

EXECUTIVE ENVIRONMENTAL BRIEF

During the last three decades, more and more interest in environmental affairs has been expressed by the citizens of the U.S. This interest has manifested itself by the passage of numerous environmental laws, an increase in the number of active citizens' groups, and the focus on environmental issues by the new media. Like all other public and private organizations, the Army has been affected by this interest in environmental quality and pollution problems. This unit of instruction is designed to provide a brief overview of some of the ways the Army manager is affected by environmental laws and regulations. This will be done in five sections.

- a. Section I. The Army Environmental Program.
- b. Section II. Environmental Legal Considerations.
- c. Section III. Environmental Laws Related to Army Activities.
- d. Section IV. Hazardous Materials and Wastes.
- e. Section V. Other Environmental Impacts of Army Activities.

Section I. THE ARMY ENVIRONMENTAL PROGRAM

1. Policy. To fulfill the Army's commitment to the environment, the Army's program focuses on restoring contaminated active and closed sites, complying with existing and evolving environmental laws and regulations, preventing pollution at the source to minimize future compliance and restoration requirements, and conserving our lands and resources. These four areas—restoration, compliance, pollution prevention, and conservation—constitute the pillar areas by which funding is allocated. A fifth funding block that supports all the pillars is technology.

a. Restoration: Taking Care of Yesterday's Problems. The Army environmental program is responsible for cleaning up contaminated sites at active installations, Base Realignment and Closure (BRAC) sites, and Formerly Used Defense Sites (FUDS). Our goal is to clean up these sites based on health and safety risks to our soldiers, their families, and the residents of the communities surrounding our installations. By applying good business practices, a results-oriented cleanup program allows for more viable use of the land for both the Army, local communities, and states.

b. Compliance: Taking Care of Today's Problems. The compliance program ensures that operational decisions at installations comply with federal, state, local, Army, and applicable host-nation laws and regulations. The Army's priority is to keep Army activities in compliance, minimizing health and occupational risks to soldiers and our neighboring communities while enhancing their quality of life.

c. Pollution Prevention: Minimizing Problems for Tomorrow. The pollution prevention program initiates proactive measures to maximize our return on investment. The Army recognizes that pollution prevention is clearly the most cost-effective, long-term solution for reducing risks to human health and the environment. By minimizing pollution, the Army reduces compliance and restoration violations and expenditures. The Army program is based on the federal pollution prevention hierarchy: eliminate or reduce the pollution sources; recycle or reuse what is not eliminated; treat what is not recyclable or reusable; and properly dispose of remaining waste.

d. Conservation: Sustaining Resources for the Next Generation. Conservation focuses on managing our natural and cultural resources to support readiness and enhance the soldier's

quality of life. Force modernization is increasing the Army's requirement for land to support training; however, the availability of land is decreasing. It is imperative that the Army supports the tough, realistic training needed to achieve military readiness with efforts to sustain our limited land resources for long-term use.

e. Technology: Key to the Future. Environmental technology provides critical support to all areas of the Army. As federal mandates to protect our environment increase and resources decrease, we must develop, find, and leverage innovative technologies and processes to solve recurring issues. We believe that a focused science and technology program is our key to addressing emerging requirements. Our newly implemented Environmental Technology Investment Strategy and the resulting technologies will help us address our goals of reducing operational costs while enhancing operational capabilities.

2. Strategy. In response to growing significance on Environmental Quality and its impact on the Army, HQDA has undertaken some significant initiatives.

a. The U.S. Army Environmental Strategy into the 21st Century. The Army initiated a comprehensive approach to environmental planning with the "U.S. Army Environmental Strategy into the 21st Century". This document defines the Army's leadership commitment and philosophy for meeting present and future environmental challenges. It provides the framework to ensure that environmental considerations are important to the Army mission and to embed an environmental stewardship ethic in all Army activities. The Strategy provides a unity of direction and a cohesive framework for all Army activities associated with Army installations, facilities and training areas. It also provides a focus on pollution prevention opportunities in the acquisition process and in manufacturing and industrial operations.

b. Mission Statement. "The Army will develop and implement cost-effective measures to protect and sustain the environment in support of military operations, installation management, and materiel development."

c. Vision Statement "The Army will integrate environmental values into its Mission to sustain readiness, improve the soldier's quality of life, strengthen community relationships, and provide sound stewardship of natural and cultural resources." The vision is enduring and will guide the Army into the 21st Century. The strategy's goals, objectives, and action plan focus on four pillars:

(1) PREVENTION - Focus efforts on pollution prevention to reduce or eliminate pollution at the source;

(2) CONSERVATION - Conserve and protect natural and cultural resources so they will be available for present and future generations to use;

(3) COMPLIANCE - Give immediate priority to sustained compliance with all environmental laws; and

(4) RESTORATION - Simultaneously continue to restore previously contaminated sites as quickly as funds permit.

d. Action Plan The action plan corresponds to Army programming and budgeting cycles. Army Commanders must program and budget resources needed to ensure compliance with environmental standards and to anticipate and prevent future environmental problems.

3. General Policies.

a. Achieving environmental objectives is an integral part of the Army mission. To this end, the Army has established the following policies:

(1) The effects on the environment of any proposed action will be considered during

the planning process. Such effects will be evaluated in the decisionmaking process along with technical and economic factors. This policy is actually a legal requirement, as well (see Section III).

(2) Insofar as Army mission constraints permit, program and actions will be planned, initiated, and carried out in such a way as to pollute or degrade the environment as little as possible.

(3) Activities will be monitored to insure that they comply with applicable federal, state, and local environmental quality standards.

(4) Material and energy resources will be procured and used in such a way as to pollute and generate wastes as little as possible. Use and procurement of material and energy resources will be in keeping with national policies for energy conservation. Wastes generated will be reprocessed or reclaimed for other productive uses to the greatest extent practicable.

(5) Throughout the Army will be fostered:

(a) An appreciation of the Army's support of the environmental protection effort.

(b) An understanding of the urgent need to preserve and restore the natural environment and conserve material resources.

(6) All personnel will be encouraged to initiate, lead, and cooperate in achieving these environmental objectives.

(7) To the extent practicable, commanders will cooperate in community environmental action programs.

(8) Historic and cultural sites, structures, and objects will be preserved, restored, and maintained for the benefit of future generations when they are under Army jurisdiction and are listed or eligible for listing on the National Register of Historic Places.

(9) On lands under Army jurisdiction, an integrated, multi-use, natural resource land management program will be conducted.

b. In carrying out these policies, both Headquarters, Department of the Army (HQDA) and major Army commands (MACOM's) are required to integrate the provisions of the Army environmental program into the various Army management functions and systems at all command levels, down to the individual installation, to ensure compliance with applicable pollution control and environmental protection laws.

5. Program Components. The Army environmental program has a number of separate components, usually based upon original environmental statutes or on special programs organized by the DOD services. The following are typically included in the program:

a. National Environmental Policy Act (NEPA) compliance.

b. Pollution Control.

(1) Air Pollution Control.

(2) Water Pollution and Wastewater Treatment.

(3) Drinking Water.

(4) Solid Waste (including resource conservation and recycling programs).

c. Hazardous Substance and Hazardous Waste Management.

(1) Oil and Hazardous Substance Spill Prevention and Control.

(2) Hazardous Waste Management (generations, tracking, waste analysis, storage, treatment, transportation).

(3) Underground Storage Tanks (petroleum products).

(4) Asbestos Management.

(5) Radon Control.

(6) Pesticides Management and Pest Control.

(7) Installation Restoration Program (for cleanup of previously contaminated soils and ground water).

d. Natural and Cultural Resources.

(1) Endangered and Threatened Species.

(2) Historic and Archaeological Features Preservation.

(3) Environmental Noise Abatement, including the Installation Compatible Use Zone (ICUZ) Program.

6. Specific Policies. In addition to the general policies already noted, there are a number of specific policies applicable to each of the major areas of the program. It is important for Army managers to understand their responsibilities in carrying out assigned missions to comply with the intent of these policies. Some examples of these policies in the pollution control arena, as extracted from AR 200-1, are listed here.

a. Water Resources Management.

(1) Control or eliminate all sources of pollutants to surface or ground waters by conventional treatment systems or by employing alternative or innovative processes.

(2) Control or eliminate runoff and erosion through sound vegetative and land management practices.

(3) Cooperate with federal and state authorities in achieving the objectives of the Clean Water Act and the Safe Drinking Water Act.

b. Air Pollution Abatement.

(1) Identify, control, and monitor air pollution emission sources, determine the kinds and amounts of pollutant emissions, and control pollutant levels to those specified by applicable regulations.

(2) Procure commercial equipment and vehicles with internal combustion engines that meet applicable regulations. Exceptions are those engines or vehicles specifically excluded by Environmental Protection Agency (EPA) regulations.

(3) Cooperate with EPA and state authorities in achieving the objectives of the Clean Air Act and develop requirements in participation with federal, state, and local authorities.

c. Hazardous and Toxic Materials Management.

(1) Ensure best management practices over the research, development, procurement, production, use, handling, storage, and ultimate disposition of all of the Army's hazardous and toxic materials.

(2) Use non-hazardous or non-toxic material substitutes to the greatest extent practicable.

(3) To the extent practicable, conserve resources and manage hazardous and toxic materials by reprocessing, recycling, and reusing.

d. Solid and Hazardous Waste Management.

(1) Quantities of solid waste will be reduced at the source whenever economically practicable, such as through the use of minimum packaging, the increased use of returnable or reusable containers, and source separation for recycling.

(2) Solid waste will be recovered and recycled to the greatest extent practicable. Sound economic analyses will be developed for

each installation. Analyses will show the benefits and costs of resource recovery versus traditional solid waste handling and disposal.

(3) Army installations will not be used to store or dispose of toxic or hazardous materials which are not owned or generated by Department of Defense (DOD).

e. Oil and Hazardous Substances Spill Control and Contingency Plans.

(1) Establish and maintain the capability to contain and promptly clean up Army-caused oil discharges and spills or hazardous substances which might occur at or near installations and activities.

(2) Each installation with the capability for a release of a reportable quantity of oil or hazardous substances to the environment will prepare, maintain, and implement a current Spill Prevention Control and Countermeasures (SPCC) Plan and an Installation Spill Contingency Plan (ISCP).

7. Army Environmental Regulations.

a. AR 200-1, Environmental Protection and Enhancement.

(1) This regulation explains the Army environmental program, defines program objectives and policies, and assigns responsibilities for the management of the program in support of national programs for environmental protection, enhancement, and evaluation. It describes, in detail, specific portions of the program. It applies to active and inactive U.S. Army and Army Reserve installations and activities located in the U.S. and overseas, Army National Guard installations and activities supported with federally appropriated funds, and contractor activities and lessees located on real property in the U.S. under DA jurisdiction.

(2) Chapters in AR 200-1 cover goals and responsibilities, environmental research and development, air pollution, drinking water and

wastewater, solid and hazardous waste management policies, oil and hazardous substance spills, environmental noise, asbestos control, the Installation Restoration program for cleanup of past environmental contamination, and environmental reports supporting funding of pollution control projects.

b. AR 200-2, Environmental Effects of Army Actions. This regulation brings DA policy into compliance with Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA). Included in this regulation is the Army's list of activities which are categorically excluded from requirements to prepare Environmental Assessments (EA) or Environmental Impact Statements (EIS) because they have no significant individual or cumulative environmental effects. The regulation also contains detailed information on the preparation of EA's, EIS's, and supporting documents.

c. AR 200-3, Natural Resources Management: This regulation sets policy, responsibilities, and procedures for the conservation, management, and restoration of land and its renewable natural resources. . Resource programs include grounds maintenance, erosion control, agricultural outleasing, forestry, fish and wildlife, endangered and threatened species, coastal zone management, beach protection, pesticides, plant and animal control operations, off-road recreational vehicle management, hunting and fishing, and other outdoor recreation. Mineral resources are made available to public and private interests via leasing activities of the U.S. Department of Interior subject to DA restriction for range safety or other military purpose.

d. AR 200-4, Cultural Resources Management. . This regulation prescribes Army policies, procedures, and responsibilities for meeting cultural resources compliance and management requirements. The scope of this regulation includes the National Historic Preservation Act (NHPA); American Indian

Religious Freedom Act (AIRFA) and Executive Order (EO) 13007; Native American Graves Protection and Repatriation Act (NAGPRA); Archeological Resources Protection Act (ARPA), 36 CFR 79; and other requirements and policies affecting cultural resources management. These policies are designed to ensure that Army installations make informed decisions regarding the cultural resources under their control in compliance with public laws, in support of the military mission, and consistent with sound principles of cultural resource management.

e. AR 200-5 Environmental Quality - Pest Management: This regulation promulgates policies, responsibilities, and procedures to implement the Army Pest Management Program. It also supplements Federal, State, and local laws and requirements described in AR 200-1 for the Army Environmental Program. The Army Pest Management Program implements Department of Defense (DOD) policies to protect health, property, and natural resources from damage by insects, weeds, and other species in ways that promote training and readiness with minimum risks to the environment.

f. The Army Pest Management Program promotes effective integrated pest management (IPM), pollution prevention, and statutory compliance within the scope of the Army's military environmental program to:

- (1) Enhance Army training and readiness goals and objectives.
- (2) Safeguard the environment and human health from injury, disease, and exposure risks from pesticides and other pest management materiel.
- (3) Support stewardship of natural and cultural resources.
- (4) Protect property from damage and destruction.

(5) Comply with applicable laws, regulations, and policies.

8. Program Organization.

a. **The Assistant Secretary of the Army (Installations, Logistics, and Environment) (ASA(IL&E))** has primary responsibility for the Army's military environmental programs. Those responsibilities are carried out through the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) who:

- (1) Develops overall Army environmental policy, guidance, and direction.
- (2) Serves as the primary point of contact with the Office of the Secretary of Defense (OSD), Congress, other Federal and state agencies, and other components.

b. **The Chief, Public Affairs (CPA)** will:

- (1) Provide policy, guidance, and oversight for public affairs support to the Army's military and civil works environmental programs.
- (2) Serve as the point of contact for news media inquiries on Army environmental matters of national importance.

c. **The Assistant Chief of Staff for Installation Management (ACSIM)** serves as the Army Staff proponent of the Army Environmental Program and co-chairs the HQ Army Environmental Quality Control Committee (EQCC) with the ASA(IL&E).

- (1). This function will be carried out through the following responsibilities of the Director of Environmental Programs (DEP):
 - (a) Identify, support, and defend Army military environmental resource requirements.

(b) Promulgate Army military environmental policy and guidance.

(c) Exercise primary Army staff responsibility to oversee, direct, and coordinate the following Army military environmental programs:

- (1) Installation Restoration Program.
- (2) Formerly Used Defense Sites (FUDS).
- (3) Defense-State Memoranda of Agreement/Cooperative Agreement (DSMOA/CA) Program.
- (4) Pollution prevention.
- (5) Environmental compliance.
- (6) Cultural and natural resources.
- (7) Pest management.
- (8) Environmental training and career development.
- (9) Base Realignment and Closure (BRAC) clean-up program.
- (10) National Environmental Policy Act (NEPA) requirements.
- (11) Environmental Noise Abatement.
- (12) Environmental Technology Demonstration and Transfer.

(2) Under the direction of the DEP, the Commander, U.S. Army Environmental Center (USAEC), will manage and provide a broad range of technical support and integration services worldwide for the execution of the Army's military environmental programs.

d. The Judge Advocate General (TJAG) provides legal advice to the Army on all environmental law matters

e. MACOM commanders -provide resources, policy, guidance, and oversight to subordinate commands and activities to execute the Army's environmental program.

f. Installation Commanders (IC) will (among other things):

(1) Comply with legally applicable and appropriate Federal, state,, and local environmental regulations and requirements of environmental permits.

(2) Ensure Pollution Prevention Plans are developed and executed.

(3) Appoint an environmental coordinator and ensure an adequate staff exists to support the Army Environmental Program.

(4) Organize and chair the installation Environmental Quality Control Committee (EQCC).

(5) Sign permit applications, permits, compliance agreements, and consent orders

(6) Require appointment and training of environmental compliance officers at appropriate organizational levels for all subordinate organizations to ensure required compliance actions take place. Require compliance officer(s) be designated by all tenant commanders. Grant case-by-case exceptions as appropriate for organizations which do not generate hazardous waste or otherwise affect the environment. Considerations for compliance officer appointment and information on available training are provided in DA PAM 200-1.

(7) Develop and implement a program to track hazardous materials and hazardous waste from "cradle-to-grave" (i.e., Hazardous Substance Management System (HSMS)).

9. The Role of the Environmental Coordinator.

a. Relations with other installation organizations. The job of the environmental coordinator and staff is to monitor activities to ensure they remain in compliance with environmental laws and regulations not to do all of the environmental work on the installation. The "EC" functions much as a staff officer, overseeing environmental management at the installation and advising the commander accordingly.

(1) Proponents of actions are responsible for meeting environmental documentation requirements according to AR 200-2. The coordinator assists the proponent through such means as guidance, counseling, securing sources of special expertise, and possibly aiding directly in EA preparation if time is available.

(2) For pollution control, the organization operating the facility which generates the pollution must ensure that pollution control equipment and pollution-generating activities follow all appropriate work practices and notify the environmental coordinator of any difficulties, report spills in accordance with installation spill plans, and so forth. It is usually engineering which constructs, operates, and staffs major water and wastewater treatment facilities servicing the entire installation. Other organizations may be responsible for such pollution control as cleaning paint booth air filters, operating vehicle washracks, maintaining hazardous waste accumulation sites and records, etc. The environmental coordinator develops management plans for environmental control aspects of all such facilities and operations, recommends appropriate training for facility operators, and provides in-house guidance to operators (and monitoring, as staffing allows).

(3) Besides being responsible for various installation-level pollution control plans, the environmental coordinator may also prepare land, natural, or cultural resource management plans which then must be implemented by all

organizations on post. However, some installations put some aspects of natural resource management in separate offices.

(4) The environmental coordinator must also be able to successfully use services of the procurement, civilian personnel, and legal offices, and proactively cooperate with safety, medical, and fire departments (due to overlapping responsibilities for hazardous materials and waste management).

b. Areas of Responsibility. As outlined in AR 200-1, the responsibilities of the environmental coordinator include oversight of some operations which the engineering directorate may directly control and others which he or she may monitor in a staff capacity.

(1) Air and Water Quality. The environmental coordinator must ensure that installation activities are harmonious with implementation plans under the Clean Air and Clean Water Acts, ensure that applicable permits are secured under these as well as under state laws, and ensure compliance with such permits. This includes a number of monitoring requirements and reports to the regulatory agencies.

(2) Noise. One requirement of AR 200-1 is that a log of environmental noise complaints must be maintained by the environmental office. Installations with frequent weapons firing or aircraft activity are likely to receive complaints from citizens in the surrounding community. Installation Compatible Use Zone (ICUZ) surveys are required on many installations.

(3) Archaeological and Historic Preservation. Federal law requires that installations identify and preserve sites and properties that have archaeological or historic significance. This can be a very costly program. However, failure to comply may also result in costs associated with project delay.

(4) Endangered Species. The coordinator should identify any endangered or threatened species on the installation, including areas of

critical habitat. If such species or habitats exist, effects on them of military operations must be thoroughly evaluated prior to implementing proposed actions and must be addressed in environmental documents on proposed projects and program which could cause adverse effects, as required by NEPA. Presence of such species or habitat has forced changed in operations at several installations.

(5) Oil and Hazardous Substance Spills. The SPCC Plan and the ISCP fall under the responsibilities of the environmental coordinator. Although preparation of the formal plans may be contracted, the environmental coordinator must ensure that they are up to date and adequate to meet the needs of the installation.

(6) Hazardous Materials and Waste Management. The environmental coordinator is responsible for management plans for hazardous waste, polychlorinated biphenyls, asbestos in buildings, radon, soil and ground water contamination investigation and removal, and initiation of recycling programs. To ensure compliance, these programs should also be integrated with the hazard communication program (safety office and directorate of logistics), safety program (safety and industrial hygiene), fire protection (fire department), and pest control and pesticides management (entomology or pest control office).

(7) EA/EIS Preparation. The coordinator maintains the currency of the installation EA/EIS, which addresses the ongoing and anticipated mission of the installation. The environmental office may prepare or contract for environmental documents on certain assigned projects, especially those associated with construction or mission changes, but otherwise serves as an advisor to proponents of actions as they prepare their own assessments.

(8) Construction and Installation Maintenance. The coordinator provides environmental input to construction projects and proposed work orders which may affect the installation environment. This should be done

prior to initiation of work and early in the planning/consideration process. Proposed work should be formally or informally routed through the environmental office prior to initiating any work which could have environmental effects.

(9) Land Use. The master planner is responsible for land use planning on the installation. However, the environmental coordinator has a major responsibility in providing input on environmental considerations into the master planning process.

c. Public Relations. Recent changes in environmental regulations require increased public involvement. Therefore, the environmental coordinator must have a good working relationship with the installation Public Affairs Officer (PAO). One duty of the coordinator is to maintain contact with federal, state, and local agencies that have an interest in activities ongoing or planned at his installation. Close liaison with these groups fosters smoother coordination during the EA/EIS process. The PAO is the official spokesman, particularly in situations involving public controversy.

d. Training. The coordinator must work with the training organizations within Civilian Personnel and the Directorate of Plans, Mobilization, and Training to secure adequate training for those involved in the overall installation environmental program, both in troop units and activities and on the installation staff. The environmental office also is responsible for certain aspects of training planning associated with hazardous waste management and spill response.

Section II. ENVIRONMENTAL LEGAL CONSIDERATIONS

1. Introduction. DOD installations are subject to requirements of both federal and state environmental laws. Installation employees, both military and civilian, are subject to certain penalties for noncompliance with those laws. Managers who are responsible for making decisions that might affect the environment

should have some awareness of environmental law in order to insure that the installation or individuals on the installation do not incur any of these penalties. It cannot be overemphasized that attorneys are best equipped to advise on exactly what must be done in a given situation in order to be in compliance with the law. However, a basic understanding of legal principles will assist managers in making good decisions and in working with legal counsel should the need arise.

2. Sovereign Immunity. This legal doctrine holds that the government can only be sued with its own consent. This doctrine has its foundation in the English common law idea that a king cannot break a law, since he is the lawmaker in the first place. The federal government asserts this doctrine, arguing that courts should not stop the government in its tracks by allowing suits against the authority that simply implements the law on which the right of action depends. Litigation directed against a defense agency or one of its agents may, therefore, be barred by the doctrine of sovereign immunity.

a. However, recent court decisions have noted significant exceptions to this doctrine. Environmental suits may be brought against a government official alleging that he or she has acted as an individual and not in an official capacity, or alleging that the official has exceeded statutory authority. Congress probably intended, by the Administrative Procedures Act as well as a number of other statutes, that some actions of government officials be subject to judicial review.

b. A very important exception to the protection under the sovereign immunity doctrine is specific waiver by Congress. Most major environmental laws include clauses which specifically waive (make invalid) certain sovereign immunity privileges. Generally, federal organizations are subject to whatever entity has the permit management and enforcement authority for a particular environmental law in that organization's

geographical area. For instance, under the Clean Water Act, the individual states are allowed to issue and monitor permits for the discharge of pollutants into surface waters, where the Environmental Protection Agency (EPA) has relinquished that authority to the state. In those cases, a military installation in that state must obtain the necessary permits from the state, submit reports to the state, and comply with all state-imposed effluent limitations.

3. Types of Environmental Laws. Environmental legislation may contain procedural or substantive requirements, or both.

a. Procedural law is a statute (or part of one) that describes a procedure or method that is to be followed in order to achieve a specified goal or policy. NEPA is a classic example of a law with mostly procedural requirements (Section III, paragraph 1). It states the national environmental policy and goals, but specifically requires only that federal decision makers use a certain set procedure to document their consideration of the effects of that action on the environment and alternate means of accomplishing that action (with presumably differing levels or types of environmental effects). If a procedural law is violated, the penalty may be an order to stop the action or project that had been proposed until the prescribed procedure has been followed to the satisfaction of the court. There is no direct fine or prison term imposed; however, there may be an indirect monetary cost associated with delays to the project and efforts to rush to comply with the procedural requirement. Since the passage of NEPA in 1969, quite a number of federal actions have been unnecessarily delayed or stopped due to planners' failure to comply with procedural requirements.

b. Substantive law defines rights or restrictions. In general terms, it states what you may or may not do. A primarily substantive law requires you to actually meet stated environmental protection requirements, which are likely to be quantified, in addition to any

procedures to be followed in documenting how you have arranged to comply and how close you came to doing so.

(1) A typical substantive requirement would be a limitation on allowable discharges of air or water pollutants under the terms of a permit. For example, the permit required under the Clean Water Act for discharging pollutants into surface waters will state limitations for various categories of pollutants in quantities per unit weight or volume of total effluent per unit time, such as the maximum quantity of a substance or the maximum concentration in milligrams per liter that may be discharged per day, or week, or month.

(2) If either an individual or an organization such as a military installation is found to be guilty of violating a substantive requirement, the penalty may often be a monetary fine or a directive from the regulatory agency to halt the polluting action immediately. If a knowing and willful violation of any criminal prohibition within the law can be proven, larger fines and permanent shutdown can be imposed. If an individual commits such a criminal violation, a personal fine and/or prison sentence can be imposed just as with any other type of criminal case. The maximum penalties described within each specific law may reach \$25,000 per violation per day.

(3) Several military installations have received fines or stop action directives for substantive violations, primarily from state authorities. Such directives will be levied by name to the individual who signed the permit, who is usually the installation commander. Fines would normally be paid from the installation operating budget. Historically, even though an installation can sometimes negotiate for reduced fines after they are first proposed by the regulator, based on corrective action taken or scheduled, the regulatory agency has certainly obtained someone's attention on the installation.

(4) So far, no one in DOD has been imprisoned for violation of environmental laws, but several have been so convicted and sentenced in the private sector. Both military and civilian employees of DOD have certainly had adverse career actions taken by their employer for causing violations which were held against the installation. Some federal employees have received criminal indictments for violation of environmental laws. When these are federal charges, DOD cannot defend the employee.

(5) Regulatory authorities are becoming more and more aware of their power and familiar with how to use the laws and courts to enforce environmental laws and most will not be hesitant to use their authority with military installations. Environmental coordinators and installation commanders on an installation need to establish good relations with their regulators to ensure that there is communication about what exactly is expected. Most regulators will allow a reasonable time to come into compliance with substantive requirements if they are convinced that the installation is making a good faith effort to comply with the law. Similarly, within the installation itself, command emphasis on the program's importance, and mechanisms for installation managers to provide information to and get help from the environmental coordinator, are necessary to ensure that such a good faith effort actually occurs.

4. Citizen Suits. Traditionally, if a citizen wanted to sue the government or one of its officers, a "case or controversy" had to exist and that person had to have a personal stake in the outcome, usually because he or she had been injured or could show economic damages. However, recently the courts have said that a person's interest or stake in the outcome could be aesthetic, conservational, or recreational. In addition, most environmental laws authorize citizens to sue the U.S. or any other violator of these acts. Here, Congress has clearly waived standing requirements. In order to exercise this

right, the citizen must provide a 60-day notice to the alleged polluter, EPA, and the state. The citizen's cost of litigation may be reimbursed if his allegation is upheld by the court.

Section III. ENVIRONMENTAL LAWS RELATED TO ARMY ACTIVITIES

1. The National Environmental Policy Act (NEPA). Few environmental laws have caused as much litigation or controversy as NEPA. Since the passage of this statute in 1969, government agencies must formally consider, as part of their normal decision making processes, the environmental impacts of proposed legislation and other major federal actions which could significantly affect the quality of the human environment if implemented. Actions in which federal funds are involved or federal permits are required may also be considered as federal actions to which NEPA applies.

a. Title I of NEPA establishes national policy and goals plus procedural requirements for environmental analysis. The national policy is "to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans." The law provides basic directives on federal agency responsibilities. Sections 102 through 105 set forth procedures for all federal agencies:

(1) The best known requirement is for federal agencies to prepare a detailed statement on environmental impact in each "recommendation or report on proposals for legislation and other major federal actions with significant effects on the quality of the human environment." This detailed statement has become known as the Environmental Impact Statement (EIS). This EIS must be made available for review by the public, Congress, and other federal, state, and local agencies so [the Army] can consider their comments and take them into account before proceeding with an environmentally-harmful action.

(2) The law requires analysis of alternatives when different methods of accomplishing a proposal could cause different amounts or types of environmental effects. This analysis must be done, although in less detail, even if no EIS is required.

(3) The law states that compliance with its provisions do not relieve an agency of compliance with other environmental laws. For example, a proposed activity requiring a water pollution discharge permit would have to get the permit and comply with its terms even if no EIS were required.

(4) Several other procedural requirements are stated. Among the most useful are one which suggests that appropriate environmental experts should be consulted during environmental reviews (in other words, no one individual can be expected to do an adequate environmental analysis or document); and another which clarifies that other laws may supersede NEPA (for example, properly classified projects must have environmental reviews but are not made public).

b. Title II creates the Council on Environmental Quality (CEQ) and defines its responsibilities. The CEQ advises the President and prepares for him an annual Environmental Quality Report, which covers the trends in the quality of our environment. The council is also tasked to issue guidance on the preparation of EIS's and to advise the preparers of environmental documentation, decisionmakers, the President, and Congress on environmental matters. In order to clear up some of the confusion over exactly what Section 102(2) required, the President in 1977 used an Executive Order to give CEQ authority to issue regulations for implementation of NEPA. These regulations, codified at 40 CFR 1500-1508, are binding on all federal agencies and provide uniform standards for conducting environmental reviews throughout the government. The intent of the regulations was reduce paperwork associated with the process, reduce time delays, and produce better decisions. DOD Directive

6050.1 implements the CEQ regulations for DOD. AR 200-2 implements the CEQ regulations for the Army (for overseas operations, DOD issued separate directives; the Army includes them directly in AR 200-2).

c. The CEQ regulations attempt to fulfill the real objective of the procedural requirement of NEPA, which is to provide the decision maker with sufficient information to enable him to be aware of and consider the environmental impacts of proposals, as well as fiscal and technological factors, before making his decisions. In addition, this information and the decision process, insofar as they relate to environmental matters, are to be open to the public and to federal, state, and local agencies with interest in or jurisdiction over the project or its impacts. The earlier environmental factors are considered in the planning process, the earlier design modifications or plan changes to avoid environmental problems can be incorporated before the project is so far along that changes cannot be made without considerable costs. This means that the proponent agency will actually have a chance to consider means of achieving the environmental goals of the law rather than just following the procedures at the very last minute.

d. Environmental reviews should be as thorough as necessary to comply with the regulatory procedures, identify potential environmental constraints on the proposed action itself, preclude future court challenges and project delays, and prevent future adverse impacts which may be expensive to correct once they occur. Environmental documentation must be considered on life cycle development and acquisition actions as well as construction projects and major changes in operations. The following is a summary of the more important topics in the CEQ regulations and AR 200-2 associated with the environmental documentation process.

(1) Categorical Exclusions (CX). Actions which neither individually nor cumulatively have significant environmental effects are called categorical exclusions. Each

agency develops and publishes criteria for and a list of these CX applicable to their activities. Unless unusual circumstances could occur associated with a proposal or with the environment in which it would occur, an action appearing on the CX list would not require either an Environmental Assessment (EA) or EIS. The Army's list is contained in Appendix A of AR 200-2.

(2) Record of Environmental Consideration (REC). If an EA or EIS will not be prepared for a specific proposal, a REC will be prepared for the file. There are three situations for which an EA or EIS would not be required: (1) if the proposal is listed as a CX, (2) if an existing environmental document adequately covers the proposal, or (3) if it is exempted from NEPA requirements by another Federal law. The REC is evidence that the environment has been considered.

(3) Environmental Assessment (EA). When a proposal does not qualify for CX and does not normally require an EIS, an EA is prepared. The EA is a concise public document not normally requiring extensive research or lengthy documentation (for most projects, an EA need not exceed 15 pages in length). The EA briefly describes the proposed project and its environmental effects, details possible means of reducing or avoiding impacts, including performing the project at different times or locations or in a different manner, lists the persons or agencies consulted by the preparer in evaluating impacts, and states a conclusion as to whether the proposal's impacts would be significant (and thus require an EIS) or not. The EA, thus, is used to gather information about potential significance of impacts and alternative means of accomplishing a proposal when it is not clear whether an EIS is required; and to comply with the intent of the law when it is known that no EIS is needed but environmental effects could be reduced.

(4) Finding of No Significant Impact (FNSI). If an EA concludes no significant impact will occur, a two-page FNSI is prepared. The FNSI is normally the means by which the

public is notified that a project is proposed, an EA has been prepared, and how the conclusion of "no significant impact" was reached. It includes a summary of the EA and notes any related environmental documents. The FNSI or a notice of its availability is normally published in the legal section of local newspapers; the FNSI, the EA itself, and any other referenced documents are made available for public review for 30 days prior to implementation of the project. Public libraries and the installation Public Affairs and Environmental offices are common locations where public review may occur. Preparation of an EA and public notification for a FNSI can take 2-6 months, depending on the project's complexity and the likelihood of controversy.

(5) Environmental Impact Statement (EIS). An EIS must be prepared for all actions which could have a significant impact on the environment. Like an EA, it is an "analytical document" in that it describes the proposed project and its alternatives and then analyzes the environmental effects of the alternatives. Unlike an EA, it will approach 150 pages in size (300 pages for very complex projects). The EIS is actually developed in several phases. First, the agency prepares a Notice of Intent (to prepare an EIS). When published, the NOI notifies the public and appropriate agencies that a proposal is under evaluation and an EIS will be prepared. Next, the agency conducts a public "scoping" process to clarify what project alternatives and environmental impacts should be considered. After gathering supporting information and data, the agency prepares an EIS (this can be done in-house or by contract as long as the contractor has no economic stake in the project being proposed). The Draft EIS (DEIS) which results should be a complete, objective appraisal of the good and bad effects of the proposed action and all reasonable alternatives. It must provide reviewers with valid details concerning all aspects of the proposal. The document should be as simple and concise as possible so that the decision maker or layman can fully understand the probable environmental impacts, yet be comprehensive and thorough so that experts can

be alerted to problem areas. The DEIS is circulated to Congress, EPA, other relevant federal, state, or local agencies, the affected public including interest groups, and anyone else who requests to participate. After a minimum comment period, a Final EIS (FEIS) is prepared which incorporates changes resulting from the comments or states why the comments were not adopted. The FEIS is also made available for an additional period of public review. Eventually the agency publishes a Record of Decision stating its final choice of alternatives, and the project may proceed. Because of the detailed analysis required in the EIS and the requirements for a DEIS and FEIS and specific comment periods, the time required for the EIS process may well take over a year. Therefore, an EIS should be done only when there are significant impacts and should be started early in the project planning phase.

e. Another type of "analytical" environmental document is the Life Cycle Environmental Document (LCED), used by the Army Materiel Command. It allows consideration of environmental effects during all phases of the acquisition life cycle for military equipment and systems (research, development, test and evaluation, production, deployment, use [usually in training or maintenance operations], and ultimate disposal. An LCED usually begins in the form of an EA; prior to major decision points, new information about environmental impacts of future phases is added; ultimately, an EIS may be needed for one of the later phases. For example, life cycle development of binary chemical weapons did not reach the EIS level until the production facility at Pine Bluff Arsenal, AR, was proposed.

f. Installation EA/EIS. Most installation activities occur on a routine or programmed basis. Continuing activities of this type may be described or analyzed in an Installation "Ongoing Mission" EA/EIS. This comprehensive EA/EIS will eliminate many smaller scope assessments and reduce the documentation requirements for many others. The Installation EA/EIS should remain valid

unless there is a major change in mission, training requirements, logistics and administrative support, master plans, or applicable pollution control standards. Any later proposal not appearing on the CX list or not incorporated in the Installation EA/EIS (including an adequate discussion of impacts) would require a separate EA or EIS.

2. The Clean Air Act (CAA). This statute directs the EPA to set air quality standards for certain pollutants which it determines has adverse effects on human health and welfare. The law requires that each state prepare a State Implementation Plan (SIP) to show how it will control sources of air pollution within that each air quality control region of that state, in accordance with the EPA guidelines. DOD activities must comply with the SIP where they are located.

a. The SIP controls air polluting activities by describing pollution control requirements for each type of effluent source. Each stationary source, including DOD installations, must then obtain permits which describe substantive limitations and monitoring/reporting requirements stipulated by the state authorities. Common facilities and operations appearing on installation air permits are painting operations, degreasing, electroplating, fuel storage and transfer, boiler plants, incinerators, and open burning/open detonation operations.

b. Pollution from vehicles are controlled by EPA regulations on fleet air emission averages and by the states in highly polluted areas by Inspection and Maintenance (I&M) programs. The former requirement must be met, with certain exceptions for combat-unique equipment like tracked vehicles, by the military during the life cycle acquisition process. The latter requirement must be met by installations located in areas with I&M programs.

c. Because of its potential for environmental contamination which could threaten public health, the EPA regulates friable asbestos under the Clean Air Act (friable means the product can

be crumbled by simple hand pressure, releasing breathable particles into the air). For any building renovation, maintenance, or demolition which involves friable asbestos (or asbestos-containing materials (ACM) which could become friable if disturbed, the EPA has advance notification requirements, restrictions on packaging and disposal, and proper removal methods (many adopted from OSHA). Since military installations have many older buildings with ACM, these particular requirements have led the Army to propose a complete asbestos control program, to include installation-wide surveys, and removal work where necessary for employee safety. Note that contractors performing removal or demolition and failing to comply with EPA's requirements may lead to Notices of Violation and potential fines against the installation.

3. The Clean Water Act (CWA). This statute attempts to reduce the amount of pollutants entering our nation's waterways. It establishes a permit system which requires that a permit be obtained for each point source pollutant discharged into surface waters. Wastewater must be treated so as to meet the permit standards before it can be discharged. If they are direct dischargers to waterways, installations must obtain such permits, make periodic samplings and tests of their effluents, and report the results to the permitting authorities to insure compliance with the limitations of the permit. Installations discharging to nearby city, county, or regional treatment plants must make sure they do not cause those permit holders to violate their permits; installations normally monitor their discharges to ensure this. As with the Clean Air Act, the installation commander is usually the signatory on the permit. Most states have assumed the authority to issue permits for point source discharges within their boundaries, but EPA still retains this authority in some states, as well as oversight of the entire program. In addition, the CWA requires that plans be developed to prevent spills of oil and hazardous substances and to clean up any spills that do occur. Pouring a pollutant down the drain or

spilling it into the water may result in a violation of the CWA.

4. The Safe Drinking Water Act (SDWA).

This law requires that supplies of drinking water meet certain health standards, and that new distribution systems avoid use of lead-containing pipes or solder. It also regulates underground injection wells and requires special procedures in activities occurring over sole-source aquifer recharge areas. Most military installations must either directly ensure health standards are met (if they treat the water prior to distribution), or must monitor compliance (if treated water is purchased from outside sources).

5. The Occupational Safety and Health Act (OSHA).

This law is not considered to be an environmental law because it deals primarily with safety issues in the workplace. However, the same chemicals that are regulated in the workplace end up being regulated under environmental regulations if they become air or water discharges, spills, or hazardous waste. The OSHA Hazard Communication program (HazComm), as implemented within the Army by the installation Safety Office and MEDDAC, has many features which, if properly implemented, can simplify compliance with environmental rules. Sometimes called the "right to know" rule, HazComm requires that employers inform their employees of all hazardous materials that they might come in contact with in their workplace, what the actual hazards are, how they can protect themselves from harmful effects, and how to respond to any emergencies that might involve the hazardous chemicals. To do this, a chemical inventory for each workplace must be prepared, Material Safety Data Sheets must be obtained for each chemical, and employees must receive initial training (and updates if the hazards change). These hazard identification, training, and record keeping procedures can be very valuable to air and water pollution control, spill planning, and hazardous waste management aspects of the environmental program. HazComm and

hazardous waste training requirements can often be combined, as well.

6. Toxic Substances Control Act (TSCA).

Among other requirements, this legislation gave EPA authority to regulate the manufacture, use, storage, and disposal of polychlorinated biphenyls (PCB's), which have commonly been used in the past in electrical and hydraulic equipment for their fire-retardant properties. PCB's are no longer manufactured, but still exist in many transformers, generators, and other equipment dating from the 1970's. Whenever this equipment becomes obsolete or begins to leak, special storage, handling, and disposal procedures must be observed. The cleanup of spills and other problems caused by PCB's, along with failure to comply with EPA regulations, has cost DOD considerably in remedial actions and disposal costs over the past few years.

7. Asbestos Hazard Emergency Response Act.

TSCA originally required EPA to make certain provisions for notifying parents of schoolchildren when friable asbestos materials were found in the school (OSHA might protect teachers and janitors, but the children are not employees covered by OSHA rules). A series of amendments led to this law, which requires EPA to set standards for school inspections, asbestos evaluation, remedial action methods, and removal firm training certification and insurance, and makes matching grant money available to school districts to accomplish asbestos work. Dependent schools on military installations must follow these requirements as well.

8. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

This law states that EPA may set standards for pesticide manufacture, labeling, application, and disposal. If a pesticide is for "restricted use" only, these standards are rather strict. A restricted pesticide, for example, may only be used or applied by, or under the direct workplace supervision of, a certified applicator. The Army

requires certification via a three-week course at Ft. Sam Houston, TX. Consultation with the certified staff within Entomology, Pest Control, or Environmental offices should be routine prior to purchase of pesticides, stocking in installation Self Service Supply Centers, issuance by Supply to other organizations, or disposal of excess materials to ensure the installation does not create conditions under which an unintended or accidental violation could occur.

9. Resource Conservation and Recovery Act (RCRA). This law stresses the importance of reusing material instead of carelessly disposing of it as waste. Besides regulations and guidelines for state programs on disposal of ordinary solid waste, RCRA also required EPA to regulate the generation, storage, treatment, transportation, and disposal of hazardous wastes. Hazardous waste applications of RCRA will be discussed further in Section IV.

10. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA--also known as "Superfund"). This law provides funds through Congressional appropriations, taxation of chemical manufacturers and others, and recovery of costs from responsible parties, for cleanup of inactive hazardous waste dumps on non-government property.

a. DOD must pay for its own cleanup, and has established an Installation Restoration Program, with "fenced" funds designated for cleanup of contaminated sites on its installations. Military installations can appear on EPA's National Priority List for contaminated site cleanup, and installation commanders at such installations are responsible for investigation, public notification programs, and project development to decontaminate those sites. Commanders are assisted by the U.S. Army Toxic and Hazardous Materials Agency, which does initial investigations, assists in developing scopes of work for investigations and remedial work, monitors contractor performance, and participates in public participation programs.

Several installations especially within the Army Materiel Command, have suffered serious contamination over the past decades of poor practice, and cleanup efforts are now completed, in progress, or planned to restore the environment to conditions safe for future generations both on and off of the installation.

b. To prevent future creation of such sites of soil and ground water contamination, CERCLA also broadened the definition of a "spill" under the CWA to include "releases into the environment" (that is, air, land, and ground water, not just surface waters). Now, if hazardous substances are spilled on the ground, they must be reported and cleaned up to avoid legal liabilities, including on military installations.

11. Noise Control Act. This law required EPA to set noise standards for products that have been identified as major sources of noise. All federal agencies are directed to use the full extent of their authority to insure that procurement and operating procedures for equipment conform to the intent of the law. EPA may certify low-noise emission products for purchase by the Government. This affects DOD primarily in the research, development, test, and evaluation and procurement of new equipment. However, environmental noise is often a problem for individual installations attempting to remain good neighbors as surrounding communities expand and develop during the same time that mission operations are becoming more extensive and using louder equipment. Many communities also have noise control ordinances which fall under authorizations of community noise control provisions of amendments to the Noise Control Act. The Army attempts to proactively address this problem through the Installation Compatible Use Zone (ICUZ) Program. Installations gather noise data, predict future mission expansions, and study planned development and zoning changes within local communities. Ultimately, a series of maps showing current and future incompatible land uses is produced. Local zoning authorities are then encouraged to

restrict development (to industrial, commercial, or non-noise-sensitive agricultural uses) within problem areas off-post. In turn, the Army publicizes actions it will take to mitigate or reduce noise problems.

12. The Endangered Species Act. This legislation prohibits adversely affecting endangered or threatened species of plants and animals or their critical habitat, as defined by the U.S. Department of Interior's Fish & Wildlife Service. Many DOD installations have both critical habitat and endangered species and thus are restricted somewhat in how the land is utilized. Army policy is to also protect species which are protected by the states.

13. The National Historic Preservation Act. This act authorized that an expanded "National Register of Historic Places" be maintained. If any property on a DOD installation is on or eligible to be on the National Register, a consultation process must be conducted prior to doing anything to affect that property. Other laws have required federal facilities to survey their properties, nominate eligible features, and use protective measures to ensure that significant properties are preserved if at all possible. Consultation with the State Historic Preservation Officer during project planning is often helpful in preventing problems with historic or archaeological resources. At Army installations, a Historic Preservation Plan is used to identify actual or potential properties, develop priorities for preservation, define consultation requirements, and create guidelines for on-post organizations on protection of culturally important resources.

14. Executive Orders. There are numerous executive orders dictating how the executive agencies of the federal government will carry out their environmental responsibilities. Some of the more commonly encountered requirements are contained in EO 11644, Off-Road Vehicles on Public Lands; EO 11988, Flood Plain Management; and EO 11990, Protection of Wetlands.

Section IV. HAZARDOUS MATERIALS AND WASTES

1. Introduction. DOD generates a tremendous volume of hazardous wastes (HW) each year as byproducts of its operations and manufacturing processes, especially from the manufacture of explosives and propellants and the high technology required for specialized military applications. In addition, many HW are generated by very common, everyday operations on the installation (see Appendix A for a list of typical HW at an installation, generated by various activities). DOD also purchases over 50,000 line items of hazardous materials (HM), such as paint removers, pesticides, adhesives, fuels, propellants and explosives, and industrial solvents. HM/HW management is becoming a higher priority within DOD each year, as laws become more strict, as enforcement agencies become more concerned and expert at overseeing installation programs, and as we rely more on technology and the HM used and HW generated thereby.

2. Definitions.

a. Hazardous Material (HM). According to the Defense Logistics Agency, "material is hazardous when, because of its quantity, concentration, or physical, chemical, or infectious characteristics, it may: (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed." This is our common-sense understanding of what is meant by "hazardous." When we refer to HM, we are usually referring to "new stock" or material which is still useful to us for the purpose for which it was purchased.

b. Hazardous Material (Department of Transportation regulations). The Department of Transportation (DOT), which regulates any transportation of HM via air, water, rail, or public roads, defines a hazardous material as

"a substance the Secretary of Transportation determines is an unreasonable risk to safety, health, and property during transportation." DOT's hazardous materials meet a definition of a "hazard class" such as flammable liquid, corrosive material or poison, and many are listed by individual name in the Hazardous Materials Table in Title 49 of the Code of Federal Regulations (CFR). When transported in commerce, or stored temporarily incidental to transport, HM's must be identified, marked, labeled, packaged, loaded, and manifested according to detailed DOT regulations. DOD requires specific training and authorization for certifiers of HM shipments via military aircraft, although all participants in the process must receive appropriate training to ensure shipment compliance.

c. Hazardous Substance (HS). These are chemicals defined by EPA under either the Clean Water Act or Superfund which must be reported and cleaned up if released into the environment in excess of listed "reportable quantities." These chemicals are normally listed in an installation's spill plans. Because of the potential for environmental damage, and the consequences of failure to notify, facilities using or storing HS should ensure all employees are aware of relevant procedures required by the spill plans. A good way to do this is to develop a facility-specific SOP so that individuals are aware of their specific responsibilities and prohibitions in the event of a spill.

d. Hazardous Waste (HW). A waste in general is any material which has served its original purpose and is to be discarded, or which is contaminated to such an extent that, even if it is to be recycled, it will require some sort of treatment before it could be reused. The RCRA defines HW as any wastes which "(1) exhibit the characteristics of ignitability, corrosivity, reactivity, or toxicity, or (2) are listed or contain listed wastes" from a list of about 600 wastes published by the EPA in Title 40, Part 261, or the CFR. Some of these listed items are clearly "spent" and at the discard or treatment point, simply based on how they are defined on the list. These are typically wastes from various

types of industrial processes, including cleaning and electroplating, and by definition they must be managed as hazardous waste immediately upon generation by the listed process (for example, by removal from a degreasing tank). Other listed items are simply chemical names. In that case, they are not managed as waste until they are discarded, go off-specification, or are container residue or spill cleanup residue. Some of these chemicals are called "acute HW"; they are regulated at much smaller quantities than other kinds.

3. Classification, Labeling, and Packaging of HM. The DOT system of classification is the most common system used in practice. Most HM that are used on an installation have arrived via one of the modes of public transportation. HM thus transported must conform to DOT regulations. DOT groups HM into seven general classes: (1) explosives and blasting agents, (2) flammable and combustible liquids, (3) flammable solids, oxidizers, and organic peroxides, (4) corrosives, (5) compressed gases, (6) poisonous materials, irritating material, etiologic agents, and radioactive material, and (7) other regulated material. Regulated materials must conform to detailed DOT regulations for labeling and marketing on the package, the package construction itself, and practices of the transporter during transportation. Military shipments of HM must conform to these requirements in the same manner as private shipments. While DOT regulations do not apply when shipping a HM package across an installation where public roads are not used, safe practice should still be observed for packaging and labeling. Many installations do have public roads -- primarily "open posts" with infrequent gate control and federal, state, or county-numbered roads on-post.

4. Storage of HM/HW. Storage facilities for PCB's and HW's must conform to very strict EPA regulations, and those that do are called "conforming storage" facilities. OSHA regulations address storage recommendations for fire prevention, and DOT loading

compatibility requirements apply during storage incidental to transport. However, even if these requirements are not as stringent as those for HW, the original HM can present as much danger during storage and handling as do HW. All HM and HW storage facilities should have certain minimum requirements, such as ventilation, waterproof walls and roof, sloping or curbed floors to keep incompatible materials separated in event of spills, eyewash and shower facilities for workers, adequate security and surveillance, enough space to allow access for emergency crews, and adequate firefighting capacity. In addition, the compatibility of HM must be considered. Many materials, when mixing together as in a spill or fire, may react in some way to create toxic vapors, heat, explosions, or other problems. Incompatible materials must be kept separated within a storage facility. Several systems have been developed to determine how to separate HM which are not compatible. Anyone involved with the storage of HM should be aware of these methods in order to prevent serious incidents from occurring.

5. HS Contingency Planning and Response.

As was mentioned earlier, the Clean Water Act and AR 200-1 require that two written plans must be on file and enforced by any installation which stores or uses HS in reportable quantities under the statute (there are storage quantity tests for POL products that could be spilled). The Spill Prevention, Control, and Countermeasures (SPCC) Plan is oriented towards proper planning for spill prevention and readiness. It addresses many measures which can or must be taken on the installation to prevent spills from occurring, such as surveillance measures, as well as measures to contain spills if they do occur, such as berms around a POL storage area. The Installation Spill Contingency Plan (ISCP) is oriented towards the response to a spill or other HS-related emergency when one does occur. It addresses such items as incident reporting, what equipment is available to respond, what critical areas on the installation may need to be protected first, and the like. It also lists by name personnel on the installation spill response team, along with the on-scene

coordinator to take charge of an incident response. Because there is some overlap, the SPCC Plan and the ISCP may be combined into one document. Everyone who is involved in any way with chemicals on an installation should be familiar with the content of these two plans and be able to function in accordance with them. Local SOP's should also be developed for each workplace where HS, fuels, and other POL are stored or handled to outline specific details applicable to the workers at that location.

6. Pollution Prevention (PP)

Pollution Prevention focuses on using prevention approaches as the preferred method to achieve and maintain compliance with environmental regulations and executive orders. Pollution prevention is accomplished by cost-effective source elimination or reduction, recycling, or waste minimization. Compliance with the requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) are included, as are specific requirements of Executive Orders 12856 and 12873. Pollution prevention encompasses those activities, which reduce the quantity of hazardous, toxic, or industrial pollutants at the source by changing the production, industrial or other waste generating process. In addition, pollution prevention is not limited to hazardous pollutants released to air, water, and land, but also includes activities to reduce the amounts of non-hazardous commercial and household wastes.

a. Pollution prevention is any mechanism that successfully and cost-effectively avoids, prevents, or reduces the sources of pollutant discharges or emissions other than the traditional method of treating pollution at the discharge end of pipe or stack.

b. A pollution prevention project is one which applies source reduction, recycling, or waste minimization in order to reduce releases, wastes, pollution, and costs from an installation's current business practices, industrial processes, base operations, or other routine and recurring sources of wastes, pollution, or releases to the environment. Pollution prevention projects

should be the preferred solution to environmental problems.

c. The Hazardous Substances Management System (HSMS). The HSMS assists the installation in managing Hazardous Materials and Hazardous Wastes more effectively and efficiently, therefore contributing to Pollution Prevention. The HSMS has two components: business practices and software. Business Practices are tailored to meet specific needs at the installation, which allows for an improved hazardous material management program (HMMP). One effective HMMP method is centralized management of hazardous materials (HM). Business Practices that support this method are:

- (1) Centralized Issue and Storage of HM
- (2) Authorized User/Use List (AUL)
- (3) Order/issue by Unit of Use
- (4) Re-use of Materials
- (5) Inventory Levels at User/Operator Level
- (6) Automated HM Tracking System

The HSMS Software is the Department of Defense (DoD) standard, automated tool for tracking HM. The system tracks hazardous materials from the time of request/issue until it leaves an installation either through use, turn-in or as hazardous waste

7. The Defense Reutilization and Marketing Service (DRMS) and HM/HW. The DRMS has been given responsibility for the worldwide disposition of HM/HW generated by the services (there are exceptions, including combined industrial sludges, construction debris, chemicals from research programs, and five others). DOD installations interface with local Defense Reutilization and Marketing Offices (DRMO). The DRMO will attempt to

reutilize the material in the best interests of DOD through such methods as transfer to another organization which may be able to use it, through sale on the public market, or through paying for disposal at an approved HW landfill or other destruction method. Property turned in to DRMO must conform to specific packaging, labeling, and marking requirements, accompanied by all necessary documents. DRMO may accept the property physically, if it has adequate conforming storage facilities, or it may require the generator to keep custody of the property while it accepts accountability and proceeds with its reutilization process. The greatest number of problems encountered with DRMO are due to inadequate coordination by the generator prior to property turn-in.

8. Specific Requirements for HW Managers Under the Resource Conservation and Recovery Act (RCRA). As mentioned earlier, RCRA closely regulates those who generate, transport, store, treat, or dispose of HW. A number of states have been awarded primacy from the EPA for administration and implementation of RCRA requirements. In any event, several considerations specifically concern DOD installations.

a. Generators. Installations which generate more than 1000 kilograms of HW per month (or 1 kg of acute HW) are required to have an EPA identification number as a "large quantity" generator, to determine if their wastes are HW's, to use proper, marked, waste containers, and to prepare HW shipments for transport in accordance with EPA and DOT shipping regulations. HW cannot be stored for longer than 90 days, unless it is stored inside of a permitted HW storage facility (see c below). All HW handlers must be trained (see paragraph 9). A manifest must accompany all shipments of HW from the installation. Requirements for "small quantity generator" facilities, which generate between 100 and 1000 kilograms of HW per month, have almost the same requirements, except that HW can be stored up to 180 days without having a permitted facility.

b. Transporters. Most transporting of HW from military installations will be done by private contract haulers. These transporters must also have an EPA identification number and deliver the HW to the destination listed on the manifest provided by the generator. The responsibility for cleanup of any spill which might occur during transportation belongs to the transporter, but the installation still retains some liability, as the HW still belongs to the government.

c. Operators of Treatment, Storage, and Disposal (TSD) Facilities. Most DOD installations have at least one HW storage facility. Many others treat HW in some manner, and a few dispose of HW (primarily by destruction of waste munitions). TSD facilities have a number of requirements under RCRA regulations.

(1) TSD facilities must have a permit. The process to obtain a permanent permit is time-consuming and expensive. The permitting authority (EPA or state) will insure that stringent controls and standards are met and assured before approving the permit. The "Part B" (final) permit must be renewed every 10 years. Written permits may include stricter requirements than just the regulations do. That is because they must very specifically describe facilities and operations, and descriptions in the final permit become enforceable. Modifications to those facilities or operations require permit modifications as well.

(2) A plan must be in effect to analyze any unknown wastes, inspect storage areas, respond to contingencies (spills, non-performance by transporter, etc.), conduct safe operations, train all HW handlers, adequately secure materials, insure that wastes are not entering ground water supplies, and close out the facility at the end of its useful life.

(3) Note that many of the requirements for permitted storage will apply to storage by generators even when they do not require that a permit be obtained.

9. Training of Personnel.

a. RCRA requires that all personnel who handle HW must have "adequate formal training" as to how to do their job safely. They must receive initial training within 6 months of their employment in a HW-handling position, and cannot handle HW prior to that training unless directly supervised by someone who has been properly trained. They must then receive update training annually thereafter. This training must be documented and on file for RCRA enforcement agencies to examine during their inspections.

b. The OSHA "right to know" rule mentioned in Section III and DOD's present implementation of that rule means that every employee who is exposed to HM in the workplace should be informed of the hazards encountered, how to use labels and Material Safety Data Sheets, how to protect himself or herself from exposure (equipment, procedures, etc.), and how to response to any emergency involving that material.

c. AR 200-1 requires all Army commanders at any level to insure that all personnel under their command are "properly trained" as to how to handle HM in a safe and responsible manner.

Section V. ENVIRONMENTAL IMPACTS OF ARMY ACTIVITIES

1. There are many environmental impacts associated with military operations, as the previous sections have covered. While some of these impacts are obvious, many are more indirect. This section provides an outline of some of the possible environmental impacts or problems that typical installation activities might cause in a number of different areas.

2. Command and Administration.

a. Administrative Areas:

- Domestic sewage
- Wastepaper and other trash disposal

b. Printing Operations:

- Solvent evaporation
- Inks
- Paper and cleaning rags

c. Data Processing:

- Wastepaper
- Computer cards
- Tapes

3. Vehicle, Machinery, Aircraft/Helicopter Maintenance.

a. Engine Shops:

- Oil, grease, fuel, and solvents in wastewater or spilled on ground
- Parts disposal
- Disposal of used solvents

b. Maintenance Hangars:

- Engine and solvent emissions
- POL, solvents, and detergents in water
- Parts disposal
- Noise
- Organic fluids

c. Plating Shops:

- Heavy metals, cyanides, etc. in water
- Corrosives (acids and alkalis)
- Fumes

d. Battery Shops:

- Acids and alkalis
- Battery and container disposal

e. Plastics Shops:

- Catalyst, solvent, and resin losses to the atmosphere
- Scrap and defects disposal

f. Corrosion Control:

- Solvents
- Cleaning detergents

g. Machine Shops:

- Metal turnings, scrap, and metal dusts
- Cutting oils

h. Paint Shops:

- Paint and solvent emissions and residues
- Paint and solvent storage
- Spray hood water curtain effluent
- Containers and excess paint

i. Welding Shops:

- Welding fumes
- Scrap
- Compressed gas and flammable storage

j. Non-destructive Testing:

- Oil, grease, and solvent disposal
- Dyes
- X-ray

4. Aircraft/Helicopter Operations:

- Smoke, dust, and gaseous emissions
- Oil and fuel losses and spillage
- Noise

5. Bombing, Gunnery, and Small Arms Ranges:

- Emission of propellant and explosive gases and dust
- Targets, projectiles, and casings disposal
- Munitions, storage, handling, and transport
- Noise

6. Missile Operations:

- Combustion gas, paint, and solvent emissions
- Noise
- Fuel, oil, grease, and propellant spillage
- Cooling water disposal
- Solid and/or liquid fuel disposal

7. Photographic Laboratories:

- Acid cyanides, cyanates, and metal discharge
- Paper, plastic packaging, and film disposal

8. Logistics.

a. Munitions Disposal:

- Handling/storage losses
- Open burning/open detonation (requires treatment/disposal permit with a number of operating restrictions)

b. Weapon System Components:

- Packaging and breakage disposal
- Evaporation during storage and spills

9. Construction and Demolition.

a. Buildings:

- Solvent, adhesive, and paint vapor emissions
- Sanding and sandblasting dust
- Solvent and cleaning solutions discharge and spills
- Disposal of scrap, debris, packaging, and containers

b. Roads and Grounds:

- Odors and dust emissions
- Road oil, tar, and asphalt
- Soil, concrete, and asphalt disposal
- Erosion
- Agricultural waste
- Pesticide application, especially aerial spraying

c. Shop Facilities:

- Paints, solvents, and cleaner emissions and spills
- Sawdust, shavings, and scrap disposal
- Smoke and odors
- Rags, used parts, and packaging disposal

d. Engine Test Cells:

- Combustion gases and smoke
- Noise

10. Utilities.

a. Heat and Power:

- Combustion gases and smoke
- Noise
- Heated water and blowdown water discharge

b. Water Supply:

- Chemical sludge
- Cleaning chemicals

c. Wastewater Treatment:

- Odor and microorganism emissions
- Effluent losses
- Sludge disposal

d. Solid Waste Collection and Disposal:

- Incineration combustion gases, odors, and dust emissions
- Spillage during collection and leachate from landfill.

e. Firefighting:

- Smoke, odors, and fuel evaporation
- Debris

11. Transportation.

- Engine emissions, dust
- b. Parking:
 - POL leaking
- c. Wash Racks:
 - Detergent, oil, grease, and dirt discharges
- d. POL Dispensing:
 - Fuel evaporation
 - Fuel spillage
 - Oil and grease containers and other waste disposal

12. Housing and Community Services.

- a. Troop/Family Housing:
 - Garbage and refuse disposal
 - Sanitary sewage
- b. Dining Halls and Clubs:
 - Refuse and butcher waste
 - Domestic waste
- c. Laundry and Dry Cleaning:
 - Solvent evaporation
 - Detergent, solvent losses, and wash water
 - Contaminated solvent waste
- d. Commissaries and Post Exchanges:
 - Packaging disposal
 - Disposal of materials in damaged containers
 - Spills from damaged containers
- e. Hobby/Craft Shops:
 - Industrial solvents

a. Operation of Vehicles:

- Wash water, oil, fuel, and grease spills and discharges
- Waste parts, batteries, tires, packaging disposal
- Acids, metals, asbestos, and toxic chemical discharges
- Film and packaging disposal
- Wood dust and scrap disposal
- Scrap metal and rag disposal

13. Chemical Laboratories:

- Odors, fuel, and solvent emissions
- Chemical waste discharges and spills
- Toxic and hazardous materials handling and storage
- Container and scrap disposal

14. Medical Facilities:

- Emissions from pathological incinerator
- Domestic sewage
- Pathogenic wastes, plastics, metals, plaster
- X-rays (radiation)
- Radio Isotopes

15. Research, Development, Test, and Evaluation:

- Potential impacts in all areas

16. Summary.

During this unit of instruction, we covered a number of environmental legal considerations and specific laws of great concern to military commanders and logisticians in the DOD. As you have seen, these laws can have a tremendous effect on our day-to-day decisions. All managers must have a working knowledge of these environmental issues and requirements in order to protect our installations from regulatory problems. DOD and the Army both have proactive environmental programs, and insist that all employees comply with both the letter and the intent of regulatory requirements.

How well DOD achieves its goals and protects its installations' environments for future as well as present mission needs depends on how well each of us are able to integrate environmental

requirements into accomplishing our other missions. Your closest source of assistance is the environmental coordinator at your installation.

**APPENDIX A
HAZARDOUS WASTES AT THE INSTALLATION**

<u>INDUSTRIAL OPERATION OR PROCESS</u>	<u>HAZARDOUS WASTES GENERATED*</u>	<u>HAZARDOUS WASTE REDUCTION METHODS</u>
Metal working/heat treating	Coolants; quenching oils; salt baths	Filtration, centrifuge for reuse; fuel supplements; neutralization
Painting	Thinners; heavy metals; polyurethanes; waste epoxy; paint strippers	Process change: Airless sprays, powders, water base primers; segregation; incineration; replace water curtain with dry filters in spray booth; recycle
Transport vehicle maintenance	Oils; lubricants; coolants; petroleum; alcoholism; alcohols; solvents; asbestos (brake linings)	Fuel supplements; waste segregation; recycle
Cleaning, degreasing	Solvents; detergents; ketones; freon	Fuel supplements; recovery; substitution
Electrical/electronic maintenance	Heavy metals; PCB's	Material control; incineration
Stripping	Solvents; caustics	Process change; dry media blasting; laser stripping; water jet
Metal plating/finishing	Acids; bases; metal rinses; pickling liquor	Industrial waste treatment; neutralization; ion exchange electrolytic precipitation; non-cyanide baths
Battery shop operations	Acids; bases; cyanides; heavy industrial/domestic metals	Neutralization; waste treatment (diluted)
Fuel storage	Tank bottoms; contaminated or excess POL; cleaning tank sludges	Biological treatment; fuel supplement; reblend; recycle
Machine shops	Cutting oils; toxic metals	Filtration; centrifuge for reuse
Golf course	Pesticides; waste POL products	Material control; recycle
Pest control shop	Unrinsed pesticide containers; pesticide wastes	Recycle; waste segregation; substitution
Industrial waste treatment	Sludges; spend carbon ion exchangers; filters	Dewatering; delisting; incineration; regeneration

<u>INDUSTRIAL OPERATION OR PROCESS</u>	<u>HAZARDOUS WASTES GENERATED*</u>	<u>HAZARDOUS WASTE REDUCTION METHODS</u>
Hospitals, laboratories	Ignitable/chlorinated solvents; chemicals; etiologic contaminated wastes	Incineration; neutralization; material control
Firefighting training	Foam	Material control
Washracks and motor pools	Used oil; waste solvents; heavy metal contaminated sludges	Filtration; dewatering; recovery; biological treatment
Lagoons; incineration	Acids; bases; sludges containing organics, PCB's	Dewatering; delisting; incineration; biological treatment
Arts and crafts shops	Solvents; photographic lab wastes; used oils; sludges	Recycle; filtration; material control; recovery
Munitions demilitarization	OB/OD residues; contaminated or excess POL; cleaning tank sludges	Burning pads; containment facilities; delisting; downgrade reuse; incineration
Cooling towers	Bleedoff wastes and feedwater chemicals	Dewatering; filtering
Disaster/NBC preparedness	Bleach (STB); decontaminating gases (ethylene oxide) and liquids (DS-2, DANC)	Material control; recycle; neutralization
Print shop, ADP center	Printing ink; data processing fluid; perchlorethylene	Waste segregation; incineration
Photographic laboratories	Acids; bases; cyanides; silver and other heavy metals	Material control; recovery; industrial or domestic treatment
Propellant, explosive manufacture	Pink, red acid wastes; wastewater treatment sludges	Industrial treatment
Pyrotechnic production	Sodium sellite	Paper industry use; delist
Test and evaluation	Contaminated soils; calibration fluids	Test/burning pad; recovery/reuse; static testing