.
- DOSE (RADIOLOGICAL)**—The total amount of ionizing nuclear radiation that is absorbed by an individual, an object, or a system over a specified time interval.
- DOSE RATE (RADIOLOGICAL)**—The rate at which a radiological dose is absorbed.

DOSE RATE METER—A RADIAC instrument used to measure dose rate.

DOSE RATE/SURVEY METER—The device that measures radiation intensity. This device provides the information needed to calculate the radiological hazards of occupying a contaminated area or handling contaminated equipment. It also provides the information necessary to calculate the approximate length of time personnel can safely remain in a radiological contaminated area.

DOSIMETER—A RADIAC instrument used to measure the total dose received from exposure to radiation.

DRAG FORCE—The dynamic force of wind that tends to pull down and displace structures and personnel. Drag is a directional force.

DRILL CRITIQUE—After each training evolution, the training team must conduct a debrief. It is necessary for the training team to discuss and document a list of “Lessons Learned.”

DRILL GUIDE VALIDATION—Accomplished in three parts and must be conducted before its use in a drill package. “Walk-Thru” is the process of verifying “Cold Checking,” and “Hot Checking.”

DRY CHEMICAL EXTINGUISHER—Used primarily on class BRAVO fires. PKP is the chemical most often used in these extinguishers.

DT-60/PD—A gamma radiation dosimeter with a usable range of 10 to 600 R.

DUST—A solid, dry mechanically produced particle resulting from operations, such as sanding and grinding.

DYNAMIC OVERPRESSURE—The strong winds that accompany the air blast front that expands outward from a nuclear burst. They exert a directional force that tends to drag exposed objects and personnel along with it.

EARLY FALLOUT—Fallout from a nuclear explosion that falls to the surface within the first 24 hours after the explosion.

ELECTROMAGNETIC PULSE (EMP)—An intense electromagnetic field that builds up to maximum strength within fractions of a second after a nuclear explosion. It can damage unprotected electrical and electronic equipment by inducing strong electric currents in its circuitry.

ELECTRON—An extremely small particle of matter that orbits the nucleus of the atom. It has a negative electrical charge.

EMERGENCY CIRCUITS—Used to provide a means of re-establishing communications once a casualty has occurred to the primary lines.

EMERGENCY OVERBOARD DISCHARGE CONNECTIONS—The emergency overboard discharge connections, port and starboard, are installed through the hull of each main transverse subdivision on the damage control deck.

EMERGENCY WATER ACTIVATED REPAIR PATCH (EWARP)—A unique and easy to use pipe patch that can be used on many piping systems. The EWARP comes in a clear plastic package that includes a foil package containing the instant repair resin-coated cloth and a pair rubber gloves.

EMP OR TREE DAMAGE—System degradation in electrical or electronic equipment that requires repair or replacement of damaged components. It can be caused by electromagnetic pulse (EMP) or transient radiation electronic effects (TREE).

EQUIVALENT CRITERIA—The measurement of equivalency, which is a judgment based on the preponderance of information available.

EXERCISE CONTROL—Includes initiation of the exercise and provides responses to watch stander/team actions.

EXHAUST VENTILATION—Removes contaminated air from a compartment or space so the fresh air finds its way into the space through any available openings.

EXPLOSIVE RANGE—A scale that indicates the explosive nature of gases or vapors. The relationship of the concentration of the vapor present; its temperature and pressure is expressed as a percent by volume in air. If the explosive range falls below the lower explosive limit (LEL), the mixture of air and vapor is too lean for an explosion. If the explosive range is above the maximum explosive range or upper explosive limit (UEL), the mixture of vapor and air is too rich to be explosive.

EXPLOSIVE-PROOF—Describes an apparatus, device, or equipment that is tested and approved for use in hazardous atmospheres, as defined in the National Electrical Code®. Explosive-proof devices are designed to withstand internal explosions and prevent hot vapors or particles from exiting before they become significantly cooled.

EXPOSURE RATE (RADIOLOGICAL)—The amount of ionizing nuclear radiation per unit of time to which a person, an object, or a system is subjected; the intensity of the radiation.

EXPOSURE RATE METER—A RADIAC instrument used to measure radioactive intensity or exposure rate.

FACEPIECE—That portion of a respirator which covers the wearer's nose and mouth in a quarter-mask (above the chin) or half-mask (under the chin) or that covers the nose, mouth and eyes in a full facepiece. It is designed to make a gas-tight or particle-tight fit with the face and includes the headbands, exhalation valve(s), and connections for an air-purifying device or respirable gas source, or both.

FALLOUT—Radiological contamination formed in a nuclear surface burst consisting of radioactive particles and droplets that fall to the surface after the explosion, sometimes many miles away from the location of the detonation.

FIREBALL—A brilliantly glowing sphere of extremely hot gases formed by a nuclear explosion.

FIRE BOUNDARYMEN—The fire boundarymen set primary and secondary fire boundaries as directed by the repair party leader or fire marshal. They secure all doors, hatches, and openings in the boundary of the fire area. They remove or relocate combustibles as required. They cool boundaries with hoses as required. They are normally monitored by and report to the roving investigators.

FIRE CONTAINED—When one or more hose teams are making progress advancing on a fire and the fire is contained in a single area within a compartment. This term means the same as "Fire Under Control" and is used when reporting from the scene to avoid confusion with the term "Fire Out of Control."

FIRE-FIGHTER'S ENSEMBLE—Designed to protect the fire fighter from short duration flame exposure, heat, and falling debris. The components of the fire-fighter's ensemble include the fire-fighter's coveralls, antifeash hood, damage control/fire-fighter's helmet, fire-fighter's gloves, and fire-fighter's boots.

FIRE HOSE STATION—A fire hose station is the location where fireplug and associated equipment are stored; commonly referred to as either a fire station or a fireplug.

FIRE OUT—This is when all visible flames have been extinguished. Smoldering fires may still be present.

FIRE POINT—The temperature at which a fuel will continue to burn after it has been ignited.

FIRE TRIANGLE—Three components are heat, fuel, and oxygen. Fires are generally controlled and extinguished by eliminating one side of the fire triangle; that is, if you remove either the fuel, heat, or oxygen, you can prevent or extinguish a fire.

FIRE UNDER CONTROL—A fire under control is when one or more hose teams are making progress advancing on a fire and the fire is contained in a single area within a compartment.

FIREMAIN SYSTEM—Receives water pumped from the sea. It distributes this water to fireplugs, sprinkling systems, flushing systems, machinery cooling-water systems, washdown systems, and other systems as required. The firemain system is used primarily to supply the fireplug and the sprinkling systems; the other uses of the system are secondary.

FISSION—A nuclear reaction in which the nucleus of an atom of a heavy element splits into the nuclei of lighter elements, releasing a tremendous amount of energy.

FISSIONABLE MATERIAL—Unstable isotopes of heavy elements, such as uranium and plutonium. They can be caused to fission, or split, when impacted by free neutrons. They are radioactive, giving off alpha particles as they decay.

FLAMMABLE RANGE/EXPLOSIVE RANGE—The range between the smallest and the largest amounts of vapor in a given quantity of air that will burn or explode when ignited.

FLASH—The initial extremely bright pulse of light produced by a nuclear explosion.

FLASHOVER—A flashover is the transition from a growing fire to a fully developed fire in which all combustible items in the compartment are involved in fire.

FLASH POINT—The lowest temperature at which a flammable substance gives off vapors that will burn when a flame or spark is applied.

FLATS—Plating or gratings installed only to provide working or walking surfaces above bilges.

FLIGHT DECK—In aircraft carriers the uppermost complete deck. It is the deck from which aircraft take off and land.

FORCE—A push or pull that tends to produce motion or a change in motion. Force is what makes something start to move, speed up, slow down, or keep moving against resistance (such as friction). A force may act on an object without being in direct contact with it. The most common example of this is the pull of gravity. Forces are usually expressed in terms of *weight units*, such as *pounds*, *tons*, or *ounces*.

FORECASTLE (*pronounced folk'sul*) **DECK**—This deck is above the main deck at the bow. The part of the main deck from the stem to just aft of the anchor windlass is the forecastle.

FORWARD WELL DECK—Forward part of the main deck between the upper deck and forecastle.

FREE ELECTRON—An electron that is not part of an atom, molecule, or ion; one that has been released from an atom or molecule during the process of ionization.

FREE SURFACE EFFECT—Free surface in a ship causes a reduction in GM because of a change in the center of gravity and a consequent reduction in stability. The free surface effect is separate from and independent of any effect that may result merely from the addition of the weight of the liquid.

FREEBOARD—The distance from the waterline to the main deck.

FUEL—A solid, liquid, or even a vapor. Some of the fuels you will come into contact with are rags, paper, wood, oil, paint, solvents, and magnesium metals.

FUME—Solid particles formed by condensation of metals from the gaseous state.

FUNGI—Includes such plants as yeasts, molds, and mildews. These organisms are known for their ability to spoil foods and fabrics.

FUSION—A nuclear reaction in which the nuclei of atoms of a light element are combined to form the nucleus of an atom of a heavier element, releasing a tremendous amount of energy.

G SERIES NERVE AGENTS—Tabun (GA), Sarin (GB), Soman (GD).

GALLERY DECK—First deck or platform below the flight deck.

GAMMA RAYS—A form of electromagnetic radiation, indistinguishable from X rays.

GAS FREEING—Operations performed in testing, evaluating, removing, or controlling hazardous materials or conditions within or related to a confined space which may present hazards to personnel entering or working in or adjacent to the space.

GASKET MATERIALS—Includes sheet and strip rubber, leather, canvas, rags, oakum, and paint.

GEOPOLITICAL SITUATION—ITT leaders read geopolitical situation for the drill and refer team members to order of battle, include current readiness condition of ship, OOC, or degraded.

GROUND ZERO—The point of detonation of a nuclear surface burst on land.

GUNWALES (*pronounced gunnels*)—The upper edges of the sides where the sheer strakes join the main deck.

HALF DECK—Any partial deck between complete decks.

HALF LIFE—The amount of time it takes for the level of radiation from any specified amount of a particular radioactive material to decrease by one half.

HALF THICKNESS—The thickness of shielding material necessary to reduce the intensity of gamma radiation that passes through it by half.

HANGAR DECK—The deck on which aircraft are stowed and serviced when not on the flight deck.

HAZARDOUS MATERIAL (HM)—Any material that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial hazard to human health or the environment when released.

HAZARDOUS WASTE (HW)—Any discarded material (liquid, solid, or gas) that meets the definition of HM.

HEARING CONSERVATION PROGRAM—Hearing loss has been and continues to be a source of concern within the Navy. Monitoring of the Hearing Conservation Program is the responsibility of the safety officer.

HEAT—Involves three methods—conduction, convection, and radiation.

HEAT CASUALTY—An individual unable to perform his or her duties as a result of heat exhaustion or heat stroke.

HEAT EXHAUSTION—A physical condition caused by exposure to high temperature combined with physical exertion, and marked by faintness, nausea, and profuse sweating; can be considerably reduced by proper physical conditioning and increased fluid intake.

HEAT STRESS—Heat stress is a pathological condition in which the body's cooling mechanisms are unable to dissipate the heat load generated.

HEAT STRESS PROGRAM—The Heat Stress Program establishes Navy policy and procedures for the control of personnel exposure to heat stress.

HEAT STROKE—A state of collapse or prostration, usually accompanied by high fever, brought on by exposure to heat; has a 50 percent mortality rate but accounts for only a small percentage of heat casualties.

HEPA FILTER—A high efficiency particulate air filter. HEPA filters remove solid particles and liquid droplets from an air supply.

HIGH ALTITUDE BURST—A nuclear detonation that takes place at an altitude where the atmosphere is so thin that the interaction of the explosion with the atmosphere is drastically different from that of bursts at lower altitudes; nominally, a burst at an altitude above 100,000 feet.

HOOK BOLT—A long bolt that is usually fabricated from round steel stock. Hook bolts come in a variety of diameters and shapes.

HORIZONTAL AUDIT—These audits are normally conducted on only one specific area or aspect of the QA Program (re-entry control [REC], welding, training, qualification, or testing). They focus on the particular area and do not track a job from start to finish as the vertical audit does.

HORIZONTAL LOOP FIREMAIN SYSTEM—Consists of two-single fore-and-aft, cross-connected piping runs. The two individual lengths of piping are installed in the same horizontal plane (on the same deck) but are separated athwartships as far as practical.

HOSEMAN—A hoseman runs the attack hose from the fireplug to the scene, and you will keep the hose from getting fouled while fighting the fire and relay spoken messages and orders between the on-scene leader and the nozzleman.

HOT SPOT—A localized area of a ship where chemical or biological contamination is considerably above the average of the surrounding area.

HOT SURFACE—*NSTM*, chapter 505, defines a hot surface as 650°F (343°C) for lubricating oil and hydraulic oil systems and 400°F (205°C) for all other flammable liquids.

HOT WORK—Any operation that involves flame, spark, or temperatures in excess of 2050°C (4000°F).

HYCHECK VALVE—Diaphragm type, fail open, seawater pressure-operated control valve, which allows the flow of seawater from the firemain system to be mixed with AFFF concentrate.

HYDROCARBON—A compound containing only carbon and hydrogen. Hydrocarbons are the principal constituents.

HYDROGEN SULFIDE (H₂S)—Generated in some fires. It is also produced by the rotting of foods, cloth, leather, sewage, and other organic materials.

HYDROGEN-ION CONCENTRATION—Abbreviated pH, term used to express the acidity or alkalinity.

HYDROLYSIS—The decomposition of a chemical compound by reaction with water, useful in decontamination of some chemical agents, often accelerated by acid or alkaline solutions or by the presence of hypochlorite.

HYTROL VALVE—Diaphragm type, fail open, seawater pressure-operated control valve that controls the flow of AFFF solution to systems.

IGNITION—The act or action of causing a substance to burn; the means whereby a material starts burning.

IM-143/PD—Identical to the IM-9/PD except in range. The IM-143/PD indicates gamma radiation dose in the range of 0 to 600 R.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH)—Any atmosphere that meets one or more of the following conditions—flammable vapors at a concentration of 10% or greater of the lower explosive limit (LEL); an oxygen content of less than 19.5% or greater than 22%; the presence of toxicants above a level that would allow personnel to escape within 30 minutes without impairment or irreversible health effects.

IMMINENT DANGER—A condition that immediately poses a threat of serious injury, illness, or the loss of life.

INCAPACITATING AGENTS—Used to wage and win a war without resorting to the massive killing, enormous destruction of property, and immense monetary cost.

INCENDIARIES—Incendiary weapons, unlike other chemical agents, are concerned primarily with material damage, rather than with inflicting casualties.

INCLINING EXPERIMENTS—The ship designer uses calculations to determine the vertical position of the center of gravity. From available plans and data, the various items that go to make up the ship and its load are tabulated. The ship can be considered as consisting of the various parts of the structure, machinery, and equipment. The load is comprised of fuel, oil, water, ammunition, and sundry stores aboard.

INCLINING MOMENTS—A ship may be disturbed from rest by conditions which tend to make it heel over to an angle. These conditions include such things as wave action, wind pressures, turning forces when the rudder is put over, recoil of gunfire, impact of a collision or enemy hit, shifting of weights on board, and addition of off-center weights. These conditions exert heeling moments on the ship that may be temporary or continuous.

INCOMPATIBLE HM/HW—Any hazardous materials that react with each other to produce undesirable products.

INDIRECT FIRE ATTACK—Indirect fire attack is a method of attacking a fire in which fire fighters outside the fire area discharge water fog into the fire area through a cracked open door or a bulkhead or overhead penetration.

INDIVIDUALLY DOGGED WATERTIGHT DOORS—These doors provide access/egress to compartments that are not high usage spaces, which do not require rapid access, such as paint lockers, deck gear lockers, or storerooms.

INERT GAS—A gas mixture that is nonflammable, will not support combustion, and contains a maximum of 3% by volume of oxygen.

INERTING—A process in which an inert or nonflammable gas, such as carbon dioxide, helium, argon, or nitrogen, is introduced into an atmosphere to such a degree that the oxygen/flammable vapor content of the atmosphere will not burn or explode.

INHALATION HAZARD—Since the standard protective mask provides full-face coverage, the terms *eye-respiratory hazard* and *inhalation hazard* are used synonymously.

INITIAL CERTIFICATION—The certificate issued by gas free engineering personnel as a result of initial testing.

INITIAL NUCLEAR RADIATION—The radiation (essentially neutrons and gamma rays) that is emitted by the fireball and the cloud during the first minute after detonation. All significant neutron radiation is emitted in less than 0.1 second and gamma radiation up to 20 or 30 seconds, depending on weapon yield.

INITIAL TESTING—Testing conducted on a confined space when the space is first opened after a period of closure or servicing.

IN-PORT FIRE PARTY—The in-port fire party will function as a repair party while the ship is in port. CBR defense operations are not a normal evolution for an in-port fire party.

INTERCOM UNITS—The units provide fast and dependable two-way communication between DCC and each repair party locker.

INTERFERENCE—Electromagnetic energy that decreases clear reception of radio or radar signals.

INTERNAL HAZARD—Radioactive material that is taken into the body by respiration, ingestion, or absorption through open wounds into the bloodstream.

INTRINSICALLY SAFE—An item or piece of equipment which by design does not have, or is not capable of producing, sufficient levels of energy to cause ignition. An intrinsically safe device can be operated in a hazardous atmosphere without igniting that atmosphere.

INVESTIGATOR—Investigators are assigned to repair lockers to ensure that no further damage occurs outside the boundaries of the existing casualty. Investigators normally operate in pairs, traveling assigned routes and reporting conditions to the repair locker.

ION—An atom or molecule that has lost an electron and taken on a positive electrical charge or one that has gained an electron and become negatively charged.

IONIZATION—A process in which electrically neutral atoms or molecules are changed into charged particles by the loss or addition of electrons.

IONIZING RADIATION—Energy in the form of electromagnetic emissions or subatomic particles that interact with electrically neutral atoms or molecules, changing them into charged particles (ions).

IRRITANT—Substance which when in contact with living tissue can cause burning or itching.

ISOLATION—A process whereby a confined space is removed from service and completely protected against the inadvertent release of hazardous material into the space. Isolation can be accomplished by blanking off; blocking/disconnecting all mechanical linkage, electrical isolation, or other specified means.

ISOMETRIC DIAGRAM—The isometric damage control diagram diagrams each deck or platform and is shown at a separate level. They also show piping systems as close as possible to their actual shipboard locations. Usually the isometric damage control diagrams are not drawn to scale.

ISOTOPES—Different forms of a chemical element that have the same chemical characteristics but different atomic masses due to variations in the number of neutrons.

JP-5—A high flash point, kerosene-type aircraft turbine fuel, specifically designed for storage and use on naval ships.

KEEL—The keel is the backbone of the ship.

KILOTON—Nuclear weapon yield equivalent to the explosive energy released by 1,000 tons of TNT.

LIMITED PROTECTION (LP) ZONE—A zone within a collective protection system that provides protection against liquid and solid CBR agents but not agents in vapor form.

LINE SOURCE—A continuously moving munition or device that releases chemical or biological agent along its path.

LONGITUDINAL FRAMES—Frames running parallel with the keel.

LONGITUDINAL STABILITY—The tendency of a ship to resist a change in trim.

LOOSE WATER—Used to describe liquid that has a free surface; it is NOT used to describe water or other liquid that completely fills a tank or compartment and thus has no free surface.

LOWER EXPLOSIVE LIMIT (LEL)—The minimum percent by volume of a gas that, when mixed with air at normal temperature and pressure, will form a flammable mixture.

LOWER FLAMMABLE LIMIT (LFL)—The minimum concentration of a combustible gas or vapor in air, usually expressed in percent by volume at sea level, which will ignite if a sufficient ignition source of energy is present.

MACHINERY SPACE—Machinery space is main and auxiliary machinery spaces that contain any of the following: installed fire-fighting systems, oil-fired boilers, internal combustion engines, gas turbines, or steam turbines.

MAGAZINE SPRINKLER SYSTEMS—Sprinkler systems are used for emergency cooling of, and fire fighting in, magazines, ready-service rooms, ammunition, and missile handling areas. A magazine sprinkler system consists of a network of pipes. Magazine sprinkler systems can completely flood their designated spaces within an hour.

MANNED HOSE—Manned hose is a single fire hose manned with a nozzleman and hosemen (as required).

MASK ONLY—A protective posture that provides personnel relief from wearing the complete chemical protective ensemble.

MASTER COMPARTMENT CHECK-OFF LIST (CCOL)—A master CCOL is developed for each ship at the time of its construction. CCOLs are provided in each compartment of the ship and provide information on all fittings within the compartment.

MATERIAL CONDITIONS OF READINESS—Refers to the degree of access and system closure in effect at any given time.

MATERIAL SAFETY DATA SHEET (MSDS)—A written or printed document about a hazardous material that is prepared and submitted by a manufacturer, product supplier, or distributor. Each MSDS contains the data elements required in 29 CFR 1910.1200.

MAXIMUM PERMISSIBLE EXPOSURE

(MPE)—The total radiological exposure that the commanding officer will allow any individual to accumulate without command approval; personnel are rotated through vital stations near hot spots to prevent any individuals from exceeding this total.

MECHANICAL VECTORS—These are animals that transmit infective organisms from one host to another but, in themselves, are not essential to the life cycle of the parasite.

MECHANICAL VENTILATION—Provides fresh air when needed, independent of the direction of the wind or temperature.

MEGATON—Nuclear weapon yield equivalent to the explosive energy released by 1,000,000 tons of TNT.

MESSENGER—Individual responsible to relay orders and information. These messages will normally be relayed between the scene, the repair locker, and, if in port, the quarterdeck.

METACENTER—The intersection of two successive lines of action of the force of buoyancy, as the ship heels through a very small angle.

METACENTRIC HEIGHT—The distance from the center of gravity to the metacenter.

METHODS OF DAMAGE CONTROL

TRAINING—There are many examples of effective training methods. One is lectures on various portable and installed damage control equipment. The lecture method of training discusses the basic parts, the functions of each part, and the operation of equipment with limiting parameters. Another method of training is hands-on training, sometimes called demonstration/performance; for example, having the trainee demonstrate the proper setup and operation of the P-100 fire-fighting pump.

MICRON—A unit of length equal to one millionth of a meter, or one thousandth of a millimeter.

MICROORGANISMS—Microbes, or minute, living organisms too small to be seen with the unaided eye.

MISCELLANEOUS CIRCUITS—There are several miscellaneous circuits that provide for the transmission of information of direct interest to damage control stations.

MISSILE HAZARD—An object that could become dislodged by a sudden shock or ship motion and cause injury to personnel.

MISSION ORIENTED PROTECTIVE POSTURE

(MOPP)—Mission oriented protective posture (MOPP) is the level of CBR protection directed by a ship's commanding officer. Levels of protection range from 1 to 4, with 4 being fully protected.

MOGAS—Combat automotive gasoline that has a low octane rating that may cause knocking in engines. The relative amount of lead influences the octane rating.

MOLECULE—A combination of atoms of the same or different elements in which electrons are shared but the nuclei remain separate and distinct.

MOMENTS—In addition to the size of a force and its direction of action, the location of the force is important. The effect of the location of a force is known as the **MOMENT OF FORCE**. It is equal to the force multiplied by the distance from an axis about which you want to find its effect. The moment of a force is the tendency of the force to produce rotation or to move the object around an axis.

MONITORING—The continued or periodic act of seeking to determine whether chemical, biological, or radiological contamination is present.

MULTIGAS DETECTOR (DRAGER)—A single multi-purpose gas detector pump with calorimetric tubes used to detect over 100 toxic gases/vapors.

MYCOTOXIN—A naturally occurring toxin produced by certain types of fungi that are potential biological warfare agents. Tricothecenes are an example.

MYOSIS—Excessive contraction of the pupils of the eyes caused by exposure to minute quantities of nerve agents; the pupil is unable to dilate and remains contracted, and task performance is severely impaired or impossible, often accompanied by pain and a headache.

NAVAL SHIPS' TECHNICAL MANUAL (NSTM)

—These manuals cover different aspects of damage control, which include the following: fire fighting, flooding, ship's stability, and CBR countermeasures. Study of the NSTMs will help you complete your damage control personnel qualification standards.

NAVY OCCUPATIONAL SAFETY AND HEALTH (NAVOSH) STANDARDS

—Occupational safety and health standards published by the Navy which include, are in addition to, or are alternatives for, the OSHA standards which prescribe conditions and methods necessary to provide a safe and healthful working environment.

- NEGATIVE PRESSURE**—A pressure less than atmospheric pressure. Gases and liquids flow from higher pressure to lower pressure areas; air is drawn into an area of negative pressure.
- NERVE AGENTS**—These agents radically disturb the chemical processes of the nervous system, which impairs or stops other bodily functions.
- NEUTRON**—A subatomic particle that is electrically neutral.
- NIOSH/MSHA**—National Institute of Occupational Safety and Health/Mine Safety Health Administration.
- NONPERSISTENT AGENT**—A chemical agent that when released, dissipates or loses its ability to cause casualties after a few minutes.
- NOZZLEMAN**—The nozzleman mans the attack hose nozzle so that the fire may be extinguished.
- NUCLEAR BURSTS**—An explosion resulting from a fission or fusion reaction.
- NUCLEAR RADIATION**—The four types of nuclear radiation released as the result of a nuclear explosion are alpha particles, beta particles, gamma rays, and neutrons.
- NUCLEAR RADIATION INJURY**—Unlike injuries from other weapon effects, nuclear ionizing radiation injuries may not become evident immediately unless a high enough dose is received. Nuclear radiation, even in very small doses, has some harmful effects on the body.
- NUCLEUS**—The central region of an atom, composed of protons and neutrons.
- ODOR THRESHOLD LIMIT**—The lowest concentration of a contaminant in the air that produces a scent that humans can smell.
- ON-SCENE LEADER**—The on-scene leader is the person in charge at the scene.
- ON-STATION MONITORING**—This information is used in determining when fallout ceases and in estimating accumulated doses at these locations.
- OSHA STANDARDS**—Those standards issued by the Department of Labor's Occupational Safety and Health Administration pursuant to section 6 of the OSHA.
- OUTGAS**—To remove imbedded gas from a substance by heating.
- OUTSERTS**—Clear plastic outserts that fit over the mask lens. They protect the lens from scratches when they are stored in the carrier, and they protect the lens from chemical agent droplets, oil, and other petroleum products when the mask is worn.
- OVERHAUL**—An examination and cleanup operation. It includes finding and extinguishing hidden fire and hot embers and determining whether the fire has extended to other parts of the ship.
- OXIDIZING MATERIAL**—A chemical compound that spontaneously releases oxygen at normal temperature and air pressure or under slight heating.
- OXYGEN**—The content of the surrounding air. Ordinarily, a minimum concentration of 15% oxygen in the air is needed to support flaming combustion.
- OXYGEN BREATHING APPARATUS (OBA)**—An entirely self-contained breathing apparatus. It enables the wearer to breathe independently of the outside atmosphere. It produces its own oxygen from chemical reaction and allows the wearer to enter compartments, voids, or tanks that contain smoke, dust, or fire, or those that have a low oxygen content.
- OXYGEN INDICATOR**—Measures atmospheric concentrations of oxygen over a range of 0-25%. Typical application is to check for potential oxygen-deficient atmospheres during post fire operations.
- OXYGEN-DEFICIENT ATMOSPHERE**—Any oxygen concentration less than 19.5% at normal atmospheric pressure.
- OXYGEN-ENRICHED ATMOSPHERE**—Any oxygen concentration greater than 22% by volume at normal atmospheric pressure.
- PARTICULATE MATTER**—Solid contamination appearing as dust, powder, grains, flakes, fiber, or stains, usually removable by settling, filtration, or centrifugal purification.
- PATCHING MATERIALS**—Prefabricated wooden box patches in various sizes, rags, pillows, mattresses, blankets, kapok life jackets, metal plate, folding metal plate patches, flexible sheet metal patches, prefabricated steel box patches, bucket patches, and welded steel patches.
- PATHOGENS**—Living organisms that include bacteria, viruses, rickettsias, fungi, and protozoa.

PERCUTANEOUS HAZARD—A chemical or biological agent that can harm the skin or enter the body through unbroken skin. Also called a skin hazard.

PERIODIC TESTING—Testing conducted during the course of an operation at intervals greater than 15 minutes, based on the nature of the space, its contents, and the nature of the operation.

PERMEABLE—Having pores or small openings that allow passage of some liquids or gases. For example, the material from which the chemical protective overgarment (CPO) is made is permeable to water vapor.

PERMISSIBLE EXPOSURE LIMIT (PEL)—The maximum permissible concentration of a toxic chemical or exposure level of a harmful physical agent to which personnel may be exposed. PEL is based on a time-weighted average (TWA) for a normal 8-hour day, 40-hour, 7-day week.

PESTS—The meaning of the term *pest* as used here is restricted to certain animals (excluding microorganisms) that interfere with the health of other organisms. Pests are known as parasites when they obtain their food from living host cells.

PHONE TALKER—The phone talker mans the phone between the supervisor at their location and other stations and receives messages from other phone talkers and relays them to their supervisor.

PLATFORMS—Partial decks below the lowest complete deck used broken to admit machinery or other spaces and are called platform decks or just platforms.

PLUGGING MATERIALS—Plugging materials include wooden plugs and wedges and wooden shoring.

PLUGMAN—The plugman connects the hose to the fireplug, and when directed to do so and while the nozzle is closed, open the fireplug valve to activate the hose.

POOP DECK—A partial deck above the main deck located all the way aft.

PORTABLE SUBMERSIBLE PUMPS—The portable submersible pump used aboard naval ships is a centrifugal pump driven by a water-jacketed constant speed ac electric motor and may be designed to operate as single or three phase at 120, 240, or 440 volts.

POWERCHECK VALVE—Diaphragm type, normally closed, seawater pressure-operated control valve. This valve allows the flow of AFFF from the pump to be mixed with seawater and protects the AFFF tank from seawater contamination or dilution.

POWERTROL VALVE—Diaphragm type, normally closed, seawater pressure-operated control valve. This valve allows the flow of AFFF/seawater solution through the distribution system or controls seawater flow on flight deck injection systems.

PRESSING-UP—The process of completely filling a space with liquid to displace flammable vapor/air mixtures.

PRESSURE LOCK—A shipboard passageway with a quick-acting watertight (QAWT) door on either end. Only one door is opened at a time to prevent the flow of air from a pressurized part of the ship to an unpressurized area. Unlike an air lock, a pressure lock does not have air sweep fittings for purging contaminated air. Therefore, it is not used in a contaminated environment.

PRE-WETTING—Activation of the Countermeasure Washdown System before the arrival of chemical and biological contamination.

PRIMARY CIRCUITS—The number of primary circuits used within the sound-powered battle telephone system varies among ships. The size and type of your ship normally determines the choice of circuits.

PROTECTION FACTOR—The reciprocal of a transmission (or shielding) factor. A radiation measurement at an interior location can be multiplied by the protection factor for that space to estimate the radiation level at the corresponding exterior location. A protection factor is always greater than one. Multiplying by a protection factor is mathematically equivalent to dividing by a transmission factor.

PROTECTIVE MASK—A primary means of defense against CB agents is the protective mask. The mask is designed to protect the face, eyes, and the respiratory tract of the user from tactical concentrations of chemical and biological agents, toxins, and radioactive fallout particles.

PROTECTIVE SHIELDING—A method of defense against nuclear radiation.

- PROTON**—A subatomic particle that has a positive electrical charge.
- PROTOZOA**—Single-celled, animal-like forms that occur in a variety of shapes and often have complicated life cycles.
- PROTRACTED EXPOSURE**—Those in which doses are received over a longer period of time, normally greater than 24 hours, as a result of exposure to fallout.
- PURGING**—The method by which gases, vapors, or other airborne impurities are displaced from a confined space.
- PURPLE-K-POWDER (PKP)**—Potassium bicarbonate powder used to extinguish class BRAVO and class CHARLIE fires.
- QA AUDITS**—Audits provide a means of comparing the records of completed jobs to their requirements in order to ensure compliance.
- QUALIFIED PERSON**—A person designated, in writing, as capable (by education or specialized training) of anticipating, recognizing, and evaluating personnel exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control or protective action to ensure personnel safety.
- QUANTAB CHLORIDE TITRATOR V**—Quantab chloride titrator strips are used to measure salt (chloride) in aqueous solutions.
- RAD**—A unit of energy absorbed from ionizing radiation absorbed from ionizing radiation, equal to 100 ergs per gram of irradiated material. An added factor in the use of a rad is that it expresses the dose from any type of radiation, whereas the roentgen relates only to gamma radiation or X rays.
- RADIAC**—The acronym for Radiation, Detection, Indication, and Computation.
- RADIATION**—Transfer of heat from a source across an intervening space, no material substance is involved.
- RADIATION SICKNESS**—The disease resulting from excessive exposure of the body to ionizing radiation.
- RADIOACTIVE CLOUD**—A cloud formed from the material that was vaporized in the fireball.
- RADIOACTIVE DECAY**—A decrease in the level of radioactivity from a radioisotope as it decomposes to a more stable condition.
- RADIOACTIVE WATER POOL**—A surface or underwater nuclear detonation creates a radioactive water pool in the area of the detonation. This pool expands outward rapidly from SZ, for about 2 minutes, and continues to expand more slowly.
- RADIOACTIVITY**—The release of nuclear radiation from a nuclear reaction or nuclear decay.
- RADIOLOGICAL ASSESSMENT**—Prediction of radiation intensity based on the decay of radioactive substances.
- RADIOLOGICAL CONTROL**—Minimizing the exposure to nuclear radiation and radioactive contamination.
- RADIOLOGICAL DELINEATION**—Determination of the location of radioactive contamination and the radioactive intensity of the radiation in the surrounding area.
- RAINOUT**—Radioactive rain that results when the cloud from a nuclear burst joins a rain cloud.
- RAPID EXTERNAL SURVEY**—Sometimes referred to as the gross external survey, is conducted after the rapid internal survey to obtain more precise radiation levels at topside vital stations and at contaminated areas that are irradiating internal vital stations. As in the rapid internal survey, the focus is on getting an accurate measurement quickly at action stations and expeditiously reporting the results.
- RAPID INTERNAL SURVEY**—Performed immediately after the cessation of fallout to get an indication of the severity of the radiation hazard at specific locations, primarily action stations. Safe stay times for interior vital stations can be calculated based on the rapid internal survey.
- RATE OF ACTION**—The rate at which a body reacts to or is affected by that agent. There is a wide variation in the rate of reaction to the toxic chemical agents, even to those of similar tactical or physiological classifications.
- RATE OF DETOXIFICATION**—The rate at which the body counteracts the effects of a chemical agent. It is an important factor in determining the hazards of repeated exposure to sublethal doses of toxic chemical agents.

REACTIVE MATERIAL—A solid, liquid, or gas that is chemically unstable at normal temperature and air pressure; capable of undergoing violent change when subjected to heat, shock, mixture with water, or other chemicals.

READY SHELTER—If the ship is warned enough in advance, personnel topside shall be ordered to ready shelter before the arrival of the base surge or fallout. Taking ready shelter is both a contamination avoidance measure and a radiation mitigation technique.

REFRACTOMETER—Gives accurate readings of total dissolved solids in aqueous solutions.

RELAY LANTERNS—Installed throughout the ship to provide limited illumination when other sources fail.

REPAIR PARTIES—Qualified shipboard personnel responsible for executing damage control duties in a training or actual damage control situation.

REPAIR PARTY MANUAL—The repair party manual provides detailed information on the standard methods and techniques used in damage control as outlined in *NWP 3-20.31*.

RESCUE AND ASSISTANCE BILL—The Rescue and Assistance Bill organizes qualified personnel by duty section or the entire ship to render emergency assistance outside the ship.

RESERVE BUOYANCY—The volume of the watertight portion of the ship above the waterline. Expressed as a percentage, reserve buoyancy is the ratio of the volume of the above-water body to the volume of the underwater body.

RESIDUAL RADIATION—Nuclear radiation released after a nuclear explosion from fission products in fallout, rainout, base surge, and radioactive pool.

RETESTING AND RECERTIFYING—The process of testing, evaluating, and certifying a confined space by the gas free engineer using the same procedures required for initial testing and certification when the certificate expires without entry, work, or test and updating of the certificate; or when conditions occur which alter the initial conditions found or specified.

RICKETTSIAE—Intracellular, parasitic microorganisms that are intermediate in size between bacteria and viruses.

ROENTGEN (R)—A unit of exposure to gamma or X radiation.

ROLLOVER—A sudden spread of flame through the unburnt gases and vapors in the upper layer across the overhead of a space.

SAFE STAY TIME—The time personnel can remain in the vicinity of a radioactive hot spot without exceeding their maximum permissible exposure (MPE).

SAFETY—Safety is a primary concern during all training events. If an unsafe condition exists, the training event should be STOPPED until a safe condition is established. During training, planning, and operations, the operational risk management (ORM) process must be used. The training team leaders are responsible for ensuring that proper procedures are used in planning training events.

SCINTILLATION—The distortion of a very high-frequency electromagnetic signal as it passes through layers of beta particles from a nuclear explosion at altitudes above 35 miles.

SECONDARY HAZARD—A chemical or biological hazard that does not develop during the delivery of the agent on target, but develops later.

SECURING MATERIALS—Includes assorted hook bolts, manila line, wire rope, chain, machine bolts, angle clips for welding, and shoring. Backup materials include mess tables, metal joiner doors, buckets, plywood or lumber, sheet metal, and metal plate.

SELF-CONTAINED BREATHING APPARATUS (SCBA)—Type of respirator that allows the user complete independence from a fixed source of air.

SHELF LIFE—A period of time for which an instrument can be used without degradation, usually specified by the manufacturer.

SHIELDING FACTOR—A fraction, always less than one, that represents the proportion by which shielding attenuates gamma radiation.

SHIP INFORMATION BOOK—When a ship is built for the Navy, the builder prepares a ship information book (SIB). The ship's crew uses the SIB to familiarize themselves with the ship's characteristics. Normally the SIB will contain the following eight volumes—*Hull and Mechanical; Propulsion Plant; Auxiliary Machinery, Piping, Ventilation, Heating, and Air-Conditioning Systems; Power and Lighting Systems; Electronic Systems; Interior Communications; Weapons Control Systems; and Ballasting Systems.*

SHIP'S DRAWING INDEX (SDI)—The SDI is kept in the engineering department office (log room). The SDI lists all working drawings that have a NAVSHIPS or NAVSEA drawing number, all manufacturer's drawings, all equipment drawing lists, and all assembly drawings that list detail drawings.

SHIPBOARD TRAINING TEAMS—Training teams include a core group of the most knowledgeable and experienced personnel from the ship. The size of the crew, number of qualified personnel, complexity of the exercise, and safety requirements will influence the size of the team.

SHIP'S GENERAL ANNOUNCING SYSTEM (1MC CIRCUIT)—The ship's general announcing system used to pass information to the ship's crew on a regular basis each day. It is also another means of damage control communication because information can be passed throughout the ship. The 1MC system should be used only to pass warnings or vital information that affects the entire ship's company.

SHIP'S SERVICE TELEPHONES—Telephones for damage control communications when there are telephones installed at or near repair party lockers. The ship's service telephones are standard telephones.

SHIPS' DRAFT—The vertical distance from the keel to the waterline.

SHOLE—A flat block that may be placed under the end of a shore to distribute pressure.

SHORE—A portable beam.

SHORT-TERM EXPOSURE LIMIT (STEL)—The maximum concentration of a substance to which personnel can be exposed for up to 15 minutes without significant physiological effects (i.e., irritation, narcosis, impairment of self-rescue), provided that no more than four exposures per day are permitted and at least 60 minutes elapses between exposure periods.

SHORT-TERM LETHAL CONCENTRATION (STLC)—A concentration of a substance that is lethal within 10 minutes of exposure.

SINE—In trigonometry, angles are represented by the Greek letter theta (θ). The sine of an angle θ , abbreviated as $\sin \theta$, is the ratio expressed when the side of a right triangle opposite the angle θ is divided by the hypotenuse.

SINGLE MAIN FIREMAIN SYSTEM—Consists of a single piping run that extends fore and aft. This type of firemain is generally installed near the centerline of the ship, extending forward and aft as far as necessary.

SKIN DOSE—Radiation from a source outside the body, possibly on the skin, that can damage the skin.

SMOKE CONTROL ZONE—The area between the inner and outer smoke boundaries established for fires that involve primarily class ALPHA or class CHARLIE materials.

SOFT PATCH—A patch used to repair small holes or cracks in low-pressure (150 psi) piping.

SOLENOID-OPERATED PILOT VALVE (SOPV)—Electrically operated pilot valves that control the activation of many AFFF fire-extinguishing systems. All SOPVs (master and service) have four control line ports; one port is always connected to supply pressure (firemain), and a second port is the valve drain (which should be piped to discharge within the coaming of the AFFF station).

STABILITY CURVES—When a series of values for GZ (the ship's righting arm) at successive angles of heel are plotted on a graph, the result is a stability curve, also called the curve of static stability.

STANDBY PERSON—The person trained in emergency rescue procedures assigned to remain on the outside of the confined space and to be in communication with those working inside.

STATIC OVERPRESSURE—A sudden, non-directional increase in air pressure caused by the passage of the air blast wave from a nuclear burst.

STEAM BLANKETING—A method for making the outer boundaries of a space safe for hot work by using steam to displace and carry off flammable vapor/air mixtures within a space.

STORAGE—The holding of HM or HW for a temporary period, after which time the HM is used or stored elsewhere, or the HW is treated, disposed of, or stored elsewhere.

STRAKES—The hull plating fastened to the framework in longitudinal rows.

STRENGTH DECK—Deck designed to carry not only deck loads on it but also the hull stresses.

STRETCHER-BEARER—The stretcher-bearer is required to take the repair locker first-aid kit, or box, to or near the scene. If medical department personnel are available, they will help them in administering first aid, as required.

STRONGBACK—A bar or beam of wood or metal that is used to distribute pressure or to serve as an anchor for a patch. The strongback is often shorter than a shore.

SUBATOMIC PARTICLE—One of the components of which all atoms are composed (electron, proton, and neutron).

SUPERSTRUCTURE DECK—A partial deck above the main, upper, or forecastle deck that does not extend to the sides of the ship (if it does, it does not have the side plating carried up to it.).

SUPPLEMENTARY CIRCUITS—Primary circuits related to their principal functions. However, when the circuit is also used for damage control communications, the circuit is considered as a supplementary circuit.

SUPPLEMENTARY SURVEYS—Conducted to confirm or revise stay time calculations. They may also be ordered to localize hot spots for decontamination. Supplementary surveys of interior spaces shall include beta monitoring to detect intrusion of contamination.

SUPPLY VENTILATION—Moving fresh air into a compartment or space and displacing contaminated air through any available openings.

SURFACE BURST—A nuclear detonation in which the fireball is in contact with the surface of land or water.

SURFACE ZERO—The point of detonation of a nuclear surface burst on water.

SURVEY—The effort to determine the location and nature of the chemical, biological, and radiological contamination and radiation on or in a ship.

TANGENT—The tangent of the angle θ is the ratio of the side opposite the angle θ to the side adjacent.

TEAM LEADER—The team leader directs the efforts of attack teams to extinguish or overhaul a fire.

TEAR AGENTS—Tear agents (also known as riot-control agents) are essentially local irritants, which, in very low concentrations, act primarily on the eyes, causing intense pain and a considerable flow of tears; stinging of warm, moist skin; and

irritation of the nose. High concentrations produce irritation of the upper respiratory tract and lungs and cause nausea and vomiting. The agents may be either solids or liquids and may be dispersed in the air as vapors or smokes.

THERMAL RADIATION—Electromagnetic emissions in the form of light and heat.

THERMAL RADIATION INJURY—Can cause burn injuries directly when the skin absorbs radiant energy. It can also cause burn injuries indirectly as a result of fires started by the radiation. The flash of thermal radiation from the fireball produces direct burns, called flash burns. The indirect, or secondary, burns are called flame burns. These burns are like the skin burns that are caused by any large fire, no matter what its origin.

THRESHOLD LIMIT VALUES (TLV)—Levels of airborne concentrations of physical agents, expressed in parts per million (ppm), that represent conditions under which average personnel may be repeatedly exposed, during normal working hours, without adverse effects.

TOTAL PROTECTION (TP) ZONE—A zone within a collective protection system that provides protection against liquid, solid, and gaseous CBR agents.

TOXIC GAS BILL—The Toxic Gas Bill specifies the procedures and assigns duties and responsibilities for controlling and minimizing toxic gas casualties.

TOXIC MATERIAL—A solid, liquid, or gas that can damage living material, impair the central nervous system, or cause illness or death through inhalation, ingestion, or skin absorption.

TOXIC OR HAZARDOUS ATMOSPHERE—An atmosphere containing a concentration of air contaminants sufficient to cause injury to personnel.

TOXICITY—The property of a material to cause injury to an organism with the maximum result being incapacitation or death.

TOXICITY LIMITS—The limits of a vapor from a certain minimum concentration (lower limit) to a maximum concentration (upper limit).

TOXINS—Poisonous products of living organisms that, when inhaled, swallowed, or injected into man or animals, will cause illness or death.

TRAINERS, EVALUATORS, AND SAFETY

OBSERVERS—Trainers, evaluators, and safety observers directly observe individual and team performance of the training event and some may act as initiators.

TRANSFER HAZARD—Radioactive contamination that can be spread from a contaminated area to a clean area by foot traffic or some other form of physical contact.

TRANSIENT DOSE—A term used in some texts to describe the radiological dose received from the time of arrival of fallout or the base surge to the time of cessation of fallout.

TRANSIENT RADIATION EFFECTS ON ELECTRONICS (TREE)—Caused by initial gamma and neutron emissions from a nuclear burst. These emissions result in the failure or degraded operation of sophisticated solid-state circuits.

TRANSIT RADIATION—Radiation from radioactive particles or droplets in the environment around the ship.

TRANSMISSION FACTOR—A fraction, always less than one, that represents the proportion by which shielding attenuates gamma radiation.

TRIMMING MOMENT—A forward (or aft) movement of weight.

UNDERGROUND BURST—A nuclear explosion centered below the surface of the ground.

UNDERWATER BURST—A nuclear burst centered below the surface of a body of water.

UNDERWATER SHOCK—A pressure wave that travels outward in water from an explosion at or under the surface.

UNDERWATER SHOCK INJURY—Injury among topside and below-deck personnel by the rapid upward movement of the deck.

UPPER DECK—A partial deck extending from side to side above the main deck amidships.

UPPER EXPLOSIVE LIMIT (UEL)—Upper end of the explosive range. Concentrations above this limit are too rich to explode or burn. Concentrations below the LTEL are within the explosive range.

UPSET (EMP, TREE)—Temporary degradation in an electrical or electronic system caused by electromagnetic pulse (EMP) or transient radiological effects on equipment (TREE).

VAPOR—Gas state of a substance.

VAPOR SECURE—Establishing a film or foam blanket over flammable liquid to prevent vaporization.

VAPORIZATION—To pass into the gas or vapor state.

VECTORS—Disease vectors are animal carriers that transfer infective agents from one host to another. They usually are arthropods (insects, arachnids, and crustaceans) but may be other animals.

VENTILATING—The process of moving air into or from a compartment or space.

VERTICAL AUDIT—These audits take into account all aspects of a job or task by examining the documentation used to certify or recertify the system/component during and after repairs. These audits may examine any aspect of the task (training and qualification of personnel, technical and production requirements, cleanliness, or material control).

VERTICAL OFFSET LOOP FIREMAIN SYSTEM—Consists of two single piping runs, installed fore and aft in an oblique (that is, angled) plane, separated both vertically and athwartship, connected at the ends to form a loop. The lower section of the firemain is located as low in the ship as practical on one side, and the upper section is located on the damage control deck on the opposite side of the ship. Athwartship cross-connects are usually provided at each pump riser.

VIRUSES—A group of parasitic microorganisms that live in the cells of their selected hosts.

VOLATILITY—The readiness of a liquid to vaporize or evaporate. The tendency to be readily diffused or dissipated in the atmosphere, especially at ordinary temperatures.

VOMITING AGENTS—These agents are dispersed as aerosols and produce their effects by inhalation. These agents produce minor eye irritation and a feeling of pain and sense of fullness in the nose and sinuses.

WATERLINE—The water level along the hull of a ship afloat.

WATERTIGHT INTEGRITY—The degree of quality of watertightness.

WEATHER DECK—A deck or part of a deck exposed to the weather.

WEATHERING—The process by which radiological contamination is removed from the ship's surface areas by the natural action of the environment, especially wind and rain.

WEDGE—A block, triangular on the sides and rectangular on the butt end.

WEIGHT—If you know the volume of an object and the density of the material, the weight of the object is found by multiplying the volume by the density. The formula for this is as follows: $W = V \times D$ (weight = volume times density).

WILLIAM FITTINGS—Marked with a black W, these fittings are kept open during all material conditions. WILLIAM fittings are secured only as necessary to control damage or CBR contamination and to make repairs to the equipment served.

YIELD—The energy released in a nuclear explosion stated in terms of the tonnage of TNT required to release an equivalent amount of energy.

APPENDIX II

DAMAGE CONTROL ABBREVIATIONS

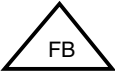
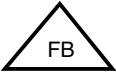
3-M	Maintenance, Material, and Management	EDG	Emergency Diesel Generator
ABT	Automatic Bus Transfer	EDO	Engineering Duty Officer
ACPG	Advanced Chemical Protective Garment	EDORM	Engineering Department Organization and Regulation Manual
AMR	Auxiliary Machinery Room	EEBD	Emergency Escape Breathing Device
AFFF	Aqueous Film-Forming Foam	EMP	Electromagnetic Pulse
BW	Biological Warfare	ENGREAD	Engineering Readiness Advisory
BS&W	Bottom Sediment and Water	EOCC	Engineering Operational Casualty Control
CANTRAC	Catalog of Navy Training Courses	EOOW	Engineering Officer of the Watch
CASCOR	Casualty Correction	EOP	Engineering Operational Procedures
CASREP	Casualty Report	EOS	Engineering Operating Station
CBR	Chemical, Biological, and Radiological	EOSS	Engineering Operational Sequencing System
CDO	Command Duty Officer	ESO	Educational Services Office
CCOL	Compartment Check-Off List	EWARP	Emergency Water-Activated Repair Patch
CCS	Central Control Station	FFE	Fire-fighter's Ensemble
CHT	Collecting Holding Transfer	F/O	Fuel Oil
CMWD	Countermeasure Washdown System	GM	Metacentric Height
CO	Carbon Monoxide	GQ	General Quarters
CO ₂	Carbon Dioxide	HM	Hazardous Material
COSAL	Coordinated Shipboard Allowance List	HMIS	Hazardous Material Information System
CPO	Chemical Protective Overgarment	HMUG	Hazardous Material User's Guide
CPR	Cardiopulmonary Resuscitation	H ₂ S	Hydrogen Sulfide
CPS	Collective Protection System	IC	Interior Communication
CW	Chemical Warfare	J/W	Jacket Water
DCA	Damage Control Assistant	KT	Kiloton
DCC	Damage Control Central	L/O	Lube Oil
DCPO	Damage Control Petty Officer		
DCS	Damage Control Supervisor		
DCTT	Damage Control Training Team		
ECCTT	Engineering Casualty Control Training Team		

LOS	Local Operating Station	PHEL	Physiological Heat Exposure Limit
LVP	Low Voltage Protection	PKP	Purple-K-Powder
LVR	Low Voltage Release	PMS	Planned Maintenance System
LVRE	Low Voltage Release Effect	QA	Quality Assurance
MBT	Manual Bus Transfer	RASP	Reserve Air Supply Pack
MER	Main Engine Room	RAST	Recovery Assist, Securing, and Traversing
MLOC	Master Prelight Off Checklist	R/O	Reverse Osmosis
MPDE	Main Propulsion Diesel Engine	SAR	Supplied Air Respirator
MRC	Maintenance Requirement Card	SCBA	Self-Contained Breathing Apparatus
MSD	Marine Sanitation Device	SDK	Skin Decontamination Kit
MSDS	Material Safety Data Sheet	SHML	Ship's Hazardous Material List
MT	Megaton	SIB	Ship's Information Book
NAPP	Nerve Agent Pretreatment Pyridostigmine	SOPV	Solenoid-Operated Pilot Valve
NFTI	Naval Fire-fighter's Thermal Imager	SORM	Standard Organization and Regulations Manual
NRTC	Nonresident Training Course	SSDG	Ship's Service Diesel Generator
NSTM	Naval Ships' Technical Manual	SUS	Saybolt Universal Second
NC	Normally Closed	TACTAS	Tactical Towed Array Sonar
NEURS	Navy Energy Usage Reporting System	TLI	Tank Level Indicator
NO	Normally Open	TMDER	Technical Manual Deficiency Evaluation Report
NOAP	Navy Oil Analysis Program	TNT	Trinitrotoluene
NPN	Negative Positive Negative	TREE	Transient Radiation Effects on Electronics
NWP	Naval Warfare Publication	TXV	Thermostatic Expansion Valve
OBA	Oxygen Breathing Apparatus	UJT	Unijunction Transistor
OL	Overload	WBGT	Wet Bulb Globe Temperature
OOD	Officer of the Deck	WIFCOM	Wire-Free Communication
PASP	Primary Air Supply Pack	WRV	Water Regulating Valve
PBV	Pressure Build Up Valve		
PECU	Portable Exothermic Cutting Unit		
PHARS	Portable Hydraulic Access/Rescue System		

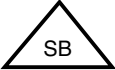
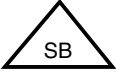
APPENDIX III

DAMAGE CONTROL SYMBOLOGY

FIRE BOUNDARIES



Explanation	Example
<p style="text-align: center;"><u>FB</u> Fire Boundaries Ordered</p> <p>(Identify all Primary and Secondary Boundaries)</p> <p style="text-align: center;"> Fire Boundaries Set</p>	<p style="text-align: center;"><u>FB</u></p> <p style="text-align: center;">SPPS 2221 7407 0505</p> <p style="text-align: center;"> EXAMPLE-Final Triangle for DC Plates</p> <p style="text-align: center;">SPPS 2221 7407 0505</p>

SMOKE BOUNDARIES

Explanation	Example
<p style="text-align: center;"><u>SB</u> Smoke Boundaries Ordered</p> <p>(Identify all Primary and Secondary Boundaries)</p> <p style="text-align: center;"> Smoke Boundaries Set</p>	<p style="text-align: center;"><u>SB</u></p> <p style="text-align: center;">SPPS 2221 7407 0505</p> <p style="text-align: center;"> EXAMPLE-Final Triangle for DC Plates</p> <p style="text-align: center;">SPPS 2221 7407 0505</p>





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FLOODING BOUNDARIES

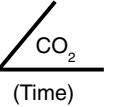
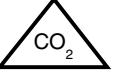
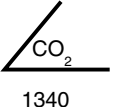
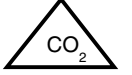
Explanation	Example
<p style="text-align: center;"><u>FLB</u> Flooding Boundaries Ordered (Identify all Primary and Secondary Boundaries)</p> <p style="text-align: center;"> Flooding Boundaries Set</p>	<p style="text-align: center;"><u>FLB</u> SPPS 2221 7407 0505</p> <p style="text-align: center;"> EXAMPLE-Final Triangle for DC Plates SPPS 2221 7407 0505</p>

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AFFF BILGE SPRINKLING SYSTEM

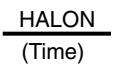
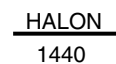




Explanation	Example
<p><u>AFFF</u> AFFF Station Manned</p> <p> AFFF Station Activated/Time (Time On)</p> <p> AFFF Station Secured/Time (Time Off)</p>	<p><u>AFFF</u></p> <p> 1340</p> <p> 1340 1340 EXAMPLE-Final Triangle for DC Plates</p>

FIXED CO₂ SYSTEM

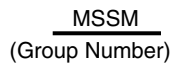
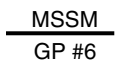




Explanation	Example
<p><u>CO₂</u> CO₂ System Manned</p> <p> CO₂ System Activated/Time (Time)</p> <p> CO₂ Effective</p>	<p><u>CO₂</u></p> <p> 1340</p> <p> 1340 EXAMPLE-Final Triangle for DC Plates</p>

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FIXED HALON SYSTEM

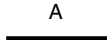
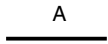
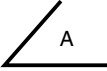
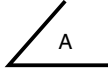






Explanation	Example
 <p style="margin-left: 20px;">Halon System Activated/Time</p>	
 <p style="margin-left: 20px;">Halon System Released/Time</p>	
 <p style="margin-left: 20px;">Halon System Effective</p>	 <p style="margin-left: 20px;">EXAMPLE-Final Triangle for DC Plates</p>

MAGAZINE SPRINKLER SYSTEM

Explanation	Example
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 <p style="margin-left: 20px;">Magazine Sprinkler System Activated</p>	
 <p style="margin-left: 20px;">Magazine Sprinkler System Secured</p>	 <p style="margin-left: 20px;">Example-Final Triangle for DC Plates</p>

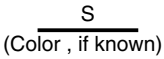
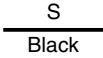
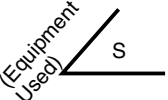

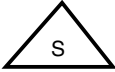
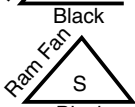
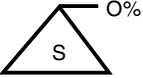
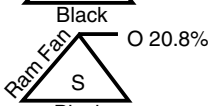
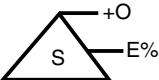
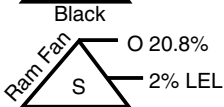
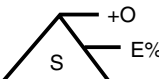
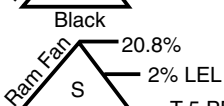

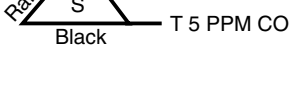
DCfAIV04

FIRE (Class A, B,C, or D)

Explanation	Example
	
	
	
	
	

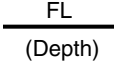
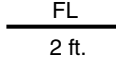
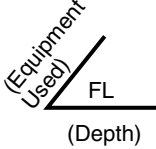
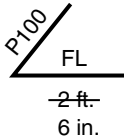

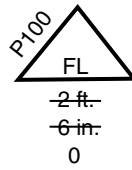


Example-Final Triangle for DC Plates

SMOKE

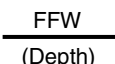
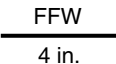
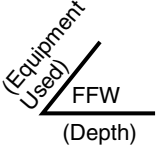



Explanation	Example
	
	
	
	
	
	
	

DCI AIV05

FLOODING

Explanation	Example
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Flooding Reported (Depth in IN or FT) (use of "or" not allowed)</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> </div>
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Flooding Being Pumped</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> </div>
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Flooding Dewatered</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div style="margin-left: 10px;"> <p>EXAMPLE-Final Triangle for DC Plates</p> </div> </div>
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Flooded Solid</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>EXAMPLE-Final Symbol for DC Plates</p> </div> </div>

FIREFIGHTING WATER

Explanation	Example
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Firefighting Water Reported (Depth in IN or FT) (use of "or" not allowed)</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> </div>
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Firefighting Water Being Pumped (Equipment Used)</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> </div>
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Firefighting Water Dewatered</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  </div> <div style="margin-left: 10px;"> <p>EXAMPLE-Final Triangle for DC Plates</p> </div> </div>

DCfAIV06

PROGRESSIVE FLOODINGS


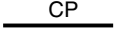
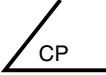
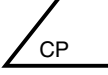


Explanation	Example
<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;"> $\frac{\text{PFL}}{\text{(Depth)}}$ </div> <div> <p>Progressive Flooding Reported (Depth in IN or FT) (use of "or" not allowed)</p> </div> </div>	$\frac{\text{PFL}}{4 \text{ in.}}$
<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;"> $\frac{\text{PFL}}{\text{(Depth)}}$ </div> <div> <p>Progressive Flooding Being Pumped (Equipment Used)</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;"> $\frac{\text{ESP}}{\text{PFL}}$ </div> <div> <p>4 in. 2 in.</p> </div> </div>
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> \triangle </div> <div> <p>Progressive Flooding Dewatered Removed</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> \triangle </div> <div> <p>EXAMPLE-Final Triangle for DC Plates 4 in. 2 in. 0</p> </div> </div>

COMMUNICATIONS




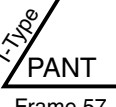
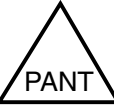
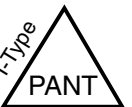
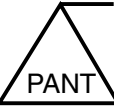

Explanation	Example
<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;"> $\frac{\text{T}}{\text{(Circuit Lost)}}$ </div> <div> <p>Communications Reported Lost on Circuit</p> </div> </div>	$\frac{\text{T}}{2\text{JZ}}$
<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;"> $\frac{\text{T}}{\text{(Alternate Circuit)}}$ </div> <div> <p>Communications Established Using Alternate Circuit</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;"> $\frac{\text{X40J}}{\text{T}}$ </div> <div> <p>2JZ</p> </div> </div>
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> \triangle </div> <div> <p>Communications Restored on Reported Circuit</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> \triangle </div> <div> <p>EXAMPLE-Final Triangle for DC Plates 2JZ</p> </div> </div>

DCfAIV07

CASUALTY POWER








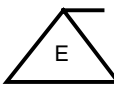
EXPLANATION	EXAMPLE
 CP Casualty Power Ordered	 CP
 CP Casualty Power Rigged	 CP
 CP Casualty Power Energized	 CP EXAMPLE-Final Triangle for DC Plates

SAGGING AND PANTING



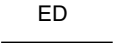
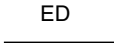
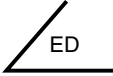
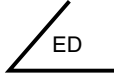


EXPLANATION	EXAMPLE
 PANT (Location) Panting Bulkhead (Location, Bulkhead)	 PANT Frame 57
 PANT (Shore Type) Panting Bulkhead Shoring in Progress (Type of Shoring)	 PANT (I-Type) Frame 57
 PANT Shoring Complete	 PANT (I-Type) Frame 57
 PANT Shoring Watch Set	 PANT (I-Type) Frame 57

DCIAIV08

ELECTRICAL




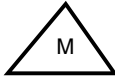
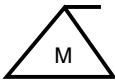

Explanation	Example
 Electrical Power Lost	
 Electrical Power Ordered Isolated	
 Electrical Power Isolated	
 Electrical Power Restored	 EXAMPLE-Final Triangle for DC Plates

ELECTRICAL DAMAGE



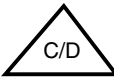
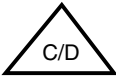
Explanation	Example
 No Apparent Electrical Damage	
 Electrical Damage Reported	
 Electrical Damage Under Repair	
 Electrical Damage Repaired	 EXAMPLE-Final Triangle for DC Plates

DCIAIV09

MECHANICAL



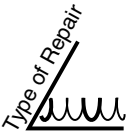



Explanation	Example
 Mechanical Isolation Ordered	
 Mechanical Isolation Complete	
 Mechanical Isolation Restored	 EXAMPLE-Final Triangle for DC Plates

COMPARTMENT DEMOLISHED

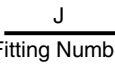
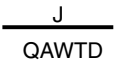


Explanation	Example
 Compartment Demolished	
 Compartment Cleared	 EXAMPLE-Final Triangle for DC Plates

DCfAIV10

SPRUNG FITTING

Explanation	Example
 Sprung Fitting Reported (Fitting Number)	 (Fitting Number)
 Repairs in Progress Type of Repair	 K-Type QAWTD 1-306-2
 Sprung Fitting Repaired	 QAWTD 1-306-2

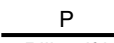
HOT AND JAMMED DOORS, HATCHES, QAWTD, ECT.

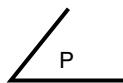
Explanation	Example
 Jammed (Fitting Number)	 QAWTD 1-220-2
 Unjammed	 QAWTD 1-220-2 EXAMPLE-Final Triangle for DC Plates


DCIAIV11

PERSONNEL CASUALTY

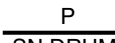
Explanation

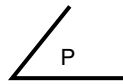
 Personnel Casualty Reported
(Name or Billet, if known)

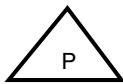
 Corpman at Scene

 Personnel Casualty Evacuated

Example

 SN DRUM

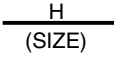

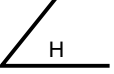
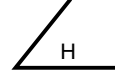
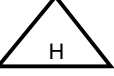

 SN DRUM

 SN DRUM

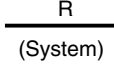
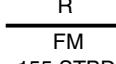
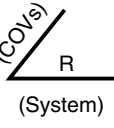
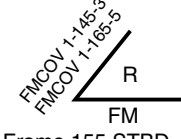
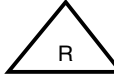
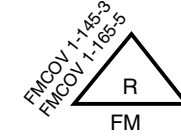
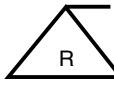

EXAMPLE-Final Triangle for DC Plates

DCIAIV12

HOLE

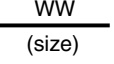
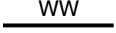




Explanation	Example
 <p>Hole Reported (Size in IN or FT) (use of "or" not allowed) (Pinpoint the Damage)</p>	 <p>4 IN Frame 96, STBD 2 FT off deck</p>
 <p>Hole Patching or Plugging in Process</p>	 <p>4 IN Frame 96, STBD 2 FT off deck</p>
 <p>EXAMPLE-Final Triangle for DC Plates</p>	 <p>EXAMPLE-Final Triangle for DC Plates</p> <p>4 IN Frame 96, STBD 2 FT off deck</p>

RUPTURE

Explanation	Example
 <p>Rupture Reported (System, if known) (Pinpoint the Damage)</p>	 <p>FM Frame 155 STBD, Overhead</p>
 <p>Rupture Isolated (System)</p>	 <p>FM Frame 155 STBD, Overhead</p>
 <p>Rupture Bypassed (How, Where)</p>	 <p>Jumpered Around FM Frame 155 STBD, Overhead</p>
 <p>Ruptured System Repaired and COVs Opened</p>	 <p>EXAMPLE-Final Triangle for DC Plates</p> <p>Jumpered Around FM Frame 155 STBD, Overhead</p>

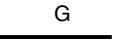
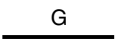
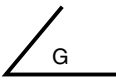

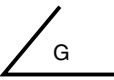

DCI/IV13

SPLIT SEAM OR CRACK

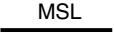
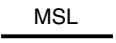
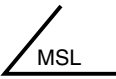

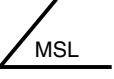
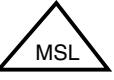
Explanation	Example
<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Split Seam or Crack Reported (Size in IN or FT) (use of 'or" not allowed) (Pinpoint the Damage)</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>4 IN by 2 FT Frame 96, STBD 2 FT Off Deck</p> </div> </div>
<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Split Seam or Crack Repairs in Progress</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>4 IN by 2 FT Frame 96, STBD 2 FT Off Deck</p> </div> </div>
<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>Split Seam or Crack Repairs Complete</p> </div> </div>	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p>4 IN by 2 FT Frame 96, STBD 2 FT Off Deck</p> </div> <div style="margin-left: 20px;"> <p>EXAMPLE-Final Triangle for DC Plates</p> </div> </div>

DCfAIV14

GUN

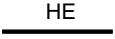
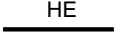
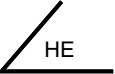
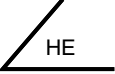


Explanation	Example
 <p style="text-align: center;">G</p> <p>Hot Gun Casualty Reported</p>	 <p style="text-align: center;">G</p>  <p style="text-align: center;">G</p> <p style="text-align: center;">1315</p>  <p style="text-align: center;">G</p> <p style="text-align: center;">1315</p> <p>EXAMPLE-Final Triangle for DC Plates</p>
 <p style="text-align: center;">G</p> <p>(Time)</p> <p>Cool-Down Started</p>	
 <p style="text-align: center;">G</p> <p>Hot Gun Safe</p>	

MISSILE



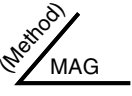



Explanation	Example
 <p style="text-align: center;">MSL</p> <p>Missile Misfire</p>	 <p style="text-align: center;">MSL</p>  <p style="text-align: center;">MSL</p>  <p style="text-align: center;">MSL</p> <p>EXAMPLE-Final Triangle for DC Plates</p>
 <p style="text-align: center;">MSL</p> <p>Cool-Down Started or Jettison Ordered</p>	
 <p style="text-align: center;">MSL</p> <p>Jettisoned or Safe</p>	

DCIAIV15

HIGH EXPLOSIVE

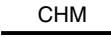
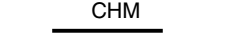
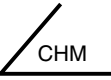

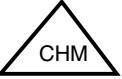

Explanation	Example
 High Explosive Casualty Reported	
 Recovery Started	
 Area Safe	 EXAMPLE-Final Triangle for DC Plates

MAGAZINE


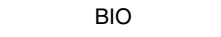
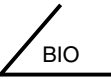
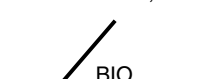
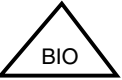

Explanation	Example
 Magazine High Temperature Reported	 (Fitting Number)
 Cool-Down Started (Method)	
 Area Safe	

DCfAIV16

CHEMICAL CONTAMINATION

Explanation	Example
 <p style="margin-left: 20px;">Chemical Contamination Reported (Agent, Location if known)</p>	 <p style="margin-left: 20px;">MUSTARD/FR 96,STBD</p>
 <p style="margin-left: 20px;">Chemical Contamination Isolated</p>	 <p style="margin-left: 20px;">MUSTARD/FR 96,STBD</p>
 <p style="margin-left: 20px;">Decontamination Complete</p>	 <p style="margin-left: 20px;">MUSTARD/FR 96,STBD</p> <p style="margin-left: 100px;">EXAMPLE-Final Triangle for DC Plates</p>

BIOLOGICAL CONTAMINATION

Explanation	Example
 <p style="margin-left: 20px;">Biological Contamination Reported (Agent, Location if known)</p>	 <p style="margin-left: 20px;">RICIN/FR 96, STBD</p>
 <p style="margin-left: 20px;">Biological Contamination Isolated</p>	 <p style="margin-left: 20px;">RICIN/FR 96, STBD</p>
 <p style="margin-left: 20px;">Decontamination Complete</p>	 <p style="margin-left: 20px;">RICIN/FR 96, STBD</p> <p style="margin-left: 100px;">EXAMPLE-Final Triangle for DC Plates</p> <p style="text-align: right; margin-right: 20px;"><small>DCIAIV17</small></p>

RADIOLOGICAL (NUCLEAR) CONTAMINATION

Explanation	Example
<p style="text-align: center;"><u>NUC</u> (Intensity) (Location)</p> <p>Radiological Contamination Reported (Intensity if known)</p>	<p style="text-align: center;"><u>NUC</u> 180R/HR; FR102, STBD</p>
<p style="text-align: center;">/ <u>NUC</u></p> <p>Radiological Contamination Isolated</p>	<p style="text-align: center;">/ <u>NUC</u> 180R/HR; FR102, STBD</p>
<p style="text-align: center;">△ <u>NUC</u></p> <p>Decontamination Complete</p>	<p style="text-align: center;">△ <u>NUC</u> 180R/HR; FR102, STBD</p> <p style="text-align: right;">EXAMPLE-Final Triangle for DC Plates</p>

TOXIC GAS SYMBOLOGY

Explanation	Example
<p style="text-align: center;"><u>TOX</u> (Hazard if known)</p> <p>Toxic gas or HAZMAT Spill Reported</p>	<p style="text-align: center;"><u>TOX</u> H₂S</p>
<p style="text-align: center;">/ <u>TOX</u></p> <p>Toxic gas or HAZMAT Spill Contained</p>	<p style="text-align: center;">/ <u>TOX</u> H₂S</p>
<p style="text-align: center;">△ <u>TOX</u></p> <p>Toxic gas or HAZMAT Spill Removed</p>	<p style="text-align: center;">△ <u>TOX</u> H₂S</p>
<p style="text-align: center;">△ <u>TOX</u> ○</p> <p>Oxygen Test</p>	<p style="text-align: center;">△ <u>TOX</u> ○ 20.8 H₂S</p>
<p style="text-align: center;">△ <u>TOX</u> ○ E</p> <p>Explosive Gas Test</p>	<p style="text-align: center;">△ <u>TOX</u> ○ 20.8 H₂S 2% LEL</p>
<p style="text-align: center;">△ <u>TOX</u> ○ E T</p> <p>Toxic Gas Test</p>	<p style="text-align: center;">△ <u>TOX</u> ○ 20.8 H₂S 2% LEL 5 PPM H₂S</p>

DCfAIV18

APPENDIX IV

REFERENCES USED TO DEVELOP THIS NONRESIDENT TRAINING COURSE

When consulting these references, keep in mind that they may have been revised to reflect new technology or revised methods, practices, or procedures. You therefore need to ensure that you are studying the latest references.

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