ATP 3-34.5
MCRP 4-11B

ENVIRONMENTAL CONSIDERATIONS

August 2015

***This publication supersedes FM 3-34.5/MCRP 4-11B, 16 February 2010.**

HEADQUARTERS, DEPARTMENT OF THE ARMY

Foreword

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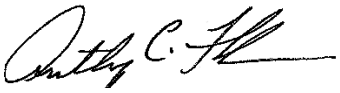

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Environmental Considerations

Contents

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Preface

ATP 3-34.5/MCRP 4-11B provides guidance on integrating environmental considerations into operations. This manual defines environmental considerations and provides guidance on integrating them into the operations process. This manual also provides guidance on the development of command environmental programs and standard operating procedures (SOPs) to support operations and training. ATP 3-34.5/MCRP 4-11B establishes and explains the principles of environmental support during operations and the ways in which United States Army (USA) and United States Marine Corps (USMC) commanders develop and implement command environmental programs. This manual supports the doctrine in ADP 3-0, ADRP 3-0, FM 3-34.170/MCWP 3-17.4, FM 3-34, and JP 3-34.

The principal audience for ATP 3-34.5/MCRP 4-11B is Army and Marine Corps commanders who conduct operations across the range of military operations. Trainers and educators throughout the Army and Marine Corps will also use this manual.

Commanders, staffs, and subordinates ensure that decisions and actions comply with applicable United States (U.S.), international and, in some cases, host nation (HN) laws and regulations. Commanders at all levels ensure that Soldiers operate according to the law of war and the rules of engagement (see FM 27-10).

Unless stated otherwise, masculine nouns or pronouns do not refer exclusively to men.

Appendix A contains a metric conversion chart for the measurements used in this manual. For a complete listing of preferred metric units for general use, see Fed-Std-376B.

ATP 3-34.5/MCRP 4-11B uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which ATP 3-34.5/MCRP 4-11B is the proponent publication (the authority) are italicized in the text and marked with an asterisk (*) in the glossary. Terms and definitions for which ATP 3-34.5/MCRP 4-11B is the proponent publication are boldfaced in the text. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

ATP 3-34.5/MCRP 4-11B applies to the Active Army, Army National Guard/Army National Guard of the United States, U.S. Army Reserve, Marine Corps, and Marine Corps Reserve unless otherwise stated.

The proponent of ATP 3-34.5/MCRP 4-11B is the United States Army Engineer School (USAES). The preparing agency is the Maneuver Support Center of Excellence (MSCoE) Capabilities Development and Integration Directorate; Concepts, Organizations, and Doctrine Development Division; Doctrine Branch. Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) to Commander, U.S. Army Maneuver Support Center of Excellence, ATTN: ATZT-CDC, 14000 MSCoE Loop, Suite 270, Fort Leonard Wood, MO 65473-8929; e-mail the DA Form 2028 to <usarmy.leonardwood.mscoe.mbx.cdidcodddengdoc@mail.mil>; or submit an electronic DA Form 2028.

Marine Corps readers of this publication are encouraged to submit suggestions and changes to <doctrine@usmc.mil> or Deputy Commandant for Combat Development and Integration, ATTN: C116 3300 Russell Road, Suite 204, Quantico, VA 22134-5021.

Introduction

The primary mission of the military is to fight and win wars. Warfare is destructive to humans and to the natural environment. Commanders are required to exercise judgment in applying combat power and limit damage to the extent allowed by mission accomplishment and the rules of engagement. Commanders must plan to implement postconflict stability measures and keep the health and safety of Soldiers, Marines, Department of Defense (DOD) civilians, and contract personnel foremost in their planning. Integrating environmental considerations into the planning process helps to identify, prevent, and mitigate potential threats to the environment (including those that affect historical and cultural resources) and environmental threats to personnel.

Environmental considerations are not solely focused on environmental protection. For example, force health protection (FHP) issues may be directly linked to operational effects on the environment. Integrating environmental considerations into operations will benefit FHP. Environmental degradation jeopardizes the well-being of the local population and can undermine HN support for U.S. policies. Integrating environmental considerations also sustains resources, reduces the logistics footprint, promotes positive HN relations, and supports postconflict stability efforts. These objectives contribute to mission effectiveness and serve as force multipliers rather than mission distracters when properly integrated.

The seamless integration of environmental considerations occurs in organizations that foster an environmental ethic, practice active environmental sustainability, and incorporate environmental-related risk into the risk management (RM)/operational risk management (ORM) process as early as possible. Environmental considerations for planning must encompass mission aspects, from predeployment training through redeployment, and include varied topics (targeting considerations, hazmat storage site protection, base camp location selection). Environmental considerations apply to all operations, although risk assessments may cause the importance of environmental considerations to vary.

This manual is organized to aid commanders in understanding environmental considerations, and it describes how to integrate and apply environmental considerations through existing staff procedures. Part One includes environmental planning that should be conducted before operations. Part Two provides guidance on the development and execution of unit command environmental programs. A brief description of the chapters and appendixes are as follows:

- **Chapter 1.** Chapter 1 describes the way that environmental considerations apply to operations (including their implications at the operational and tactical levels).
- **Chapter 2.** Chapter 2 supports ADRP 5-0 by including how environmental considerations are integrated into the planning activities of the operations process (including integrating environmental considerations into the RM/ORM process and the military decisionmaking process [MDMP]). This chapter also discusses integrating environmental considerations into plans, orders, and SOPs and includes a general discussion of environmental-specific planning.
- **Chapter 3.** Chapter 3 discusses what and when to plan (including environmental considerations in predeployment, operations, and redeployment). This chapter includes a discussion of environmental considerations within the context of some specific focus areas (including information on predeployment environmental training; processes for planning the storage, transportation, and disposal of hazmat; targeting considerations; base camp operational issues; Soldier and Marine health considerations; and redeployment issues).
- **Chapter 4.** Chapter 4 provides guidance for establishing unit level environmental programs (including SOP development and training requirements).
- **Chapter 5.** Chapter 5 describes the way that general/executive staff sections plan for and integrate environmental considerations within their functional areas of expertise.
- **Appendix A.** Appendix A is a metric conversion chart.
- **Appendix B.** Appendix B provides the primary environmental regulations and principal environmental laws that are applicable to military activities.
- **Appendix C.** Appendix C discusses integrating environmental-related risk into the RM/ORM process.
- **Appendix D.** Appendix D provides guidance for developing the environmental appendix to the engineer annex using the Army orders development process.

- **Appendix E.** Appendix E provides a sample unit environmental SOP.
- **Appendix F.** Appendix F provides guidelines for integrating environmental considerations into base camp operations.
- **Appendix G.** Appendix G provides a sample command environmental policy memorandum and environmental officer appointment letter.
- **Appendix H.** Appendix H provides the environmental officer roles and responsibilities.
- **Appendix I.** Appendix I provides a listing of resources for implementing and sustaining a unit environmental program.
- **Appendix J.** Appendix J discusses the content and requirements for safety data sheets (SDSs).
- **Appendix K.** Appendix K discusses environmental conditions forms.

This manual serves as a guide for planners in identifying environmental-related issues as they pertain to operations and enables the integration of these issues into the operations planning process. While certain tactics, techniques, and procedures identify the way that units accomplish these tasks and vary depending on the tactical situation, this manual provides a common frame of reference to guide commanders and planners on integrating environmental considerations while accomplishing the mission.

This manual uses the term *mission variables* to indicate the Army and Marine Corps uses of the term. For the Army, mission variables consist of mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC). For the Marine Corps (and in joint doctrine) mission variables consist of mission, enemy, terrain and weather, troops and support available, and time available (METT-T).

When this manual uses two terms separated by a slash (/), the first term is the Army term and the second term is the Marine Corps term. Key differences in Army and Marine Corps terms include—

- (Army) brigade combat team (BCT)/(Marine Corps) regimental combat team, based Marine air-ground task force (in this manual as BCT/RCT).
- (Army) environmental officer/(Marine Corps) environmental compliance officer (in this manual as environmental officer/environmental compliance officer).
- (Army) intelligence preparation of the battlefield (IPB)/(Marine Corps) intelligence preparation of the battlespace (in this manual as IPB).
- (Army) MDMP/(Marine Corps) Marine Corps planning process (MCPP) (in this manual as MDMP/MCPP).
- (Army) mission analysis/(Marine Corps) problem framing (in this manual as mission analysis/problem framing).
- (Army) RM/(Marine Corps) ORM (in this manual as RM/ORM).
- (Army) unified land operations/(Marine Corps) range of military operations (in this manual as unified land operations/range of military operations).

The development of this manual resulted in the addition or change of some Army/Marine Corps terms and definitions (see introductory table-1, table-2, and table-3).

Introductory table-1. New Army/Marine Corps terms

Term	*Remarks*
environmental conditions report	New definition
environmental restoration	Replaces restoration
environmental stewardship	New term
waste discharge	Replaces discharge

Introductory table-2. Rescinded Army/Marine Corps terms

Term	*Remarks*
discharge	Replaced by waste discharge
restoration	Replaced by environmental restoration

Introductory table-3. Modified Army/Marine Corps terms

Term	*Remarks*
critical habitat	Adopted Endangered Species Act of 1973 definition
disposal (waste)	Retained based on common English usage; no longer defined
endangered species	Adopted Endangered Species Act of 1973 definition
environmental area of interest	Retained based on common English usage; no longer defined
environmental baseline survey	Adopted joint definition
environmental ethic	Retained based on common English usage; no longer defined
environmental hazard	Retained based on common English usage; no longer defined
environmental impact statement	Retained based on common English usage; no longer defined
environmental noise	Retained based on common English usage; no longer defined
environmental performance assessment system	Retained based on common English usage; no longer defined
environmental planning	Retained based on common English usage; no longer defined
environmental pollution	Retained based on common English usage; no longer defined
environmental protection	Adopted AJEPP-1 definition
groundwater	Retained based on common English usage; no longer defined
hazard communication	Adopted 29 CFR 1910.1200 definition
hazardous material (or hazmat)	Adopted 40 CFR 262.11 definition
hazardous substance	Retained based on common English usage; no longer defined
medical waste	Adopted Medical Waste Tracking Act of 1988 definition
military environmental protection	Retained based on common English usage; no longer defined
monitoring	Army proponent is ADRP 5-0
natural environment	Retained based on common English usage; no longer defined
notice of violation	Retained based on common English usage; no longer defined
solid waste	Adopted 40 CFR 261.2 definition
source reduction	Retained based on common English usage; no longer defined
spill	Retained based on common English usage; no longer defined
surface water	Retained based on common English usage; no longer defined
threatened species	Adopted Endangered Species Act of 1973 definition
toxic	Retained based on common English usage; no longer defined
waste	Retained based on common English usage; no longer defined
Legend:	
ADRP	Army doctrine reference publication
AJEPP	allied joint environmental protection publication
CFR	Code of Federal Regulation

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PART ONE

Environmental Operations and Integration

Environmental considerations are applicable at all levels of command and across the full range of military operations. Their relevance may vary depending on tactical circumstances (such as combat intensity). Part One of this manual describes how environmental considerations influence operations and how they are integrated into planning and other activities in the operations process.

Chapter 1

Overview

The current U.S. national security strategy includes a focus on environmental considerations and environmental security concerns. Lasting victories and successful end states are measured in part by how well the military addresses environmental considerations (including FHP; sustainable management of energy, water, and waste; protection and conservation of natural and cultural resources; improvement of living conditions for U.S. personnel and HN citizens). Environmental considerations consist of a broad range of issues that must be integrated into all phases of military operations (from predeployment, employment, and redeployment to home station). Environmental considerations impact planning (from strategic to tactical) at all echelons of command. Increasingly complex operations make integrating environmental considerations even more challenging. Each operation presents a unique set of requirements that relates to, and is influenced by, the environment. These requirements vary according to the differences in the natural environment; effects of military operations; duration of the operation; and various cultural, political, and religious sensitivities that are involved. While standards for environmental protection may not be as stringent in some nations as they are in the United States, they are of great importance. Complying with these standards during operations presents unique challenges. The best way to address these challenges is for commanders to integrate environmental guidance into operation plans (OPLANs) and operation orders (OPORDs). This guidance is essential for finding the balance between the operational framework and the environmental ethic in which subordinate commands conduct operations. This chapter discusses environmental considerations and outlines their implications across the full range of military operations.

CONTINGENCY OPERATIONS AND EXPEDITIONS

1-1. Since the end of the Cold War, the United States has frequently deployed expeditionary task forces to address crisis and instability in multiple regions. The United States has also been called upon to support numerous civil support missions (such as recovery after natural disaster). During the execution of these operations, tactical tasks were performed in compliance with established national and HN environmental

laws, regulations, and policies. In some cases, HN laws for environmental protection and compliance were not established so commanders relied on U.S. laws. Other times, compliance was temporarily suspended because of the intensity of active combat operations. Due to several factors (population growth, political instability, competition for natural resources), the operational tempo is expected to remain active for the foreseeable future. A contingency operation (such as a response to a natural disaster conducted in the continental United States [CONUS]), requires the military to follow U.S. environmental laws and regulations with limited exceptions. An expedition (an operation that is conducted in a foreign country) requires guidance and analysis from the senior command to determine the applicable policy and legal requirements.

ENVIRONMENTAL VARIABLES

1-2. *Environmental considerations* is the spectrum of environmental media, resources, or programs that may affect the planning and execution of military operations (JP 3-34). Factors may include, but are not limited to, environmental compliance, pollution prevention, conservation, historical and cultural property protection, and flora and fauna protection. These factors include a myriad of specifics that deal with the protection of the natural and cultural environment and the environmental considerations in FHP. The natural environment represents more than habitat and living species, and it includes a broad range of considerations. The natural environment is the human ecosystem (including the physical and biological systems that provide resources [clean air, clean water, healthy surroundings, and sufficient food]) that is necessary to sustain productive human life. The natural environment includes man-made structures (water and waste-water treatment facilities) and natural and cultural resources. *Force health protection* is defined as the measures to promote, improve, or conserve the behavioral and physical well-being of Service members to enable a healthy and fit force, prevent injury and illness, and protect the force from health hazards (JP 4-02).

1-3. An environmental area of interest is an environmentally sensitive area that may be worthy of special considerations due to its unique and important qualities (such as being the only forest within a large region), the importance of its natural environment (wetlands, flood plains, permafrost areas, or endangered species critical habitats), or its cultural significance (cemeteries, monuments, or historic or archaeological sites). The environmental area of interest includes man-made structures (wastewater treatment plants, and dams).

1-4. ***Environmental stewardship* is the integration and application of environmental values into the military mission to sustain readiness, improve the quality of life, strengthen civil relations, and preserve valuable natural resources.** Environmental stewardship represents the environmental awareness of the commander and personnel and their commitment to environmental protection. It is a proactive, values-based process that helps to ensure the sustainability and conservation of resources.

1-5. Sustainability is a process by which resources are used in a manner that allows their continued availability. A sustainable Army and Marine Corps simultaneously meet current and future mission requirements (including safeguarding human health, improving quality of life, enhancing the natural environment, being economically viable), which is consistent with the tenets of the Army and Marine Corps environmental strategies.

1-6. Environmental stewardship and sustainability support environmental protection. *Environmental protection* is measures and controls to prevent damage and degradation of the environment, including the sustainability of its living resources (AJEPP-1). This is accomplished by adding human attitudes and values to the technical environmental protection process.

1-7. A vital concern for every commander is FHP. Many of the factors that affect Soldier and Marine health may be directly related to environmental considerations within the theater and the effects of military actions on the environment. While FHP is not subordinate to environmental considerations, it does encompass many aspects of it.

1-8. The areas relating to preventive and curative health contain embedded environmental considerations that are required by national and international environmental protection laws. In addition, other aspects of FHP contain environmental components (including blood supply management, medical operation hazmat, medical waste, potable water quality monitoring). (See JP 4-02 and other Service-specific health service support manuals for more information.)

ENVIRONMENTAL HAZARDS AND RISK MANAGEMENT

1-9. A hazard is a condition with the potential to cause injury, illness, or death of personnel; damage to, or loss of, equipment or property; or mission degradation. Hazards are subcomponents of risks; and at times, the terms are used interchangeably.

1-10. An environmental hazard is any activity that may pollute, create negative noise-related effects, degrade archaeological/cultural resources, or negatively affect threatened or endangered species habitats. Environmental hazards also include environmental health-related hazards. Both are considered subsets of hazards.

1-11. Hazards create risks that the military must anticipate, plan for, and mitigate. The RM/ORM process is one of detecting, assessing, and controlling risk that arises from operational factors and balancing that risk with mission accomplishment. Environmental risks are those risks to and from the environment that must be included in the RM/ORM process. These environmental risks would include counterproliferation and consequence management actions that are associated with chemical, biological, radiological, and nuclear (CBRN) (including toxic industrial materials [TIMs], explosive hazards). The TIMs have the capability of producing illness and injury or damage to humans, domestic livestock, wildlife, or other organisms through ingestion, inhalation, or absorption through a body surface.

ENVIRONMENTAL RECONNAISSANCE

1-12. The military conducts environmental reconnaissance to gather technical information that pertains to environmental conditions (including conditions relating to safety and FHP). ***Environmental reconnaissance*** **is the systematic observation and recording of site or area data collected by visual or physical means, dealing specifically with environmental conditions as they exist, and identifying areas that are environmentally sensitive or of relative environmental concern, for information and decisionmaking purposes.** Commanders use this information to assess the impact of military operations in the environment and the effect that the environment may have on military and civilian personnel. (See chapter 3 and FM 3-34.170/MCWP 3-17.4 for more information.)

ENVIRONMENTAL IMPLICATIONS

1-13. The military has a new appreciation for the interdependence between military missions, the global community, and the environment. Factors that influence international security and stability have changed dramatically. Global population and industrial activity have grown, and technological advances have accelerated. These phenomena have begun to shift the foundations of strategic analysis, altering the relationships between human populations and the supporting natural environment. As nations industrialize, they use more natural resources (for example, petroleum or rare earth elements in manufactured products), which can lead to potential conflicts over the exploitation of scarce resources. In addition, rapidly industrializing nations frequently fail to implement adequate environmental controls. These inadequate environmental controls can lead to conflicts with neighbors and present environmental health concerns to the population and to U.S. military personnel who are conducting operations.

1-14. U.S. forces must integrate environmental considerations into initial plans to protect and mitigate damage to natural and cultural resources and minimize the conflicts that are driven by these issues. Failure to do so may have impacts far beyond the initial damage. Environmental considerations will impact operations at all levels of command and should be integrated, as appropriate, into operations. The integration of environmental considerations into activities at home station provides a means for promoting the principles of stewardship and sustainability that support environmental protection at home and abroad.

OPERATIONS PROCESS

1-15. When conducting operations, commanders must balance environmental protection and mission requirements. Environmental protection principles do not necessarily override other operational or mission variables. These principles are standard considerations for inclusion in the operation. The mission variables for the operation determine and quantify the time and resources devoted to environmental protection. Commanders must analyze environmental considerations and impacts in concert with the operational and

mission variables. Mission accomplishment and environmental protection are often mutually supportive and enhance the operational and strategic mission.

1-16. Environmental considerations and their relative importance vary according to each operation, but U.S. military planners must consider the environmental implications of each operation to ensure that the outcomes meet mission objectives. Environmental considerations, regardless of the mission type, are significant in the operations process and must be addressed throughout each phase of the operation. Site selection, target selection, route selection, hazmat transportation, FHP, RM/ORM, base camp site selection, base camp operation, community relations, redeployment and camp closure actions, sensitive-site exploitation, and environmental closure in support of reconstruction efforts play an important part in how the military plans and conducts operations.

1-17. Commanders and staffs must plan for and integrate environmental considerations into each phase of the operation as early as possible. While predeployment, deployment, employment, sustainment, and redeployment of forces each present different environmental challenges, the early integration of environmental considerations into the planning of each phase will enable building on the success of previous phases. (See chapter 3 for details on the various aspects for the integration of environmental considerations in each phase of an operation.)

LEGAL FRAMEWORK

1-18. Environmental protection is addressed by an extensive legal framework. Various international treaties, status-of-forces agreements (SOFAs), DOD 4715.05-G, final governing standards (FGS), federal policies, and U.S. military Service regulations provide direction on conducting operations and protecting the environmental protection. These laws and regulations impact military operations by preventing certain operations (such as environmental modification as prohibited by the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques) and regulating others (such as the cross-border movement of hazmat regulated by the Basel Convention). According to the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, combatants are required to protect the natural environment against widespread, long-term, and severe damage during war. The U.S. and international communities now expect greater environmental protection during military operations than they have in the past.

1-19. DOD 4715.05-G prescribes implementation guidance and procedures for environmental compliance on DOD facilities outside the continental United States (OCONUS), but it does not apply specifically to ships, aircraft, or the ground components in a selected contingency. ***Environmental compliance*** **is the unconditional obeying of international, foreign nation, federal, state, and local environmental rules, regulations, and guidelines that affect current operations.** The purpose of DOD 4715.05-G is to guide the use of semipermanent and permanent facilities; however, the information may serve as a useful guideline for other situations. The FGSs developed for each foreign nation are country-specific and designed to provide guidance on particular aspects of environmental protection (such as effluent discharges or base camp-specific management practices). A ***waste discharge*** **is the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of a waste into or onto any land or water.**

1-20. Environmental considerations are not restricted to land operations. Maritime operations are also regulated by international law (such as the United Nations Convention on the Law of Sea) and U.S. statutes (such as the Marine Mammal Protection Act [MMPA]).

1-21. U.S. forces must be aware of the environmental laws that may impact operations and must plan accordingly. While the United States may not have signed some of these international agreements, the geopolitical climate may be one in which the United States will respect the guidance and requirements included in them. U.S. personnel who violate environmental laws or regulations may be punished under the Uniform Code of Military Justice. Commanders must be aware of this guidance and its requirements to avoid potential violations of international laws and to maintain the national environmental ethic of taking care of the environment simply because it is the right thing to do. This ethic is the operating principle and value that governs the behavior of individuals and units throughout the DOD. (See appendix B for a listing of laws, executive orders (EO), DOD directives, and other legal requirements.)

COMPETITION FOR RESOURCES

1-22. Strategic resources (oil, minerals, water) have often been catalysts for conflict. The current struggle to obtain and secure adequate energy resources is the latest in a series of natural resource-driven conflicts. Historically, the United States was largely explored and founded by nations seeking to take advantage of its natural resources and wars were fought over lucrative resources (fur trade, timber access). Adequate sources for ship masts were as important in the past as oil supplies are today. As more nations industrialize, the list of potential resource-driven trouble spots around the globe will increase.

1-23. As nations compete for resources, the potential for armed conflict increases. Water rights in the Middle East, access to diamond and rare metal mines in Africa and Asia, and ownership of lands with access to oil deposits present potential areas for future conflict. These conflicts may impact the United States through the deployment of forces to assist an ally in defending its resources, stability operations, or humanitarian assistance operations.

1-24. Theater level planners consider the possibility of environmental-driven conflicts within areas of responsibility. Planners must prepare for conflicts between states alongside political, economic, religious, ethnic, and other conflicts. These plans must address potential trouble spots and the effect that environmental considerations may have on military action at the source of the conflict.

ENVIRONMENTAL DAMAGE

1-25. In addition to competition for resources, environmental and natural disasters may result in a conflict. A nuclear plant accident or a major industrial spill that affects more than one nation may create economic damage to all parties and increase tensions between neighbors. The resulting claims for financial and legal settlements and the hostile political, ethnic, religious, or nationalistic feelings engendered have the potential to lead to armed conflict. Man-made conflicts and disasters and natural disasters tremendously impact the local populations and the environment.

1-26. In addition to overt armed conflict, the struggle for resources and the environmental damage resulting from human and natural events may lead to humanitarian crises. The loss of habitats, clean-water sources, cropland, and access to minerals or fuels upsets economic, social, and cultural systems. The resulting poverty, disease, and malnutrition create a situation in which certain countries feel compelled to provide humanitarian assistance, which often requires military assets to conduct and support such operations. In addition, the flow of refugees within and across national borders can upset the balance of the population and increase ethnic and religious tensions between rival groups.

1-27. Contingency planning must address stability efforts in areas affected by environmental issues. These issues include the effect that local and regional conflicts and natural disasters have on the environment. Planners must develop contingency plans to integrate environmental considerations into the environmental disaster response.

ETHNIC, CULTURAL, RELIGIOUS, AND HISTORICAL CONSIDERATIONS

1-28. Currently, there is a trend toward decreasing the number of conflicts between rival governments and economic systems and increasing the number of conflicts based on ethnicity, culture, and religion. The breakup of European empires has left rival ethnic groups competing for dominance in nations throughout the world. Conflicts that relate to these ethnic, cultural, and religious issues can create humanitarian-related crises. These conflicts create long-term population displacement and produce long-lasting hatreds that are often difficult to resolve, even after economic and quality-of-life disparities have been addressed. In these situations, symbolism may be critical. The possession of, or damage to, cultural, religious, or historical sites may be adequate provocation for armed conflict.

INFORMATION OPERATIONS

1-29. Information operations may include tactical and computer systems information security and the way that information on U.S. operations is presented and perceived. The control, protection, and flow of information in the global media may have positive and negative influence on operations. During Operation Desert Storm, Iraqi forces destroyed oil wells throughout Kuwait. This destruction, with its associated

environmental impacts, was portrayed as environmental terrorism in the media and helped to galvanize support against Saddam Hussein's regime. Similarly, environmental damage created by U.S. forces conducting operations, however unintentional (such as the damage to Babylon), may be used as a weapon in the public information campaign against U.S. operations and can undermine U.S. strategic objectives.

1-30. The U.S. military maintains a strong environmental ethic to support national values. Commanders now stress environmental stewardship and sustainability as an essential part of military operations. National values stress that the military use sound environmental judgment when conducting its operations and minimize environmental damage.

1-31. The U.S. military must display that it cares about the environment, and having sound environmental practices in contingency operations are essential. The public will not support wanton environmental destruction, and violations of the environmental ethic, real or perceived, can undermine U.S. strategic objectives. Commanders must be aware of public perceptions and understand the implications that may result.

FORCE HEALTH PROTECTION AND PREVENTIVE MEDICINE

1-32. As nations continue to industrialize, the quantity of TIM created and used increases. In most of the developing nations, standards for the storage and disposal of TIM are much lower than that of more developed nations. Disposal is the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste (HW) into or on any land or water so that such solid or HW, or any constituent thereof may enter the environment or be emitted into the air or discard into any waters, including groundwaters. The act of disposal is such that the solid waste, HW, or any constituent thereof, may enter the environment or be emitted into the air or discharged into any waters (including groundwater). U.S. forces conducting combat operations may be exposed, accidentally or intentionally, to a hazardous substance. Environmental considerations must address the impacts of operations (including targeting potentially dangerous industrial sites). Forces involved in stability missions may encounter hazmat in the base camp and operational areas. Hazmat present significant health threats to personnel. Future use of the contaminated area may also present health risks to the indigenous populations and institutions.

1-33. Sanitation standards of developing nations are also much lower than those of developed nations. Open sewers, unsafe drinking water, open-pit dumps or landfills, contaminated standing water, insect- and rodent-borne vectors, and other contamination sources are often prevalent in developing nations. Soldiers and Marines who are exposed to these hazards may become sick or injured.

1-34. Commanders must plan health protection and preventive-medicine measures for personnel. Immunizations, personal protective equipment (PPE), and training requirements must be addressed for Soldiers and Marines while planners integrate health protection into operations (such as base camp site selection).

FORCE SUSTAINMENT

1-35. U.S. forces consume large quantities of materials. Hazmat and petroleum, oils, and lubricants (POL) products in particular are used in large quantities. These materials require proper transportation, handling, storage, and disposal techniques and practices. Military operations also generate large quantities of waste (waste is any discarded material). Human waste, medical waste, HW, damaged or destroyed military material, construction materials, and household and consumer products require proper disposal. A ***hazardous waste is a solid waste that is listed as such in federal law or exhibits any of the hazardous characteristics of ignitability, corrosiveness, reactivity, or toxicity.*** Base camp facilities that are supporting operations need to be constructed, maintained, and closed at the end of operations. These sites should address FHP issues, hazmat management, and integrated waste management (including recycling, reusing, reducing, and disposing of solid waste, wastewater, medical waste, and HW).

1-36. Commanders should develop plans to address the environmental component of force sustainment. Much of the effort is resource-intensive and requires manpower, funds, and materials to support spill prevention and cleanup, material storage, and construction of support facilities. Subject matter experts provide advice and help plan and manage operations. Legal and contracting experts arrange for transportation and disposal by foreign nation or civilian contractors. These requirements may present significant challenges

to operations. Commanders must incorporate sustainable practices by integrating pollution prevention concepts and technology to help reduce waste disposal requirements.

STABILITY OPERATIONS

1-37. Stability operations conducted after major combat operations or in support of natural disaster recovery present many environmental challenges (remediation of environmental damage, sensitive-site exploitation, environmental restoration, and environmental considerations as they apply to construction operations). ***Environmental restoration*** **is the systematic removal of pollution or contaminants from the environment, especially from the soil or groundwater, by physical, chemical, or biological means; also known as remediation or environmental cleanup.**

1-38. During stability operations, environmental protection requirements are most likely more stringent than during combat operations. The military must plan for the additional equipment, materials, and expertise to support these requirements. Planners will need to ensure that these systems are included in the load plans or in the contracts for the accompanying civilian service providers. Planners will need to integrate requirements as early as possible to ensure that these resources are available when the area is secure.

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Chapter 2

Integration

Environmental considerations should be integrated into planning throughout the operational process at all echelons of command. Addressing environmental issues and the impacts of these issues on the mission greatly contributes to overall mission effectiveness, efficiency, and success. Potential benefits include protecting military personnel and civilian health, reducing operational delay, creating positive and supportive public opinion, and significantly reducing financial costs. This chapter discusses integrating environmental considerations early in the planning process and using the RM/ORM process to identify risk and aid with the assessment and management of environmental-related controls. The integration of environmental considerations does not require a new process or system. Commanders can include environmental considerations in the planning and conduct of the operation using existing processes (RM/ORM, MDMP/MCPP).

RISK MANAGEMENT/OPERATIONAL RISK MANAGMENT

2-1. It is crucial to integrate environmental considerations into the RM/ORM process and identify the environmental risks associated with an operation early. The earlier the risk is identified, the easier and more cost-effective it is to avoid or mitigate. Because many environmental risks have significant impacts on Soldiers, Marines, civilians, and local populations, it is especially important to identify these risks early enough in the process to avoid negative health effects and to take the necessary precautions.

2-2. Risk is characterized by the probability and severity of a potential loss that may result from the presence of an enemy or a hazardous condition. During mission analysis/problem framing, the commander and staff assess risk (including environmental-related risk).

2-3. The RM/ORM process must integrate environmental considerations, safety considerations, and other operational issues. Risks are identified and analyzed to determine their impact on the mission; the environment; the health of Soldiers, Marines, civilians, and local populations; and the resources (water, energy, POL, materiel, and finances). Based on the analysis, control measures are developed to minimize the risks and the related impacts. These control measures are included in course-of-action (COA) development and selection to assist in determining the best COA for a given operation or mission. (See appendix C for additional guidance on RM/ORM.)

PLANNING PRINCIPLES AND CONCEPTS

2-4. The integration of environmental considerations begins with planning and must be included in the planning at each echelon. Higher-echelon environmental planning guidance provides a foundation for corresponding planning at lower echelons. Environmental planning includes the efforts performed that consider the impact of operations, training, exercises, or weapon system introduction on the environment and, where necessary, allow decisionmakers to take early action to eliminate or mitigate those impacts. Planning guidance provides the foundation of information for subordinate commanders and staffs to effectively integrate and implement environmental considerations into their planning and operations.

2-5. Planning at the strategic level involves developing strategic military objectives and tasks in support of the national security strategy and developing the force and materiel requirements necessary to accomplish those tasks. The strategic level is where policy is translated into strategic military objectives. Combatant commanders plan at this level by participating in the development of the national military strategy, the theater estimate, and theater strategies. At this level, planners determine broad policy on the environmental

considerations. These considerations include making decisions on the rules of engagement for targeting cultural sites, developing guidance for targeting industrial infrastructure as it pertains to environmental considerations, deciding which environmental laws and treaties pertain to the situation, and determining the level at which the military may conduct environmental remediation and restoration.

2-6. Planning at the operational level links the tactical employment of the forces to their strategic objectives through planning, design, organization, integration, campaign implementation, major operations, and battles. At this level, planners review and decide how to specifically apply environmental policy and general procedures. Operational-level decisions may include selecting (or not selecting) potential targets, developing guidance on establishing supply routes and hubs, developing guidance for base camp site selection, developing guidance on integrated waste management programs and identifying the resources needed, determining when these resources will be moved into the theater, and planning for hazmat transport.

2-7. Planning at the tactical level is how units employ tactics to fight and win engagements and battles. These engagements and battles are the means by which units carry out operations. In a similar vein, environmental considerations at the tactical level are the tactics, techniques, and procedures that units use to implement guidance from higher headquarters. These tactical-level environmental decisions include considerations for unit environmental SOPs, field sanitation operations, waste management facility operations, and steps to protect hazmat and POL storage areas.

JOINT PLANNING PROCESS

2-8. Operational planning (see JP 5-0) encompasses the phases required for conducting operations (including mobilization, deployment, employment, sustainment, force redeployment). JP 3-34 provides the framework for integrating environmental considerations into joint operational engineer planning. Joint operations planning include deliberate, campaign, and crisis action planning. Although the specific steps are different, these processes are similar and interrelated.

Deliberate Planning

2-9. Deliberate planning takes place primarily during peacetime so that OPLANs can be developed for the contingencies identified in strategic planning documents. Deliberate planning relies heavily on assumptions regarding the political and military circumstances that exist when the plan is implemented. It also identifies requirements and shortfalls of the supported combatant commander and synchronizes supporting plans from organizations and commands located outside the geographic region. Integrating probable environmental considerations during this time is important. Planning for environmental considerations should include numerous possibilities, from the likelihood of environmental-driven conflicts, to possible enemy COAs that may impact the environment, to decisions regarding the environmental protection level that is being enforced by U.S. forces. The ***environmental protection level*** **is the varying level of environmental protection that can reasonably be afforded at any particular time during military operations, given the absolute requirement that such a diversion of resources away from the mission at hand does not adversely affect that mission, any friendly personnel, or indigenous or refugee populations.** Deliberate planning is a highly structured process that engages commanders and staffs in methodically developing fully coordinated plans for contingencies and transitioning to and from war or other operations. Plans developed through deliberate planning provide a foundation for campaign and crises action planning. These plans typically develop into training programs. Environmental training should be an integral part of a mission training program for the successful implementation of environmental considerations.

Campaign Planning

2-10. Campaign planning is employed by the military when the scope of operations requires more than a single operation. Integrating environmental considerations into campaign planning is largely the same as that of deliberate planning. During campaign planning, the standards and guidance for environmental considerations in one or more of the OPLANs may involve significantly different planning guidance given different operational areas or different situations within an assigned area of operations (AO). Causes for these differences include variations within the range of military operations, international agreements or similar documents, specific operational objectives, and other aspects of the operating environment.

Crisis Action Planning

2-11. Crisis action planning involves the time-sensitive development of OPLANs and OPORDs in response to an imminent crisis. It follows prescribed procedures for formulating and implementing an effective response within the time available. Planners base their planning on the circumstances that exist at the time of the crisis event.

2-12. The military adapts and employs a basic process for planning and executing operations in crises. An adequate and feasible military response to a crisis demands a flexible adaptation of this process. For a crisis, planners follow established crisis action plan procedures to adapt previously prepared OPLANs to meet the specific situation or develop new OPLANs based on the crisis. Maintaining environmental considerations and related information in existing plans becomes critical when dealing with crisis action plans.

2-13. Planners integrate environmental considerations into crisis action plans using environmental considerations identified in the deliberate planning process or information that was obtained regarding potential AOs. As with any operation, the scope of the relevant environmental considerations will vary with the type of mission being executed. For example, in a hostage rescue operation, the environmental considerations would be limited to certain targeting or cultural issues. For example, a response to an environmental disaster, the environment is the key component of the mission. The more information that staff sections have about environmental considerations affecting the AO, the faster they can integrate them into the OPLAN.

MULTINATIONAL OPERATIONS PLANNING

2-14. Multinational operations planning requires that staffs be aware of the environmental constraints placed on multinational operations by international agreements that are applicable to U.S. forces. Military material restrictions (such as the limitation on depleted uranium ammunition) may also limit the method by which U.S. forces conduct multinational operations. Planning for multinational force operations is typically performed at the strategic level. Additionally, the commander must consider foreign nation cultural and historical sensitivities as factors in planning multinational operations. Many international forces with which U.S. forces operate may have different standards for integrating environmental considerations.

2-15. At the tactical level, commanders that operate as part of a multinational force will follow the most restrictive regulations as disseminated by the national chain of command. Potential friction may occur when multinational units (provided by nations that have not agreed to abide by some of the international environmental protocols) operate adjacent to, or as a subordinate element of, a U.S.-led task force. If the multinational unit is an adjacent force, the tactical commander will report environmental noncompliance incidents to the multinational force commander for appropriate action. U.S. forces will have to coordinate and sometimes assist multinational forces in the integration of environmental considerations to ensure consistent standards and environmental protection levels for the environment, the civilian and local population, and deployed Soldiers and Marines.

MILITARY DECISIONMAKING PROCESS AND MARINE CORPS PLANNING PROCESS

2-16. Each supporting OPLAN, regardless of the military Service, requires a complete, formal planning process. The process, which varies among Services, includes (at a minimum) a mission analysis, running estimates, COAs, and command approval. These supporting plans reflect specific requirements (including specific measures for integrating environmental considerations for each Service). Just as the joint planning process requires staffs to work together to analyze environmental considerations, Service staffs work together to analyze and integrate environmental considerations into their planning documents.

2-17. Staff sections use the guidance provided in higher headquarters plans and orders to develop their own supporting plans. The military integrates environmental RM/ORM and environmental considerations in varying levels of detail, based on the higher headquarters plan, situation, and planning echelon.

2-18. The MDMP/MCPP establishes procedures for analyzing a mission and producing a plan or order. These processes apply across the range of military operations.

Notes.

1. See ADP 5-0 for more information on the MDMP.

2. See MCWP 5-1 for more information on the MCPP.

2-19. Each step begins with input that builds on the previous steps. The output of each step drives subsequent steps, and initial errors or omissions impact later steps in the process. It is important to integrate environmental considerations into each step.

2-20. Table 2-1 uses the MDMP/MCPP framework to discuss integrating environmental considerations into the MDMP/MCPP. Environmental considerations are generally addressed as a function of risk, much like safety considerations.

Table 2-1. MDMP/MCPP environmental considerations

Input	*MDMP*	*MCPP*	*Output*
• Environmental appendix or annex from a higher-level order • Foreign nation agreements and DOD 4715.05-G • Lessons learned	Step 1. Receipt of mission		• Commander's initial guidance • Warning order
• Higher headquarters orders, plans, and IPBs • Running estimates • Geospatial information and products resulting from terrain analysis • Facts and assumptions	Step 2. Mission analysis	Step 1. Problem framing	• Environmental areas of interest • Specified, implied, and essential environmental tasks • Specialized assistance for an EBS (an environmental or contingency real estate support team) • Environmental risks (see the discussion of RM/ORM in this chapter and in appendix C) • Initial environmental reconnaissance • Environmental considerations reflected in restated mission guidance • Commander's intent • Commander's guidance • Warning order
• Restated mission • Initial commander's intent • Planning guidance • CCIR • Updated running estimates	Step 3. COA development	Step 2. COA development	• Updated environmental risk controls • Refined commander's intent and planning guidance • Potential threat COAs that could impact the environment
• Updated environmental risk controls • Refined commander's intent and planning guidance • Enemy COA	Step 4. COA analysis (war game)	Step 3. COA wargaming	• Environmental protection level matrix

Table 2-1. MDMP/MCPP environmental considerations (continued)

Input	*MDMP*	*MCPP*	*Output*
• Environmental protection level matrix	Step 5. COA comparison	Step 4. COA comparison and decision	• Residual risk • Environmental considerations significant enough to appear in commander's intent or guidance
• Decision matrix	Step 6. COA approval	NA	• Approved residual risk with implementing controls • Refined commander's intent and guidance
• Approved COA • Refined commander's intent and guidance • Refined CCIR	Step 7. Orders production	Step 5. Orders development Step 6. transition	• Environmental annex or other input to the OPORD

Legend:

CCIR	commander's critical information requirements
COA	course of action
DOD	Department of Defense
EBS	environmental baseline survey
IPB	intelligence preparation of the battlefield/battlespace
MCPP	Marine Corps planning process
MDMP	military decisionmaking process
NA	not applicable
OPORD	operation order
ORM	operational risk management
RM	risk management

PLANS, ORDERS, AND STANDARD OPERATING PROCEDURES

2-21. Plans and orders—

- Are the means by which commanders express their vision, intent, and decisions. Plans and orders form the basis by which commanders synchronize military operations.
- Encourage initiative by providing the what and why of a mission, while leaving the how of the mission up to subordinates.
- Provide subordinates with the operational and tactical freedom to accomplish the mission by providing the minimum restrictions and details necessary for synchronization and coordination. Units are given standardized procedures for the execution of routine actions through SOPs.

OPERATION PLANS AND OPERATION ORDERS

2-22. OPLANs and OPORDs normally include environmental considerations in coordinating instructions. This can be as special or coordinating instructions and may be included in an annex or appendix, based on the level of command and scope of the operation. When specific command procedures dictate, staff officers include some environmental considerations in other annexes. Unit planning at the brigade level and below will address the elements that are required by the higher headquarters order or plan and are not included in a unit SOP. Table 2-2, page 2-6, provides a listing of the joint annexes and appendixes that include environmental considerations. These annexes and appendixes are areas that require closer examination when the tactical force commander receives an OPORD from higher headquarters. This triggers the tactical level staff to begin the MDMP/MCPP.

Table 2-2. Annexes and appendixes with significant environmental considerations

JOPES Location	*Proponent Staff*	*Staff Input*	*Comments*
Annex A	J-3 (operations)	All (primarily engineer, surgeon, and civil affairs)	Ensure that the elements to perform critical environmental missions are included in task organization, especially engineer, medical, and civil affairs. Time-phased force and deployment data sequence may be critical to perform missions in a timely fashion.
Annex B, appendix 1	J-2 (intelligence)	All (primarily engineer, surgeon, and civil affairs)	Environmental priority intelligence requirements may include information on planned base camps and other sites.
Annex B, appendix 4	J-2 (intelligence)	Fire support element, engineer, civil affairs, SJA	Cultural consideration and the environmental effects of specific targeting must be addressed.
Annex C, appendix 2	Chemical officer	SJA, surgeon	Riot control agent and herbicide use require the integration of environmental considerations.
Annex C, appendix 8	Engineer	Chemical officer, explosive ordnance disposal	Hazard clearing for air base operability may have environmental considerations.
Annex C, appendix 13	Engineer	Explosive ordnance disposal, chemical officer	Clearing unexploded ordnance for base camps and other similar sites may be necessary.
Annex D, appendix 1	J-4 (logistics)	Engineer, surgeon	POL have significant embedded environmental considerations.
Annex D, appendix 2	J-4 (logistics)	Engineer, surgeon	Water sampling, well site selection, and preparation include environmental considerations.
Annex D, appendix 6	Engineer	J-4 (logistics), civil affairs, surgeon, SJA	The engineer support plan must integrate environmental considerations.
Annex E, appendix 4	SJA	J-3 (operations), J-4 (logistics), fire support element, engineer	Considerations associated with the environmental laws are included.
Annex F	Public affairs officer	Civil affairs, SJA, surgeon, engineer	Environmental considerations will be of concern for the public affairs officer.

Table 2-2. Annexes and appendixes with significant environmental considerations (continued)

JOPES Location	*Proponent Staff*	*Staff Input From*	*Comments*
Annex G	Civil affairs	Engineer, surgeon, SJA	Civil affairs covers the spectrum of environmental considerations although it has a special focus on civil considerations.
Annex L	Engineer	J-4 (logistics), SJA, surgeon	Civil affairs, engineer, legal, medical implications, and J-2 and other intelligence activities may involve members of the joint environmental management board.
Annex M	Engineer	J-2 (intelligence), J-3 (operations, J-4 (logistics), staff requiring geospatial information to support planning	Geospatial information for base camps and similar sites needs to be identified in this annex. Geospatial information is important in identifying past environmental contamination and other health and safety threats and protection and for indentifying sensitive cultural and natural resources.
Annex Q	Surgeon	NA	Appears in numerous places throughout environmental considerations embedded besides appendixes 6 and 10.

Legend:

J-2	intelligence staff section
J-3	operations staff section
J-4	logistics staff section
JOPES	Joint Operation Planning and Execution System
NA	not applicable
POL	petroleum, oils, and lubricants
SJA	staff judge advocate

2-23. The engineer is the primary staff integrator for environmental considerations. However, environmental concerns are addressed by every staff officer, as applicable, in respective annexes and appendixes. Joint plans or orders contain a separate annex (annex L, Environmental Considerations). In the context of an Army order following the format in FM 6-0 and MCDP 5, the specified appendix is appendix 6, Environmental Considerations, to annex G, Engineer. A sample of appendix 6 to annex G is included in appendix D. Table 2-2 provides information concerning joint planning process annexes and appendixes containing significant environmental considerations. The Marine Corps follows the joint operations order format for tactical orders.

STANDARD OPERATING PROCEDURES

2-24. Commanders use SOPs to standardize routine or recurring actions that do not require their personal involvement. The SOPs detail the way that the unit executes unit-specific techniques and procedures, which enhances organizational effectiveness and flexibility. Commanders develop SOPs from doctrinal sources, applicable portions of higher headquarters procedures, a higher commander's guidance, and experience. These SOPs are as complete as possible, allowing new arrivals or newly attached units to quickly become familiar with the routine of the unit. The SOPs are in effect until the commanders change them. The benefits of having SOPs are—

- Simplified, brief orders.
- Enhanced understanding and teamwork among commanders, staffs, and troops.
- Standard synchronized staff drills.
- Standard abbreviated or accelerated decisionmaking techniques.

2-25. Unit commanders are responsible for complying with the applicable environmental requirements established by the commander in the environmental considerations annex or appendix of the OPLAN or OPORD. Subordinate commanders should keep the higher command staff informed of conditions that may result in noncompliance or the potential for noncompliance. Unit SOPs (see appendix E) at battalion and company levels must incorporate specific responsibilities. The operations officer is responsible for tactical and administrative SOPs (including preparing, coordinating, authenticating, publishing, and distributing the SOPs). Other staff sections provide input on the SOPs.

ENVIRONMENTAL-SPECIFIC PLANNING

2-26. Environmental-specific planning focuses on providing units with environmental-related resources and information necessary for accomplishing the missions. Environmental-specific planning is included, as appropriate, in the running estimates produced at all echelons of command during the MDMP/MCPP. (See chapter 3 for more information on integrating specific environmental considerations into operations.)

ELEMENTS

2-27. The operation should be planned to achieve the mission objectives while minimizing the adverse effects on the environment. Although not all of the following elements are applicable to every operation, they should be helpful in environmental planning:

- Identifying operational objectives and the activities necessary to obtain those objectives.
- Identifying alternative means of obtaining operational objectives (including new technologies that minimize environmental impacts).
- Identifying the environmental requirements that are applicable to the AO.
- Identifying adverse environmental health and environmental impacts that result from an operation.
- Establishing formal relationships and coordinating with other disciplines with roles in environmental planning and operations.
- Linking environmental considerations to civil affairs and information operation planning.
- Identifying the environmental characteristics of the affected area.
- Identifying possible environmental emergencies.
- Determining how an environmental emergency would affect the environment in the AO and the way in which it could be prevented or mitigated.
- Determining the environmental and operational risk associated with the operation.
- Negotiating applicable agreements to allow for the unimpeded transit of hazmat and HW by military and contracted assets.
- Determining contractor availability or use in support of the operation.
- Identifying environmental resources and reachback capabilities.
- Identifying the support equipment needed to meet the commander's intent.
- Identifying the engineer effort needed to support environmental-specific plans, requirements, and operations.

KEY FACTORS

2-28. Commanders should consider the environment and FHP during each phase of the operation. When planning and conducting military operations, regardless of geographic location, commanders should give appropriate consideration to—

- Legal requirements and constraints.
- Cultural, historical, and religious factors.
- The presence of environmental-sensitive ecosystems.
- Potential environmental-related health risks to unit personnel, DOD civilians, contractors, and local populations.
- Potential for environmental terrorism on the part of enemy forces.
- Targeting considerations to avoid damage to cultural, historical, or religious sites or damage to facilities that could result in environmental damage or health risks to everyone.
- Site selection for base camps and other facilities.
- Camp transfer or closure actions.
- Hazmat, HW, and POL management.
- Spill prevention, containment reporting, and cleanup requirements.
- Management of medical and infectious waste.
- Solid and human waste management.
- Water and wastewater management.
- Sustainability practices to reduce waste generation and logistics efforts and costs.
- Possible environmental remediation and restoration of damaged areas.
- Environmental requirements pertaining to sensitive-site exploitation.
- Environmental controls pertaining to general engineering projects.
- Power management (generation, distribution, consumption, and conservation).
- Procurement and use of local resources and materials, including—
  - Coordinating with the HN support office to determine available resources.
  - Working with the contracting office to purchase from HN sources according to the contract approval process per the command policy and guidance to support the local economy and generate goodwill. Planners balance requirements with the potential depletion of local resources.

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Chapter 3
Force Projection

Force projection is the ability to project the military instrument of national power from the United States or another theater, in response to requirements for military operations (JP 3-0). Commanders must be aware of the potentially negative environmental impacts that forces may encounter when preparing for training or combat operations. Whether being located in garrison, awaiting movement, or occupying a tactical assembly area OCONUS, staff planners must take the necessary steps to mitigate adverse effects to the environment in each phase of an operation. Planners must consider the effect of environmental considerations and how they may constrain or influence various actions and decisions. In the predeployment, deployment, and redeployment phases of operations, these considerations will be rather clear and units will have to adhere to the laws and regulations with little margin for noncompliance. In the employment and sustainment phases of the operation, units will have greater latitude (based on the situation and the commander's guidance) in integrating environmental considerations into the operation. Integrating environmental considerations early in the planning process and effectively identification and management of environmental risk are key elements of force projection.

PREDEPLOYMENT

3-1. Predeployment environmental considerations include training with a focus on environmental principles, analysis of operational and mission variables (including initial environmental risk assessment and the integration of environmental considerations into the IPB and other planning activities), and logistics planning. Integrating environmental considerations during predeployment establishes the foundation for future success and allows subordinate units to begin planning and identify training requirements for environmental considerations earlier in their planning process.

TRAINING

3-2. Predeployment environmental training is essential for personnel to gain the proper skill sets to conduct operations in a manner that supports environmental principles. This training includes individual and collective training on integrating environmental considerations into planning and operations. Thus, the training events focus on integrating environmental considerations into the unit training regimen at all levels, from the individual to the unit.

3-3. Predeployment training is usually conducted in garrison or at training centers. Whether the training occurs in CONUS or OCONUS, coordination is required with the range and environmental staff to ensure compliance with federal, state, HN, and local environmental regulations and garrison and range SOPs and programs (such as the Sustainable Range Program). During training activities in garrison, environmental considerations typically receive higher priority and are more focused on sustainability. Federal, state, HN, and local environmental laws and regulations tend to dictate unit actions. Violating these statutes may result in punitive actions. Commanders must be aware of the specific environmental requirements for the predeployment training location.

Individual Training

3-4. Protecting the environment, Soldiers, Marines, and civilians from environmental health hazards begins with training the individual. This includes the training conducted as a part of Soldier and Marine individual

jobs and the training related to specific additional duties and deployment considerations. Commanders must ensure that assigned personnel maintain the skills necessary to protect themselves and the environment. Staffs must plan and integrate this training into routine training schedules to ensure that Soldiers and Marines possess the required expertise before deployment. Predeployment environmental training assists in the deployment of military units. It reduces the requirement to conduct additional environmental-specific training during deployment, thereby allowing units to focus on mission-specific requirements. While each Service includes specific requirements for routine, job-related, and additional duty-specific training, the following areas should generally be addressed to ensure adequate numbers of trained personnel:

- The environmental protection portion of the unit SOP.
- Environmental-related, additional, and duty-specific training.
- PPE use and maintenance.
- Spill prevention and response.
- Hazard communication.

Note. Hazard communication is a program that is used to ensure that employees are aware of potential exposure to hazmat in the workplace, the control measures to prevent exposure, and the appropriate response actions in case of an exposure (Section 1200, Part 1910, Title 29, Code of Federal Regulations). Hazard communication is the responsibility of commanders and supervisors concerning possible hazards in the workplace and notification of hazards and necessary precaution to their Soldiers and Marines.

- HW operations and emergency response.
- Hazmat and HW transportation, storage, and handling certifications.
- Environmental officer training.
- Hazmat and HW certifier courses.
- Field sanitation procedures
- Satellite accumulation point operation.
- SDS recognition and use.
- First aid procedures for hazmat and HW exposure.
- Installation environmental awareness training.
- Geneva Convention and law of war training.
- Personal health and hygiene.

3-5. Training intervals for these topics should be determined by specific theater and/or major Army command or Marine Corps command guidance.

Unit and Staff Training

3-6. In addition to individual Soldier and Marine training, units integrate environmental considerations into unit and staff training. While units are already required to integrate environmental considerations into field training exercises, they can also integrate these considerations into simulation training exercises. Simulation training exercises allow staffs to include planning for environmental considerations into training, including those not normally encountered in CONUS field training. The more experienced that staffs are at identifying and planning for, environmental factors, the more proficient they will become at integrating these factors into operations.

3-7. Certain staff positions require that individuals be aware of various environmental considerations that impact their running estimates. The staff judge advocate (SJA), engineer staff who are responsible for environmental-related planning and oversight, civil affairs, and contracting officers, in particular, must be aware of pertinent environmental laws, regulations, and treaties that may impact military operations. Predeployment training is essential to the rapid integration of environmental considerations into running estimates.

3-8. Once units are alerted for deployment to a specific AO, they must ensure that personnel are trained in specific aspects of environmental considerations pertaining to that area. The location of the operation,

intermediate staging locations en route, and other foreign nations that supply lines may run through will have different requirements for environmental protection and present different health hazards to Soldiers and Marines. Training at all echelons may be necessary to prepare personnel for deployment. This training may include—

- Environmental health hazards.
- Cultural, religious, and political sensitivities.
- Recognition and protection of endangered species or their habitats.
- Recognition of cultural or archaeological artifacts and buildings.
- Specific environmental laws, regulations, standards, and treaties.
- Transportation requirements for hazmat and HW.
- Theater-specific training for handling, storing, transporting, and disposing of hazmat, HW, solid waste, medical waste, gray water (water that has been used for dishwashing, cooking, showers, or laundry but does not include water used for washracks or latrine facilities), and recycling programs.
- Rules of engagement.
- Infrastructure assessment.
- Processes to request required materials or equipment that will accompany the unit but is not on the unit modified table of organization and equipment.

ANALYSIS OF OPERATIONAL AND MISSION VARIABLES

3-9. Combatant commanders are responsible for a specific area of responsibility. This responsibility entails planning for various contingency operations. As a part of the predeployment phase of the operations, staffs must integrate environmental considerations into contingency planning. This planning includes gathering information on specific countries within the area of responsibility and integrating environmental considerations into specific plans. Each staff section must take into consideration a myriad of concerns, listing them in their running estimates, intelligence collection plan, and IPB for specific countries or operational situations. In addition, planners must include environmental considerations in their risk assessment for conducting operations. This information is essential to allow commanders and staffs to develop plans that protect the environment against undue harm and safeguard the health of Soldiers, Marines, civilians, and the local population and support stability operations (as required) in a fashion that adheres to U.S. national values. Topics or areas of concern include the—

- Applicable environmental laws, treaties, standards, FGSs, and regulations.
- *Threatened species* any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. (Endangered Species Act)
- *Endangered species* is one, which has been categorized by the International Union for Conservation of Nature as likely to become extinct. (Endangered Species Act)
- *Critical habitat* is a habitat area essential to conservation of a listed species, though the area need not actually be occupied by the species at the time it is designated. (Endangered Species Act)
- Cultural, ethnic, and religious sensitivities. For OCONUS, search the United Nations Educational, Scientific, and Cultural Organization World Heritage List Web site. Also, interview local populations or subject matter experts for sites that are locally sensitive.
- Environmental health hazards.
- Status of the infrastructure that supports environmental considerations. (See UFC 1-201-02 for more information.)
- Effect that terrain and weather have on operations as they pertain to the environment.
- Types of industry, agriculture, and natural resources present.
- Types of industry or agriculture present that generate hazmat and HW.
- Specific environmental issues (water, petroleum, mineral rights) that may be catalysts for conflict.
- Potential targets for environmental terrorism and the anticipated results of the damage.

- Attitude of the public toward environmental matters in the affected HN.
- Specific forces (such as facility engineer teams) that are required to support environmental activities.

LOGISTICS PLANNING

3-10. Early planning is essential to ensure adequate time to obtain and transport resources. Predeployment planning helps identify the logistics requirements in time to make the necessary arrangements for procurement, storage, and transportation. The adequate provision for environmental considerations may have a significant impact on the logistics system in the areas of transportation, material procurement, and contracting. Much of this information will be provided to subordinate commands in the higher headquarters OPLAN and OPORD. The development of environmentally sustainable logistics and the use of new products and technology will enhance logistics support.

3-11. During predeployment, unit personnel must prepare a basic load list of equipment and other supplies required to protect the health of personnel and the environment until Army- and Marine Corps-specific supply chain management systems are fully operational. Equipment and supply considerations include—

- Adequate PPE for handling hazmat and HW.
- Spill response equipment. The basic planning guidance is to have enough material (overpack containers, absorbent) to clean up and contain the substance in the largest container. Ensure that team members are trained and aware of the procedures for requesting additional assistance.
- Material and waste containers (including secondary containment), overpack containers, labels, markers, placards, signage, and bung wrenches.
- Bulk fuel operations equipment. Ensure that sparkproof tools, PPE, spill containment kits, and other equipment are available.
- Trained personnel to handle the hazmat and HW. Ensure that hazmat (explosives and POL) are properly labeled and applicable SDSs are on hand.
- Trained personnel to handle solid waste.

Note. TM 3-34.56/MCIP 4-11.01 includes a sample of a basic packing list. This list may not be all-inclusive, and unit personnel must adjust their lists, as necessary.

Transportation

3-12. Transporting hazmat and HW is subject to various laws, regulations, and treaties. Relevant requirements and procedures must be addressed to ensure the safe and legal movement of these materials. Because the movement of hazmat across international boundaries requires coordination, initial planning must include provisions to enact or establish procedures with foreign governments to transport them. Planners must determine these requirements early in the planning process to avoid unexpected delays when the materials become essential. In addition to coordination requirements, planners must include planning for adequate resources to transport hazmat and HW to and from HW accumulation sites. A ***hazardous waste accumulation site is a specially designated site for the temporary collection of HW where no container may remain on site without a permit for more than a specified duration, based on the amount of refuse stored***. The site may be established at the squadron, company, battalion, or brigade level, and under the direct control of military personnel and located near the site where waste is being generated. The site and containers within it must be properly marked and labeled, and specific safety and management procedures will apply. The theater environmental regulations should be checked, or the environmental chain of command should be contacted for specific requirements for temporary HW accumulation.

Material Procurement and Contracting

3-13. Planning for environmental considerations in material procurement and contracting should focus on sustainable practices that reduce the amount of materials needed, procure materials that are less hazardous and reusable, reduce the transportation requirements, and reduce the amount of waste generated. These sustainable practices protect the environment and help reduce costs.

3-14. Materials used to implement environmental considerations should be a part of the basic load for units and organizations. Logistics planners must plan to purchase and transport these materials as early as possible to ensure that units maintain adequate, accessible inventories. These may include spill prevention and response equipment, PPE, waste management equipment, and recycling bins and equipment. Logistics and supply personnel should plan to establish programs (a recycling and reuse center, a hazmat center) to help reuse serviceable materials (construction materials, shipping containers, excess hazmat, and concertina wire) as resources and the mission allow.

3-15. Contracts for materials should include environmental considerations (using less packaging and packing material, having the contractor reuse packaging and packing material, working with local businesses to recycle and reuse packaging and packing material). Contracts for services should also incorporate environmental considerations (for example, contractors should be required to comply with environmental regulations in base camps, including waste management and spill response). Environmental considerations should also be incorporated into quality assessment, monitoring, and contract performance evaluation.

DEPLOYMENT

3-16. As military forces deploy, specific environmental considerations become more critical. Additional specific training and resources may be available at installations and training areas that support the deployment. In addition, further transportation requirements will become necessary for shipping hazmat long distances or to OCONUS locations. Adequate predeployment planning reduces the impact for deploying units and supporting installations for additional environmental requirements. If this planning is not accomplished during predeployment, it will create a greater burden on the deploying force due to time constraints. Deployment guidelines are listed in table 3-1.

Table 3-1. Deployment guidelines

Adhere to General Guidelines (Applies to Training and OCONUS Deployments)
• Ensure that environmental controls identified during RM/ORM are implemented. • Forward the EBS to higher headquarters after it has been completed. • Ensure that unit personnel comply with off-limits area restrictions. • Ensure that hazard signs are standardized and personnel are briefed on their meaning according to the Hazard Communication (29 CFR 1910.1200). • Verify that units dig (for fighting positions and tank ditches) only in approved areas. • Ensure that personnel know and comply with special environmental requirements. • Use downtime for conducting opportunity training on environmental concerns. • Ensure that commanders monitor high-risk operations and activities to ensure that environmental considerations are integrated as mission and resources allow. • Report spills and maneuver damage to the proper headquarters immediately. • Ensure that commanders are making on-the-spot corrections. • Perform periodic ECRs, as necessary, and submit them through appropriate channels.
Reduce Noise
• Ensure that leaders are explaining and marking noise-restricted areas. • Ensure that units are complying with community and installation noise abatement codes and regulations.
Minimize Vehicle Movement Damage
• Ensure that personnel drive vehicles on secondary roads and bypasses, when possible, to minimize off-road damage. • Ensure that personnel move vehicles into bivouac or assembly areas in columns. • Designate personnel to remove mud and debris from roadways. • Drive carefully in wooded areas to avoid damage to vegetation. • Stay on approved and marked trails and routes when driving off-road, minimizing cross-country movement. • Cross streams and ditches only at approved crossings.

Table 3-1. Deployment guidelines (continued)

Protect Wetlands (Marshes, Swamps, and Bogs)
• Obtain a special permit, if required, to train in wetlands. • Ensure that sensitive and off-limits areas are designated, well marked, and avoided. • Limit the use of vehicles and destructive activities, when possible. • Ensure that drivers use designated bridges and crossing sites. • Ensure that units observe prohibitions against discharging wastewater into wetlands or waterways. • Prohibit refueling or field maintenance operations near or in wetlands or surface waters. (If the mission requires refueling in these areas, implement spill prevention practices and controls.) • Ensure that units observe prohibitions against filling wetland areas.
Protect Threatened Endangered Species and Other Protected Wildlife, Vegetation, and Habitats
• Ensure that personnel exercise care to avoid disturbing threatened and endangered species, habitats, and sensitive areas. • Verify that sensitive areas are marked.
Protect Natural and Cultural Resources
• Ensure that units avoid disturbing or digging in or near sites or structures designated as cultural resources. • Verify that personnel follow instructions not to modify or destroy these sites in any way. • Confirm that personnel understand that destroying or defacing archaeological sites (including artifact collections) is a violation of the law. • Ensure that personnel understand that the taking or purchasing of endangered species parts (skins, tusks, claws) or cultural artifacts is a violation of the law. • Ensure that personnel immediately report the discovery of artifacts and wait for clearance to resume training. • Ensure that sensitive and off-limits areas are designated and avoided.
Minimize Vegetative Camouflage Use
• Ensure that units exercise care to prevent ground covering from being stripped of vegetation. • Verify that units use camouflage nets instead of live vegetation, when possible. • Brief personnel regarding local guidance on the use of vegetation for camouflage.
Dispose of Waste Properly
• Ensure that each unit polices its area. • Establish designated accumulation bins and points for recyclable items and waste. • Ensure that solid waste is disposed of in a manner that prevents or minimizes the release of pollutants in the air, water, or soil. (See TM 3-34.56/MCIP 4-11.01 for additional guidance for solid-waste disposal.) • Establish burn pits, when authorized, and ensure that units properly dispose of solid waste in approved burn pits that are located away from living-support areas and civilian populations per DODI 4715.19. • Dispose of field kitchen wastes only as authorized. • Dispose of medical and human wastes in an approved manner. • Verify that units correctly dispose of liquid waste from kitchens, showers, and baths. • Ensure that units properly dispose of reverse osmosis water purification unit discharges and waste filter media.
Dispose of Hazmat and HW Properly
• Comply with the OPORD and the training area environmental management office procedures for HW turn-in and disposal. • Mark and report unexploded munitions properly. • Minimize hazardous substance uses. • Place HW and POL waste products in separate containers. • Ensure that containers requiring long-term storage before disposal are protected from weather and inspected to prevent container failure. • Ensure that waste description records are handed off to replacement units.

Table 3-1. Deployment guidelines (continued)

Dispose of Hazmat and HW Properly (continued)
• Deliver HW and POL waste to a designated waste collection point. • Ensure that POL and vehicle maintenance waste products are not dumped into sewers, ditches, or streams. • Ensure that spill teams are available on-site. • Confirm that adequate spill response equipment, material, and PPE are available. • Ensure that spill teams respond immediately to reported spill locations. • Report spills as required by local regulations and the unit SOP.
Refuel and Maintain Vehicles
• Refuel vehicles only at designated sites. • Protect ground surfaces by using POL drip pans. • Use POL-absorbing compounds during refueling operations. • Ensure that secondary containment is used for POL containers. • Ensure that spill kits are available with enough equipment, materials, and PPE to handle the volume of POL at the refueling or maintenance site.
Perform Recovery Operations
• Use only designated vehicle wash facilities and equipment. • Confirm that fighting positions, gun emplacements, and other excavated areas are properly refilled. • Collect communications and obstacle wires for proper disposal or reuse. • Police and remove wastes and recyclables properly. • Mark and report unexploded munitions. • Report, contain, and clean up hazardous spills and POL according to directives. • Coordinate for and perform an environmental site closure survey to document the condition of the AO. • Inspect sites before departing the AO.
Legend:
AO area of operations CFR Code of Federal Regulations DODI Department of Defense instruction EBS environmental baseline survey ECR environmental conditions report HW hazardous waste OCONUS outside the continental United States OPORD operation order ORM operational risk management POL petroleum, oils, and lubricants PPE personal protective equipment RM risk management SOP standard operating procedure

MOBILIZATION

3-17. As forces increase their training tempo in preparation for deployment and as additional forces (including Army National Guard, U.S. Army Reserve, and U.S. Marine Corps Reserve forces) are mobilized, demands on training facilities, areas, and ranges will increase. This training will place additional strain on installations and may stress installation or training area sanitation, maintenance, and recycling facilities. These strains will be most apparent on overseas installations that do not regularly host large numbers of military personnel. Planners need to analyze the effects that this increase in personnel will have on installations supporting these operations. In some circumstances, it may prove necessary to request to be excused from or to modify certain mission environmental requirements. These issues must be addressed early

to allow time for the legal and regulatory issues to be resolved, for engineer and facility planners to develop solutions, and for logistics specialists to acquire the needed materials. The installation or training area environmental, engineering, transportation, and logistics offices are essential points of contact for coordinating mobilization planning.

3-18. The following affect mission planning for mobilization activities:

- Applicable laws, treaties, agreements, regulations, FGSs, and installation and training area operational procedures.
- Possibility of obtaining adjustments or exemptions to laws, regulations, or procedures.
- Personnel added for installation infrastructure support (in particular water, wastewater, sewage treatment, solid-waste disposal, medical waste, power generation, and recycling centers) and the steps necessary to increase capacity.
- Training areas and ranges being impacted by increased use, and the mitigation steps necessary to reduce damage.
- Adequate billeting areas and additional structures (warehouses, hangars, bunkers) that are safe for extended occupation by military personnel?
- Adequate dining facilities and new food service personnel properly trained to avoid food contamination and the spread of food-borne illnesses.
- Adequate facilities available for personnel hygiene and the arrangements for increasing them?
- Adequate medical facilities for the increased population.

TRANSPORTATION

3-19. The deployment of military forces requires a tremendous allocation of transportation assets. It involves transporting vehicles, equipment, materials, and personnel to distant locations. Units must transport various forms of hazmat and HW (including POL products and ammunition) in a manner safe for the environment and safe for military personnel and civilians. This process involves training in the proper procedures and handling, storage, inspection, and certification of loads. Strategic planners negotiate transit agreements with other nations to ensure the legal movement of materials. Considerations at the tactical level in the movement of materiel include—

- Complying with negotiated international transit agreements.
- Identifying hazmat and HW and ensuring that marking and labeling is legible and intact.
- Ensuring that adequate numbers of personnel are trained and available to certify hazmat loads.
- Preparing vehicles and equipment for shipment.
- Implementing safety procedures (securing loads, segregating incompatible hazmat and HW) for hazmat- and HW-specific hazards (flammable, combustible, corrosive, reactive, and health).
- Coordinating with contracted support (Logistics Civil Augmentation Program), HN, and/or local authorities to transport hazmat, HW, and ammunition.
- Arranging for hazmat, HW, and ammunition shipment security.
- Conducting customs inspections of personnel and equipment.
- Ensuring that the correct documentation for hazmat and HW is acquired.

EMPLOYMENT

3-20. The employment of military forces often creates a significant impact on the environment and available resources of the local area. While much of this impact is unavoidable, commanders must seek to minimize its impact to the greatest practical extent. Reducing or mitigating environmental damage serves to support U.S. goals and promotes mission accomplishment. Protecting the environment and the health of military and civilian personnel reduces long-term reconstruction and medical costs, supports information operation, preserves personnel strength, and aligns with U.S. national values.

INTELLIGENCE PREPARATION OF THE BATTLEFIELD/BATTLESPACE

3-21. Identifying environmental risks early and developing mitigation plans are essential to avoid unwarranted environmental damage. The IPB process identifies aspects of the operating environment that are crucial to the decisionmaking process of commanders. The engineer and civil affairs staffs must work with the intelligence staff to integrate environmental considerations into the IPB. Geospatial engineers can generate and collect geospatial data, provide geospatial information, and create terrain visualization products to further the analysis of the physical environment. This helps geospatial engineers visualize those aspects of the terrain that may require additional environmental consideration. Since there are no geospatial engineers within the USMC, this capability is maintained by intelligence analysts within the Marine expeditionary force topographical platoon. By identifying environmental considerations, the other staff elements can develop plans, which take into account various environmental factors (terrain, weather, infrastructure, civil considerations). These factors may include the—

- Potential weapons of mass destruction (WMD) sites.
- Identification of known contamination sites (including the type and severity of contaminants).
- Potential targets that the enemy may attack to inflict environmental damage.
- Industries and factories that emit, produce, or store toxic industrial chemicals (TICs) and TIMs.
- Location of oil and gas pipelines.
- Potential second- and third-order effects of damage to industrial facilities and WMD sites.
- Endangered and threatened species or critical habitats.
- Historical, cultural, or religious sites or structures.
- Ability of the local infrastructure to support environmental considerations (such as sewerage and water treatment plants).
- Potential impacts of the topography, weather, seismology, and hydrology on force health, structures, and equipment (such as monsoon seasons and the related impacts on areas and routes where equipment could bog down or have disease vectors).
- Effect of the weather and terrain on the potential spread of contaminants.
- Potential force bed-down and base camp locations.
- Material and technology that may be hazardous used in the area of responsibility.

ENVIRONMENTAL RECONNAISSANCE

3-22. Environmental data is a key element of the intelligence collection process. Environmental reconnaissance focuses on the collection of technical information on existing environmental conditions and the identification of environmentally sensitive areas or areas of relative environmental concern. Planners use the information that they collect to assess the impact of military operations on the environment and to identify potential environmental impacts on mission, safety, and other protection aspects. With adequate information on risks, planners can mitigate the impact of environmental concerns on the operation.

3-23. Environmental reconnaissance is a multidisciplinary task that is best conducted by a base team augmented, as necessary, with additional expertise. The engineer staff will likely be responsible for coordinating environmental reconnaissance but should rely on other functional subject matter experts for help, depending on anticipated areas of concern and required expertise. In many circumstances, however, a team may consist of one or two persons with limited experience. To obtain effective results, commanders and staffs must work to coordinate for and obtain additional expertise or, at a minimum, additional training support before conducting an environmental reconnaissance.

3-24. Many operations require fixed facilities, structures, or other real property as logistics, command and control, administration, communications, billeting, and maintenance areas. Planners must ensure that hazards from hazmat; HW; POL; disease vectors; CBRN contamination; and other contamination sources (open sewers, medical waste) are identified and mitigated, if possible, before the unit occupies the site. Planners must also understand the site layout and the layout of the surrounding civilian infrastructure to helps determine the overall site suitability and to plan for locating various base camp and installation functions. In addition to protecting military personnel and civilians, an environmental baseline survey (EBS) also help determine site condition before occupation, thereby, limiting liability to U.S. forces for any damage incurred

before the performance of the EBS. An *EBS* is a multi-disciplinary site survey conducted before or in the initial stage of a joint operational deployment. (JP 3-34) If the tactical situation permits, commanders must conduct or direct an EBS before occupying any of these sites. An EBS is typically performed by or with support from engineer elements. However, units may conduct an initial site assessment without assistance from engineer elements. Ideally, units will conduct a full EBS in conjunction with an occupational environmental health site assessment. Sampling of suspected contamination of soil, water, and air should be conducted if environmental sample collection, processing, and analysis resources are available. (See *Environmental Surveys Handbook: Contingency Operations [Overseas]* for additional information.)

CONSIDERATIONS FOR TARGETING

3-25. Destroying various targets may result in environmental or civil consequences. Throughout the targeting process, commanders must determine if the damage inflicted is worth the relative cost. In most cases, environmental considerations will be of second- or third-order importance in target selection. However, certain targets must be analyzed based on their environmental effects.

3-26. Purposely destroying industrial and WMD facilities may result in significant, long-lasting environmental after effects that impede subsequent operations and affect the health of exposed personnel. The uncontrolled release of TIMs could spread contamination, which permanently alters the quality of air, water, or soil. Additionally, there could be negative political repercussions of a regional or global dimension, especially if the contamination plume affects neighboring population centers or adjacent nations. The destruction of these targets and the possible resulting long-term, strategic effects must be evaluated against the relative near-term tactical gain. When possible, planners should avoid targeting these types of facilities or consider alternate means to disable them. The capture of key personnel that operate the facility, destruction of access routes into or out of the facility, interdiction of the delivery of commercial high-voltage electric power or fuel oil, and the physically surrounding of the facility can be just as tactically effective in disabling the target as the employment of precision-guided munitions. In some instances, detailed target analysis may involve consultation with civilian experts in the industrial or civil engineering field to determine the best means of disabling the facility while still preventing the uncontrolled release of contaminants. (See ATP 3-05.11; JP 3-11; and FM 3-11.5/MCWP 3-37.3/NTP 3-11.26/AFTTP (I) 3-2.60 for more information.)

3-27. Destroying other targets that comprise the national infrastructure may be desirable based on military necessity. For instance, it may be beneficial to destroy power generation stations, denying enemy forces reliable electrical power. As with other industrial sites, planners must weigh the costs and benefits. If the operation includes stability and reconstruction operations, the military may have to rebuild what was destroyed and mitigate environmental damage. If mission permits, it would be better to destroy a target that is easily replaceable (such as a power distribution tower that is easily rebuilt). Although targeting the center span of bridges is typically the best way to limit traffic, it causes significant construction and environmental issues when rebuilding across a waterway. This targeting may cost considerable sums of money to rebuild infrastructure, which may impede the progress of the stability operation and mission success. This may also fuel hostility of the local population and allies regarding U.S. forces and interests.

3-28. An enemy may use historic, cultural, or religious sites as sanctuaries because these sites may have particular significance for certain segments of the local population. While the enemy may be using them for protection from U.S. forces, damaging or destroying them may result in negative reactions among the local, regional, and world populations. Under the provisions of the standing rules of engagement, U.S. forces are permitted to defend themselves when subjected to an unprovoked attack. This rule of engagement applies to circumstances when the opponent uses otherwise-protected sites as a base for launching attacks against U.S. forces. To avoid negative reactions, commanders and planners should ensure that the defensive response is proportioned to the threat faced. The use of precision-guided munitions and other precision engagement methods (such as snipers) can achieve this objective while respecting the sanctity of historic, cultural, and religious sites.

COMBAT OPERATIONS

3-29. As forces engage in combat operations, a certain amount of environmental damage will occur. The steps that the military takes to reduce and mitigate environmental damage will vary with the situation and the operation. In major combat operations, the importance of environmental considerations may be less

compared to other concerns. In other operations (peacekeeping, peace enforcement) the situation may allow for more comprehensive safeguards. Nevertheless, certain steps may be necessary to avoid negatively impacting the ability of U.S. forces to conduct the operation and to safeguard the health of personnel. By integrating environmental considerations into the IPB and the environmental risk assessment, commanders and staffs may identify and avoid unnecessary impacts. These vary from the targeting considerations addressed above to good field sanitation measures; the protection of hazmat, HW, and POL storage areas; and securing vital infrastructure against damage. In addition, international law (as prescribed in the Geneva Convention and the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques) specifically forbids modifying the environment or deliberately destroying the environment as a means of waging war. Some of the considerations for conducting combat operations include—

- Identifying and securing vital infrastructure against damage and looting (including power plants, water treatment plants, hospitals, dams, and pumping stations).
- Securing locations that may be targets for environmental terrorism.
- Identifying and protecting historical, cultural, and religious sites (including museums, schools, universities).
- Avoiding damage (where possible) to agricultural land.
- Avoiding damage (where possible) to threatened and endangered species and their habitats and important habitats (wetlands, estuaries).
- Securing hazmat and POL storage areas against damage.
- Ensuring that personnel wear and use the proper PPE.
- Practicing good field sanitation and personal hygiene.

SUSTAINMENT

3-30. Sustainment is the provision of logistics and personnel services that are required to maintain and prolong operations until successful mission accomplishment. Sustainment is a warfighting function that directly supports actions conducted across the full range of military operations. As a result, the commander's concern for environmental considerations must extend throughout the operation. Environmental considerations must be integrated into plans and daily operations as U.S. forces establish lines of communication; establish, operate, and maintain base camps; continue to pursue combat operations; and conduct stability operations. Stability operations include logistics operations; base camp and installation operations; sensitive-site exploitation; historical, cultural, and religious site protection; and reconstruction operations.

3-31. Units perform inspections, ensure that environmental protection measures are in place, and ensure that hazmat and HW areas are clean and orderly during the sustainment phase. Units also note, document, and report changes in conditions if necessary. These changes may be significant enough to include with the EBS (such as finding new conditions at the site or increasing the area of the site using an environmental conditions report [ECR]). **An *environmental conditions report* is a concise summary of events or situations that created a negative or positive change in environmental conditions at a base camp site.** ECRs amend the EBS and can help address environmental damage claims or other legal challenges that may arise during the life cycle of the base camp. (Use table 3-2 as a consideration while planning and conducting sustainment actions in support of operations.)

Table 3-2. Sustainment guidelines

Maintenance Area	
Containment	• Place drip pans or absorbent pads under vehicles and the refueling nozzle in the drip pan. • Ensure that POL storage and waste areas maintain secondary containment and are in good condition. • Pump out water from secondary containment; test water for hazardous constituents, and dispose of it properly.

Table 3-2. Sustainment guidelines (continued)

Maintenance Area	
Hazmat and HW locations	• Ensure that POL and fuel storage areas are located away from densely populated areas (bed-down, dining, recreation, or medical treatment areas) and kept clean and orderly. • Ensure that warning signs can be read from 50 feet away (recommend additional signage in HN or local contractor languages). • Conduct turn-in at the HW accumulation site within designated turn-in times to ensure that HW is inspected and logged in before collection. • Ensure that lids are on (no funnels, including the use of self-closing funnels), areas are secure, and proper labels are on containers.
Environmental documentation	• Maintain SDSs for material, and keep spill response plans and equipment and unit SOPs readily available. • Label and date waste containers as soon as the first drop hits. • Maintain turn-in documents and waste manifests.
Containers	• Check shelf life dates and move older items to front for early use. (Check to see if shelf life dates may be extended using the DLA Shelf-Life Extension Program.) • Keep lids shut tightly when not adding or removing material. Ensure that there are no leaks or corrosion. • Ensure that ignitable materials are grounded. • Turn in containers in the vehicle maintenance HW accumulation site when they are full or nearly full. • Keep incompatible materials separated to prevent reactions.
Kits	• Order new PPE, dry-sweep, prevention tools, and spill kits, when necessary. • Use gloves and goggles during fueling operations.
HW Collection Area	
Containment	• Ensure that secondary containment is in good condition. • Pump out water that is accumulating in secondary containment; test water for hazardous constituents and dispose of it properly.
HW accumulation site	• Locate HW accumulation sites away from populated spaces. • Keep sites clean and orderly. • Ensure that warning signs can be read from 50 feet away (recommend additional signage in HN or local contractor languages).
Environmental documentation	• Keep spill response plans and unit SOPs available. • Maintain waste management documentation (sampling and testing records, turn-in documents, profile sheets). • Label and date waste containers when the first drop hits. • Keep an inventory of incoming and outgoing wastes.
Containers	• Ensure that containers have legible markings and labels. • Check for leaks and corrosion. • Empty containers when full or nearly full. • Keep lids tightly closed when not in use. • Keep wastes segregated.
Kits	• Order new PPE, dry-sweep, prevention tools, and spill kits, when necessary. • Keep spill response equipment in good condition, and ensure that it is accessible.

Table 3-2. Sustainment guidelines (continued)

Hazmat Supply and Storage Area	
Procurement	• Ensure that hazmat is on the authorized-use list before ordering or purchasing it. • Check with the hazmat center (if available) for hazmat before ordering or purchasing or check with other units to see if they have excess hazmat. • Order only what is needed (no stockpiling). • Check expiration and shelf life dates; place older stock near front of cabinets or racks to ensure that it is used first. • Check for shelf life extensions before disposing of hazmat.
Containment	• Ensure that secondary containment is in good condition. • Pump out water from secondary containment, test water for hazardous constituents, and dispose of water properly. • Ensure that tent heaters, potbelly stoves, generators, and light sets have secondary containment.
Hazmat locations	• Locate hazmat away from populated areas. • Ensure that warning signs may be read from 50 feet away (recommend additional signage in HN or local contractor languages). • Keep locations clean and orderly, and eliminate trip hazards.
Environmental documentation	• Keep spill response plans and unit SOPs readily available. • Label and date waste accumulation containers. • Keep an inventory of incoming and outgoing materials.
Containers	• Keep items orderly. • Store incompatible materials separately. • Ensure that lids are on tightly when containers are not in use. • Turn in excess hazmat (with containers and labels in good condition) to the hazmat center (if available), or check with other units to see if they can use the hazmat.
Kits	• Order new PPE, dry-sweep, spill kits, and prevention tools, when necessary. • Keep spill response equipment in good condition, and ensure that it is accessible.
Hazmat Supply and Storage Area (continued)	
Other wastes	• Locate waste away from populated areas. • Keep locations clean and orderly. • Ensure that wastes are segregated. • Recycle, as appropriate. • Ensure that incineration is conducted downwind of personnel and the local population.

Legend:

DLA	Defense Logistics Agency
HN	host nation
HW	hazardous waste
POL	petroleum, oils, and lubricants
PPE	personal protective equipment
SDS	safety data sheet
SOP	standard operating procedures

LOGISTICS OPERATIONS

3-32. Providing logistics support to military operations requires extensive planning. The more material required for military forces, the greater the transportation effort. This effort translates into greater cost and more personnel. The more personnel required to support logistics operations, the higher the demand on base camps and protection requirements. When planners reduce the logistics burden, support requirements also

decrease. In an effort to reduce logistics requirements, DOD established goals to reduce the amount of power, fuel, water, and waste that must be managed at installations and during operations. Although it is an ambitious objective to achieve a net-zero balance, the military is working to develop equipment and practices that reduce requirements. All military personnel must follow best energy, water, and waste management practices to reduce the unit logistics footprint, reduce unnecessary energy and water demand, and increase resource self-sufficiency toward greater combat effectiveness.

3-33. Sustainable use and resource conservation practices must be implemented to reduce the logistics requirements. In recent studies, it was determined that approximately 70 percent of the total logistics movement (by weight) in contingency operations was fuel and water. Fuel, power, and water conservation measures can reduce the amount of resources required. Reducing the quantity of hazmat used and HW generated also significantly reduces the logistics requirements. Using available, nonpolluting materials reduces the time and expense of adhering to extensive requirements that protect against spills and the process of transporting HW out of the theater. In addition, recycling programs for materials (in particular, Class II and Class IV) can reduce the amount of material shipped into and out of the theater. The development of sustainable practices requires planners and logistics personnel to consider equipment (such as compactors; shredders; package wastewater treatment systems; hybrid, solar, or photovoltaic systems; composting equipment; oil and antifreeze recyclers; and other equipment) that can promote sustainable practices). Additionally, military, civilian, and contract personnel must receive training on the importance of sustainable practices and the importance of their role in implementing these practices.

3-34. Logistics planners must also ensure that they make adequate provisions for environmental, sustainable, and health-related products. These products range from spill containment materials to PPE, to contracted portable latrine/head and shower units. Integrating these considerations as early planning factors is important to ensuring that adequate resources are available.

Theater support contracting and/or the Logistics Civilian Augmentation Program are often used in logistics and sustainment. Requiring activities should work with engineer personnel who are knowledgeable in environmental issues when selecting qualified contracting officer representatives and developing scopes of work, performance work statements, evaluation and monitoring plans, and technical evaluation plans for contracts to ensure that environmental considerations are adequately incorporated. Environmental considerations may include—

- Reduced packaging.
- Substitution of hazmat for less hazardous or nonhazmat.
- Recyclable content in materials.
- Materials that can be reused, recycled, or reduced in volume.
- Spill cleanup associated with firefighting contracting, or other operations or services.
- Treatment, disposal, or retrograde of waste.

3-35. Contractors must be monitored via contracting officer representatives and held liable to ensure compliance with contract requirements and applicable treaties, laws, regulations, and standards. This requires the assignment of qualified subject matter experts to serve as technical contracting officer representatives or to advise those delegated to serve as contracting officer representatives.

BASE CAMP OPERATIONS

3-36. Establishing base camps and occupying existing facilities (ports, airfields) require the extensive integration of environmental considerations. These sites, sometimes approaching the size of small cities, require tremendous allocations of resources. In addition, they generate waste in quantities similar to small cities but without the existing infrastructure to support them. Planning for base camp operations must begin as early as possible in the operation (including establishing environmental guidelines [integrated waste management plan, spill prevention, response plan], oversight authority, site selection, equipment requirements, space requirements, and camp operating procedures). Environmental considerations should be incorporated into the base camp master plan during the planning process and updated throughout the life of the base camp. Base camp master plans should address the environmental effects of modifications

(improvements) to base camps, as determined through environmental assessments. ***Environmental assessment* is a study to determine if significant environmental impacts are expected from a proposed action.** Other areas that require environmental assessments include hazmat storage areas, HW accumulation points, ammunition storage areas, fuel storage and refueling areas, firing ranges, and waste management facilities.

Notes.

1. See appendix F for detailed guidance on base camp site selection, construction, and operation.

2. See ATP 3-37.10/MCRP 3-17.7N for more information regarding base camp operations.

3. See *Environmental Surveys Handbook: Contingency Operations (Overseas).*

SENSITIVE-SITE EXPLOITATION

3-37. Exploiting sensitive sites may be a significant part of operations. In some circumstances, the existence of these sites may be the primary reason for the use of military force. These sites include WMD storage sites, research facilities, and sites that include possible evidence of criminal actions (such as mass graves). These sites will require specialized equipment, specifically trained individuals to analyze, and time to exploit. This will require additional resources to plan and operate.

3-38. Investigating these sites presents inherent environmental considerations, particularly with regard to FHP. The presence of CBRN contamination presents significant hazards regarding conventional WMD, TIM, and improvised explosive device hazards. The military must take measures to identify and contain the possible spread of contaminants and to protect Soldiers and Marines involved in the mission. Investigating other sites (such as mass graves) may also present health hazards; and personnel must be properly trained in site recognition, exploitation, and evidence preservation. Religious and psychological support personnel may be needed to facilitate interactions with the local population and the members of the exhuming team. A security element is typically needed. In these circumstances, a small base camp may be established with minimal time to devote to typical security and comfort needs.

3-39. Planners involved in exploiting these sites must plan for personnel who are properly trained in the safety and health measures required. In addition, special detection equipment and PPE may be required to determine the possible contaminants present, to prevent or monitor the potential spread of the contaminants, and to assist in site cleanup.

HISTORICAL, CULTURAL, AND RELIGIOUS ARTIFACT AND SITE PROTECTION

3-40. Historical, cultural, and religious sites are often vital to the identity of a nation. As such, protecting these sites may be crucial to furthering stability. Hostile forces (organized military forces, insurgents, criminals) may damage or loot these locations. This creates a need to provide adequate security forces to safeguard these sites.

3-41. Planners must anticipate which sites may be present and which may be the greatest targets for damage or looting. The planning process must include identifying and allocating security assets to these locations to support stability operations. Military personnel assigned to these missions should be briefed on the importance of the site and must recognize and protect the critical aspects of each site. Forces should also avoid establishing long-term operating bases at these locations to avoid damage and to return them to the foreign nation as soon as possible.

3-42. Despite the best efforts of U.S. forces, damage to these sites may occur. Units must report the damage immediately and take steps to protect the sites from further degradation. In addition, military forces should not undertake the restoration of these sites without coordination with foreign nation representatives and subject matter experts.

3-43. Historical, cultural, and religious artifacts are often illegally marketed. Commanders must emphasize that Soldiers, Marines, and civilians are prohibited from purchasing or obtaining these items. Education and monitoring are key to eliminating the exploitation and trade of these items.

RECONSTRUCTION OPERATIONS

3-44. Reconstruction operations will play a significant part in stability operations. These efforts may include repairs to damage caused during the conflict and damage resulting from previous practices. In some circumstances, these operations may be focused on environmental issues (restoring and protecting specific habitats, cleaning up contaminated areas).

3-45. Damage to, or a general lack of, infrastructure supporting environmental considerations is typical for much of the developing world. Stability operations may include the reestablishment or creation of sewer, water, electrical, academics, and trash cleanup services. Planners must assess the need for experts in infrastructure rehabilitation and identify those assets to ensure that they are in place early in the reconstruction process. In addition, adequate funding and financial contracting safeguards are established to ensure efficient construction efforts.

3-46. Reconstruction efforts must also integrate environmental protection measures into practice. Environmental risk assessments are conducted in support of reconstruction projects, and proper environmental protection measures are instituted. Infrastructure in developing countries may include hazards that are no longer found in more developed countries. Environmental risk assessments should consider materials such as asbestos, lead-based paint, polychlorinated biphenyls (PCBs), and other contaminated building materials as potential risks to personnel. (See UFC 1-201-02 for more information.)

REDEPLOYMENT

3-47. As military forces redeploy, they may transfer authority to a U.S. military replacement unit, a coalition force, an agency outside the joint command, a local government, or the HN. If the redeploying force is not the transferring authority, the redeploying force will prepare the AOs for closure or conduct final closure operations. Redeployment actions (including transfer and closure activities) involve many environmental issues and concerns that must be addressed. Planners must include the time, forces, and material resources in their redeployment planning and guidelines to ensure that appropriate measures are taken. Early decisionmaking on the disposal of materials and good environmental stewardship during the operation will accelerate the redeployment and base transfer and closure processes.

3-48. In addition to addressing environmental issues, departing military personnel will require postdeployment health surveys to document their overall health and ensure that possible exposures to environmental hazards are recorded. (See table 3-3 for redeployment guidelines.)

Table 3-3. Redeployment guidelines

Category	*Guidelines*
General	• Return the area to its predeployment state or to a condition that has been negotiated with the replacement unit or HN. • Turn in HWs to the designated accumulation site for proper disposal or shipment. • Ensure that decontamination waste is disposed of properly.
Waste transportation	• Label and package hazmat and HW properly for safe transport. • Label containers and transporting vehicles with appropriate labeling or placarding (may need additional labeling in HN or local contractor languages). • Ensure that contents are compatible with all other contents. • Check SDSs for proper packaging requirements. • Block and brace items for shipping.

Table 3-3. Redeployment guidelines (continued)

Category	*Guidelines*
Environmental documentation	• Provide the following to the replacement unit (if applicable) and to the environmental theater or major command staff: ▪ Contingency base background. ▪ Base camp maps (a map to indicate spill sites, waste management areas, and other environmental areas of concern). ▪ Summary of environmental conditions (a list of significant environmental events) (including EBS, ECRs, spill reports, AARs) and an environmental site closure report/environmental site closure survey documenting areas of concern.
Legend:	
AAR	after action review
EBS	environmental baseline survey
ECR	environmental conditions report
HN	host nation
HW	hazardous waste
SDS	safety data sheet

RELIEF IN PLACE OR TRANSFER OF AUTHORITY

3-49. During a relief in place or transfer of authority, communication is crucial to ensure the continuity of operations, contracts, and mission-essential functions. The relief in place or transfer of authority may involve organizations from the Army, other Services, other governmental agencies, coalition forces, or HN forces. Outgoing organizations should document the environmental conditions of the AOs and ensure that the information is archived and transferred to the incoming organization. The outgoing organization documents environmental conditions to ensure that the incoming organization is aware of issues and to protect the outgoing organization from liability for future environmental issues. The outgoing organization should ensure that the following documentation is available to the incoming organization—

- The EBS and ECRs (including spill or incident reports with follow-up information).
- Environmental-related regulations and SOPs (including information on areas or sites that are protected or restricted due to cultural or natural resources).
- Maps and diagrams of the base, waste management facilities, POL sites, cultural sites, endangered species habitats, protected areas, waterways, and environmental areas that are important to the local community (water sources, agricultural areas, fishing areas).
- Plans (the spill prevention and response plan, integrated waste management plan).
- Environmental-related contracts and contract evaluation and monitoring reports.
- Hazmat and HW inventories and hazmat center information (if available).
- Waste management, turn-in, and disposal records.
- Technical and users manuals for waste management equipment.
- Operations SOPs and schedules for waste management areas.
- Inspection, evaluation, monitoring, and corrective action reports.
- Environmental-related RM/ORM assessments (including implemented controls and after action reviews).
- Environmental-related points of contact (Army and Marine Corps force environmental engineer staff, contracting officers, contractors, recycling contacts, coordinating personnel [safety officer, preventive-medicine officer, legal, public affairs, logistics).

3-50. If there is an overlap in personnel in location (right-seat/left-seat activities), base camp managers, planners, and environmental personnel must consider the surge for resources and services (additional water; energy and waste management requirements; surge effects on the environment, mission, the local community). If there is a gap with personnel on location, communication and coordination becomes even

more critical. Personnel must coordinate with interim personnel or contractors to ensure that operations are maintained.

3-51. Before a relief in place or transfer of authority, early coordination with incoming and outgoing organizations is important to reduce the amount of equipment and materials that the incoming organization brings with them and to eliminate a duplication of efforts. A hand-off of useable equipment and materials will reduce the unnecessary disposal of usable materials by the redeploying organization and reduce the packing and shipping into and out of the AOs for deploying and redeploying forces. For example, concertina wire is a common basic load item. However, after concertina wire is emplaced and operations become more stable, additional wire is not required. In past operations, the stockpile of items (such as concertina wire) became excessive and hard to manage.

BASE CAMP TRANSFER OR CLOSURE

3-52. Closing or transferring base camps to the HN may present significant environmental issues. In most circumstances, theater or major command planners may develop this guidance in cooperation with the HN. Planners and base operating support–integrators should contact their theater or Service component command for transfer and closure guidance. Base camp planners should develop a site-specific camp transfer or closure plan as part of the base camp master plan as early as possible to allow tenant units adequate time to make preparations. This planning effort will need to identify the estimated resources (manpower, equipment, time, and funding) needed to transfer or close the base camp.

3-53. Closing or transferring base camps requires the disposition of materials, equipment, facilities, and infrastructure (reconfiguration and mothballing of base camp components, real and personal property management, real estate transfer or closure actions). These efforts require the integration of environmental considerations to determine the best sustainable practices; the impacts on energy resources, water resources, and waste management facilities; and the schedule for base transfer or closure.

3-54. To develop site-specific closure guidance, an environmental site closure survey must be performed to document conditions at the time of closure compared to conditions documented in the EBS and previous ECRs. The environmental site closure survey will identify environmental areas of concern that must be addressed in the environmental closure action plan. Some issues to consider in planning the site-specific transfer or closure of base camps include—

- Developing and executing a plan for remediation of environmental areas of concern to the condition negotiated with the receiving organization or HN.
- Disposition or proper destruction of wastes (solid waste, wastewater, medical and infectious waste, HW, and ammunition waste).
- Removing protection measures (including filling in fighting positions and removing concertina wire).
- Closing hazmat storage areas, fuel storage areas, and refueling areas.
- Closing hazmat, HW, and POL spill sites.
- Closing waste management facilities (latrines; gray water facilities; sanitary waste facilities; solid-waste facilities; HW facilities; medical-waste facilities; recycling, composting, and land farming, and reuse centers).
- Decontaminating equipment and ensuring proper disposal of rinsate from equipment decontamination.
- Closing of vehicle and aircraft washracks.

3-55. The environmental closure action plan should identify the procedures, resources, and schedule required to conduct environmental closure actions. This plan should be staffed with the theater or major command for approval and support.

3-56. After environmental closure actions have been completed, they must be documented in the environmental site closure report. This report should include initial and final sampling and testing results, a description of the closure actions, photographs, diagrams, and inspection findings. The environmental site closure report must be submitted through the chain of command and archived with base camp records. (See

ATP 3-37.10/MCRP 3-17.7N and *Environmental Surveys Handbook: Contingency Operations* (Overseas) for more information concerning base camp transfer or closure.)

TRANSPORTATION TO HOME STATION

3-57. The transportation of vehicles, equipment, and material to the home station is subject to the same requirements as initial deployment. Equipment must be inspected; and personnel must address proper safety, legal, and administrative issues. In addition, planners must integrate customs inspections of personnel and equipment into the redeployment plan to prevent the transport of prohibited materials, which include war trophies and possible biological contaminants (foreign plants, insects). Planners should also integrate recycling centers into redeployment staging areas to reduce the amount of material returned to the home station and to put usable items back into the supply system. Equipment must also be washed before returning to home station, and the washracks used must meet environmental requirements and standards.

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PART TWO

Command Environmental Program

Unit commanders develop command environmental programs to ensure that their units are prepared to meet the environmental requirements of deployment and training exercises in preparation for deployment. These programs ensure that personnel have the required training to protect themselves and the environment. This part of the manual describes the establishment of the command environmental program, its integration with training and deployment considerations, and the environmental responsibilities of commanders and staff at various echelons.

Chapter 4

Establishment of the Command Environmental Program

Military actions (conducting contingency operations, conducting a defense support of civil authorities [disaster response mission], conducting predeployment training, or conducting operations as part of Army force generation or Marine Corps force generation process) have the potential to impact the mission, local community, environment, and cost of conducting operations. There is a very practical need to sustain environmental resources that support the mission, protect natural and cultural resources, and protect and sustain personnel (military, dependents, civilians, contractors, HN personnel, or coalition forces) in a fiscally sound manner. A command environmental program integrates proper environmental management into the mission, ensuring that the military not only complies with federal, state, local, and foreign nation regulations, but that it also enhances its mission though sustainable practices and realistic training conditions.

FOSTERING ENVIRONMENTAL STEWARDSHIP AND SUSTAINABILITY

4-1. Throughout daily operations, commands should consistently reinforce the tenets of environmental stewardship and sustainability so that their personnel understand how to integrate environmental considerations. When automatically analyzing environmental impacts and issues becomes second nature to Soldiers and Marines, adverse actions and conditions can be avoided. The command climate of a unit must be one in which environmental ethics are fostered. Focusing on environmental stewardship and sustainability practices also provides economic incentives (funds from recycling, cost avoidance by conserving resources) and minimizes liability and costs associated with repairing environmental damage.

COMMAND CLIMATE

4-2. Senior leaders must create ethical climates in which subordinate leaders recognize that the natural resources of the earth are exhaustible and the environment has an impact on human health; they must also

take responsibility to protect the environment. This ethical climate also guides decisions in areas (such as the law of land warfare). Ethical behavior is not restricted to the letter of the law when it comes to specific written laws, regulations, and treaties. Instead, it captures the ethos that generated those laws in the first place. By educating subordinates and setting the example, leaders enable their subordinates to make ethical decisions that, in turn, contribute to excellence.

4-3. Acknowledging considerations for environmental protection during training, operations, and logistics activities reduces environmental impacts and costs and, in addition, conserves resources (manpower, equipment, and funds). Consistently protecting the environment ensures that land will continue to be available to conduct realistic training and that environmental problems will not disrupt operations. In short, environmental considerations must be institutionalized and embodied within the military and personal ethic. To achieve success, the military must remain proactive (rather than reactive) to environmental laws, regulations, and requirements. Commanders must inculcate the principles of stewardship and sustainability; counsel personnel on doing what is right; lead by example; and enforce compliance with laws, regulations, policies, SOPs, and plans. This top-driven, environmental ethos fosters a climate for innovative solutions, greater participation, and greater mission success.

4-4. Commanders must promote an ethical climate to ensure that subordinates make good decisions concerning environmental issues. Routine decisions may be as simple as emptying a bucket of solvent onto the ground or carrying it to an appropriate accumulation point. A commander must encourage subordinates to make ethical decisions by ensuring that they ask themselves the following questions when confronted with an environmental dilemma:

- **What are my orders?** Personnel should look to leaders for guidance and ensure that their expectations are understood. If instructions are unclear or confusing, ask for help. Review unit SOPs for environmental guidance.
- **What have I been trained to do?** This question is asked in the absence of specific orders or guidance.
- **What does my concept of right and wrong tell me to do?** This question is asked in the absence of training and orders. Most personnel know when an action will harm the environment. Environmental-related tasks should not be performed without the proper guidance, especially if personnel have not been trained on the task or if they doubt that the procedure is correct.

POLICY

4-5. Commanders must establish a command environmental policy (see appendix G) to set forth procedures and responsibilities for integrating environmental considerations into planning and operations. Command policies help ensure that military personnel and civilians in the unit make informed decisions regarding sustainable practices and compliance with laws and regulations. Command policies help ensure that military personnel and civilians within the unit make informed decisions regarding the impacts of actions to the mission, community, environment, and cost of accomplishing the mission. The Marine Corps derives its environmental compliance policy from the Marine Corps Environmental Management System. It provides a systematic approach for integrating environmental considerations and accountability into day-to-day decisionmaking and long-term planning processes across missions, activities, and functions. It also institutionalizes processes for continual environmental improvement and reduces environmental risks to missions through ongoing planning, review, and preventive or corrective action.

STANDARD OPERATING PROCEDURES

4-6. SOPs provide units with standardized procedures for the execution of routine actions. Units develop SOPs that contain a detailed list of the actions necessary to fulfill the daily environmental responsibilities of the unit. Units also develop SOPs to conduct sustainable practices and maintain compliance with environmental, legal, and other requirements (including Army, Marine Corps, and local planning objectives). (See appendix E for more information.)

PROGRAM ESTABLISHMENT

4-7. The command environmental program of a unit is the basis by which unit commanders ensure that their personnel adhere to laws, regulations, and procedures and promote the sustainable use of environmental resources. In addition, command environmental programs help to ensure that proper sustainable techniques and procedures are implemented and that unit members receive proper environmental-related training.

UNIT LEVEL PROGRAM

4-8. To establish an effective unit environmental program, leaders should—

- Assess the unit to understand the activities that affect the environment, the environmental constraints on the mission, and the state of the command environmental program.
- Ensure that unit personnel have had the environmental awareness training appropriate for the mission.
- Designate an environmental officer who is properly trained and qualified. These individuals interface with appropriate environmental personnel and ensure that their units comply with environmental laws, regulations, and other requirements during deployments and training. (See appendix H for more information.)
- Meet with key, higher-unit staff counterparts (operations staff officer or logistics staff officer), training area personnel, and base camp personnel who deal with environmental issues. Determine the requirements that concern environmental training, certifications of unit personnel, documentation, record keeping, and assessment programs used to determine mission and environmental constraints, environmental problem areas, and corrective actions.
- Ensure that the unit SOP addresses environmental issues and procedures applying to the unit coordinate environmental requirements with appropriate chain-of-command personnel. (See appendix E for a sample SOP.)
- Include environmental-related risk analysis in the risk assessments before training and deployment operations.

4-9. The following are common unit, training area, and base camp environmental programs that commanders establish:

- Hazmat management.
- Solid-waste management.
- Wastewater management.
- HW management.
- POL management.
- Pollution prevention and waste minimization.
- Spill prevention and response.

TRAINING

4-10. The mission-based environmental training of selected groups or individuals will ensure that operations have a more positive impact on the mission, community, environment, and operational costs. Personnel should know how to accomplish their tasks in a manner that has no or minimal adverse impact on the environment, while complying with legal and other requirements. AR 200-1 and MCO P5090.2A require that the military provide training to appropriate personnel and maintain training and certification records according to governing laws and regulations.

4-11. Many environmental laws dictate specific training requirements that govern the personnel conducting certain tasks or activities. These details are located within federal or state regulations, which usually include refresher training requirements and specific record keeping procedures. Sometimes, trainer qualifications are specified in these regulations. Check with the major theater level command, Army major

command or Marine Corps component command, or local command for environmental requirements. Training is required on—

- Environmental awareness (including determining how activities and operations can impact the mission, health, environment, community, and resources).
- HW generators and accumulation points, shipping, and permitted storage or treatment. Annual training is required.
- Hazmat shipments (packing, receiving, transporting, and certifying). Refresher training is required every 2 years.
- Hazmat or TICs (except for personnel performing military-unique tasks). Some specific chemicals require training even if workers are infrequently exposed to the hazards. Initial training must be supplemented annually or if hazards change.
- Uncontrolled HW site investigations and cleanup. Annual training is required for individuals working, visiting, or supervising workers at these sites.
- Asbestos demolition and removal, maintenance, and repair work involving asbestos disturbance and asbestos sampling. Refresher training requirements vary.
- Exposure to lead-based paint during building maintenance, repair, demolition, or removal. Refresher training requirements vary.
- Discovery and response to spills of oil or hazardous substances. Annual training is required.

ENVIRONMENTAL PROGRAMS

4-12. Units are required to implement or establish training for a variety of environmental programs to ensure that units meet the necessary requirements and promote sustainability. The extent of these programs will vary with the nature of the unit, the specific requirements of the unit, and the requirements of the training area or base camp where the unit is located. (See appendix I for a list of the resources available to implement the unit environmental programs.)

HAZMAT MANAGEMENT

4-13. The military objective of proper hazmat management is minimizing the health hazards and environmental damage that is caused by the use and misuse of hazmat. Hazmat is any substance that has a human health hazard associated with it. Special storage, use, handling, and shipment safety procedures and protocols must be followed to help protect against accidental exposure and prevent hazmat from being used inconsistent with its intended purpose. Hazmat becomes HW when it surpasses its expiration date, becomes contaminated, or spillage occurs. Hazmat is specifically identified under federal law. It is a material that, due to its quantity; concentration; or physical, chemical, or infectious characteristics, may—

- Cause or significantly contribute to death or serious, irreversible, or incapacitating and reversible illness.
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Key References

4-14. The following source documents provide guidelines for the proper handling of hazmat:

- 29 CFR 1910.
- 40 CFR 761.
- AR 200-1.
- AR 700-141.
- Combatant command (command authority) (COCOM), base camp, or local regulations.
- DOD 4140.27-M.
- DOD 4715.05-G.
- MCO P5090.2A.
- DLAI 4145.11/TM 38-410/NAVSUP PUB 573/AFJMAN 23-209/MCO 4450.12A.

- DLAI 4145.25/AR 700-68/NAVSUPINST 4440.128D/AFJMAN 23-227(I)/MCO 10330.2D.
- TM 3-34.56/MCIP 4-11.01.

Unit Actions

4-15. Although the command hazmat management program is authorized by the commander and typically administered through the battalion or brigade logistics staff officer (S-4) (in coordination with the supply officer and safety officer), units need to ensure that hazmat is managed properly for their unit activities. Improper hazmat management can lead to personnel exposures, resulting in negative impacts to health and the environment. To effectively manage hazmat, leaders should—

- Ensure that subordinates receive adequate training on the hazmat that they were exposed to, according to Occupational Safety and Health Administration (OSHA) requirements.
- Ensure that the best management practices are followed for hazmat.
- Comply with applicable regulations, policies, inspections and evaluations, corrective actions, and procedures.
- Use nonhazardous substitutes, when possible.
- Check with the hazmat center (if available) or other authorized units for the availability of excess hazmat before ordering new items that contain hazmat. When trying to reduce excess hazmat from the inventory, turn it in to the hazmat center or check with other units to see if they can use it before turning hazmat in for disposal.
- Order and use only what is required and listed on the authorized use list (if applicable) and not stockpile hazmat.
- Follow first-in, first-out inventory procedures to minimize waste caused by exceeding shelf life dates. Check to see if shelf life dates may be extended before turning in expired hazmat. (See DOD 4140.27-M for more information.)
- Conserve resources through reducing, recovering, recycling, and reusing hazmat in the inventory.
- Maintain inventories and records of hazmat on hand, received, or issued (including SDSs [see appendix J]). SDSs must be available to personnel.
- Ensure that hazmat containers are legibly labeled, tagged, and marked to identify the contents and warn personnel of hazards. Ensure that hazmat storage areas have secondary containment and segregate incompatible hazmat.
- Establish a training program and ensure that required personnel are properly trained to recognize, understand, and use the SDSs, labels, and PPE for the hazmat to which they are exposed.
- Ensure that only licensed, certified drivers transport hazmat. According to 49 CFR, hazmat transporters must be trained and certified.
- Ensure that personnel use proper procedures when working with hazardous chemicals and wear PPE for the types of hazards present.
- Ensure that adequate spill prevention and control equipment is available and maintained.
- Coordinate training requirements with the chain of command and the environmental management or safety office.
- Ensure compliance with special disposal and turn-in procedures for batteries. (See local regulations and TB 43-0134 for more information.)
- Establish hazmat spill procedures.
- Establish hazmat fire and explosion procedures.
- Establish emergency first aid procedures.
- Refer to applicable hazmat references.

SOLID-WASTE MANAGEMENT

4-16. Waste management is conducted to minimize the harmful effects of waste on human health, the environment, and the mission and also to identify resources that can be reused or recycled for the benefit of U.S. forces and the HN. Effective waste management begins early in the MDMP/MCPP by estimating the amount of waste that is liked to be generated by the force and determining the best possible means for dealing

with it, based on an assessment of the mission variables. Waste that is improperly managed presents unnecessary risks to personnel health, detracts from the mission, and hinders base camp transfers and closures. All operations generate solid waste and it is important to plan for proper management of solid waste as part of mission analysis and problem framing. Historically, units have often mismanaged solid waste resulting in piles of contaminants that have caused health issues, environmental pollution, security issues, and extensive closure requirements. Units must be prepared to manage their solid waste whether in field conditions or on a more established facility (a training area, base camp). (See TM 3-34.56/MCIP 4-11.01 for more information.)

Key References

4-17. The following support the solid-waste management program:

- AR 420-1.
- COCOM, base camp, or local regulations.
- DODI 4715.19.
- TC 4-02.3.
- Sections 6901-6992k, Title 42, United States Code (42 USC 6901-6992k).
- TM 5-634/NAVFAC MO-213/AFR 91-8.
- TB MED 593.
- TM 3-34.56/MCIP 4-11.01.

Unit Actions

4-18. In support of solid-waste management, unit leaders should—

- Implement and enforce a management strategy that reduces the volume of solid waste needing disposal. This should include methods to encourage pollution prevention and waste minimization to reduce the amount of solid waste generated.
- Ensure that resources (equipment and manpower) for solid-waste management are available and that disposal is estimated based on unit size, unit mission, available infrastructure, mission maturation level, and mission duration.
- Ensure that waste is segregated to facilitate management by ensuring that containers for each waste stream are available and clearly labeled. Ensure that containers are kept closed when not in use.
- Maintain conditions that prevent the harboring, feeding, and breeding of vectors (insects, rodents, or small mammals).
- Obtain permission to employ burn pits via the appropriate chain of command and meet usage requirements if a commander deems that burn pits are the best option for solid-waste disposal. At a minimum, burn pits should be operated in a manner that prevents or minimizes risk to human health and the environment. (See DODI 4715.19 for more information.)
- Ensure that personnel are trained to recognize, understand, and segregate the various waste streams generated by the unit and use the proper reuse, reduction, recycling, or disposal method for each waste stream.

WASTEWATER MANAGEMENT

4-19. From a planner's perspective, a brigade/regimental combat team-sized unit with a population of 5,000 military and civilian support personnel can generate up to 500,000 gallons of wastewater per day if full facilities (showers, laundry, latrines, washracks, and dining facilities) are available. Water conservation and reuse become significant logistics and environmental issues in almost any environment. An effective

wastewater management program is needed to protect the health of personnel, limit odors, and protect water sources. Wastewater includes—

- **Black water.** Black water is water that requires disinfection treatment to eliminate widespread health risks, usually from sewage or industrial-like wastewater.
- **Gray water.** Gray water is water that does not require disinfection treatment to eliminate widespread health risks (usually from other sources such as sinks, showers, or laundry).

4-20. Wastewater management is a much bigger issue than most planning takes into consideration. It must be accounted for from the beginning of the base camp life cycle. Initial plans should incorporate provisions for wastewater management. Wastewater estimates are also disseminated through appropriate channels to subordinate units and supporting units to facilitate collaborative and parallel wastewater management planning. Assuming that contractors will be available immediately to manage wastewater is problematic. Units must be prepared to manage wastewater when they are operating in austere field conditions or on a more established AOs (such as a training area or base camp). (See TM 3-34.56/MCIP 4-11.01 for more information.)

Key References

4-21. The following support the wastewater management program:

- AR 40-5.
- AR 700-136.
- COCOM, base camp, or local regulations.
- TC 4-02.3.
- TB MED 593.
- TM 3-34.56/MCIP 4-11.01.

Unit Actions

4-22. In support of the wastewater management program, unit leaders should—

- Ensure that resources (equipment and manpower) for wastewater management are available and disposal is estimated based on unit size, unit mission, available infrastructure, mission maturation level, and mission duration.
- Ensure that protection from vectors (insects, rodents, small mammals) are incorporated into management practices.
- Enforce water usage and shower time limits.
- Use established washracks or field-expedient oil separators for vehicle and equipment cleaning. Only use approved corrosion inhibitors.
- Use grease traps or field-expedient oil and grease filtration for dining facility wastewater. Coordinate with the preventive-medicine officer to ensure proper installation, operation, and maintenance of dining facility oil and grease filtration systems.
- Ensure personnel dealing with wastewater wear appropriate PPE.
- Ensure that personnel are trained for field wastewater management (gray and black water) and understand the importance of hand washing and sanitation.

HAZARDOUS-WASTE MANAGEMENT

4-23. The presence of HW is a cause for concern among training area and base camp personnel and nearby residential populations. However, hazmat is an unavoidable part of military activities and ultimately results in some waste generation. The proper handling and disposal of these wastes will minimize hazards and ensure the safety of people and the environment.

Key References

4-24. The following laws and regulations are source documents that provide guidelines for properly handling and disposing of HW:

- AR 200-1.
- 29 CFR 1910.
- 40 CFR 260–281.
- 40 CFR 300 through 302.
- 40 CFR 761.
- 49 CFR 100–177.
- COCOM, base camp, or local regulations.
- DOD 4160.21-M.
- DODI 4715.19.
- MCO P5090.2A.
- TB MED 593.
- TM 3-34.56/MCIP 4-11.01.

Unit Actions

4-25. When a unit generates HW, it must—

- Establish an HW management program to comply with HW regulations and requirements.
- Identify HW properly. Label accumulated waste and the containers that hold HW with the correct hazard warning labels. Ensure that HW containers are compatible for the type of HW. Inspect containers for leaks, corrosion, or damage.
- Establish HW accumulation points, considering the proximity to the site perimeter and the ability to limit access to unauthorized personnel for protection considerations. Also, ensure that accumulation points are established away from areas of environmental vulnerability (bodies of water, storm drains, living, and work areas). Stack containers to a maximum of two containers high, and maintain a minimum of 4 feet of aisle space, in width, at designated HW accumulation sites.
- Ensure that wastes do not accumulate beyond allowable quantity and time limits. Ensure that accumulation areas have protection from the weather and secondary containment.
- Maintain records for HW on hand, received, turned in, removed, or transported off-site for disposal.
- Employ HW minimization techniques as a part of pollution prevention efforts.
- Comply base camp and training area HW transportation requirements. Public road use increases transportation requirements. Coordinate with the S-4, directorate of logistics, or the base camp management team office.
- Ensure that drivers transporting HW are qualified, according to 49 CFR.
- Establish an HW training program and ensure that personnel attend proper training. Check with the local environmental chain of command for training guidance for the AOs. Ensure that units taking over during relief in place or transfer of authority are informed on HW training requirements before deployment.
- Maintain liaison with the key chain of command and training area and base camp environmental personnel.
- Ensure that unit personnel use PPE properly when handling HW.
- Ensure that adequate spill prevention and control equipment is on-hand. Practice the segregation of incompatible hazmat or HW using distance or barriers. (See TM 3-34.56/MCIP 4-11.01 or DLAI 4145.11/TM 38-410/NAVSUP PUB 573/AFJMAN 23-209/MCO 4450.12A.)
- Establish HW fire and explosion prevention and response procedures.
- Establish HW spill and leak prevention and response procedures and ensure that the unit conducts drill procedures annually, at a minimum.

- Establish emergency first aid procedures.
- Ensure that unauthorized HW storage or disposal does not occur. HW must be stored only in authorized containers and disposed of as directed by the environmental management office, Defense Reutilization and Marketing Office, or OPORD (for contingency operations).

BATTERY MANAGEMENT

4-26. Batteries are used in a lot of equipment and ultimately become a large waste stream. Batteries are classified as reactives, which could result in explosions or toxic gases if not properly handled and segregated. Proper battery handling and disposal minimizes hazards and ensures the safety of people and the environment.

Key References

4-27. The following support battery handling and disposal:

- AR 200-1.
- COCOM, base camp, or local regulations.
- DLAI 4145.11/TM 38-410/NAVSUP PUB 573/AFJMAN 23-209/MCO 4450.12A.
- TB 43-0134.
- TM 3-34.56/MCIP 4-11.01.

Unit Actions

4-28. An activity that includes battery storage must provide fire suppression equipment. In addition, storage areas and equipment must be approved by the local fire department. A point of contact must also be provided to the local fire department. DLAI 4145.11/TM 38-410/NAVSUP PUB 573/AFJMAN 23-209/MCO 4450.12A and TB 43-0134 outline the requirements to—

- Protect the battery area bulk storage with sprinklers.
- Keep batteries cool, dry, and away from open flame, heat, and combustibles and in a well-ventilated area with temperatures not to exceed 130°F. Refrigeration is not necessary.
- Do not mix new and used batteries because it is difficult to distinguish between them. Many next-generation batteries contain state-of-charge indicators.
- Segregate storage from other hazmat and other battery chemistries. It is critical that lead acid batteries be kept away from nickel-cadmium or nickel metal hydride batteries.
- Protect batteries from being damaged, crushed, punctured, or short-circuited.
- Do not smoke or eat in battery storage areas.
- Store batteries separately from other hazmat.
- Use open-flame devices only under proper supervision and with adequate safeguards.
- Do not accumulate nonhazardous, solid-waste batteries.
- Do not store batteries collected for turn-in to the Defense Reutilization and Marketing Office for more than 90 days.
- Ensure that fire extinguishers are available. Use Class ABC-type fire extinguisher to fight fires involving batteries.
- Do not incinerate batteries.

PETROLEUM, OIL, AND LUBRICANTS MANAGEMENT

4-29. Requirements for POL are an unavoidable consequence of modern military operations. The products that sustain the military (motor oils, paints, cleaning compounds, aircraft fluids) are significant health, safety, and environmental issues and management challenges. At a minimum, personnel must know how to handle, transport, and dispose of POL products.

Key References

4-30. References that provide guidance for POL products are similar to those for hazmat, HW, HW minimization, pollution prevention, HW minimization, recycling, and spill prevention and response. They also include—

- 40 CFR 110, 112, and 302.
- ATP 4-43.
- COCOM, base camp, or local command regulations and guidance.
- FM 10-67-1.

Unit Actions

4-31. When receiving, storing, and using POL products—

- Request only the amount of POL products required.
- Practice inventory control (including visual detection monitoring for container integrity and the use of the Defense Logistics Agency Shelf-Life Extension Program). (See DOD 4140.27-M.)
- Store POL products in approved containers and locations.
- Maintain an SDS for each POL product.
- Provide proper PPE for products handled by personnel.
- Conduct filling operations on a tarp or plastic liner with a soil berm or sandbag perimeter for secondary containment when filling burners.
- Conduct lighting operations for dining facilities at least 50 feet away from fuel storage and burner operations.
- Ensure that fuel supplies for field heaters, generators, and light sets have secondary containment. The refueling of equipment must include secondary containment for fuel lines, overflow fuel lines, ports, and valves.
- Supply labeled waste containers, secondary containment, and protection from the weather for POL-related waste streams.
- Ensure that adequate spill prevention and control equipment and fire extinguishers are on-hand. If POL is spilled, determine if there is a bioremediation facility available to manage petroleum-contaminated soil.
- Ensure that adequate secondary containment exists for POL storage facilities.
- Ensure that containers are properly marked and in good condition.
- Provide drip pans for vehicles and refueling operations.

POLLUTION PREVENTION AND WASTE MINIMIZATION

4-32. This program complements the material and waste management programs and helps reduce the amount or toxicity of the waste generated. Pollution prevention and waste minimization are usually implemented through product substitution, process change for reuse or reduction, and recycling. For example, recycling paper, glass, cardboard, metals, wood, tires, and other items reduces the amount of trash that goes into landfills. The reduction in waste supports deployment operations by reducing transportation, storage, and disposal requirements and helps reduce the financial liability due to claims against U.S. forces.

4-33. Product substitution is an easy way to reduce the HW that a unit generates. Unit personnel should review hazmat inventories and check to see if nonhazardous or less hazardous product substitutes are available. For example, units could make a conscious effort to replace solvents with biodegradable degreasers.

4-34. A process change can reuse materials and/or reduce the amount of generated waste. Process change examples include filtering and reusing solvents and antifreeze or filtering and blending motor oil with fuels.

Key References

4-35. Pollution prevention and HW minimization references include the following:

- AR 200-1.
- 40 CFR 262.41
- COCOM, base camp, or local regulations.
- EO 12856.
- EO 13101.
- MCO P5090.2A.
- Pollution Prevention Act of 1990.

Unit Actions

4-36. To support the pollution prevention and waste minimization program, the unit should—

- Review the hazmat inventory and check with the supply officer to see if nonhazardous or less hazardous substitutes are available.
- Review work processes to determine if there are changes (such as implementing filtration or bioremediation procedures) that can be made to make the material reusable or to reduce the toxicity or volume of generated waste.
- Segregate recyclable materials into appropriate containers for recycling. Recyclable materials include computer printouts (after ensuring that sensitive material is cross-cut shredded), corrugated cardboard, card stock, newspaper, high-grade white paper, aluminum cans, plastics, oil, solvents, glass, steel, and brass.
- Check with the COCOM or base camp environmental office for SOPs that govern the process of verifying the materials recycled locally. As the base camp matures, recycling programs will be established and should be included in unit SOPs.

SPILL PREVENTION AND RESPONSE PLANNING

4-37. It is military policy and a requirement of the Clean Water Act (CWA) to prevent oil and hazardous substance spills and to provide prompt response to contain and clean up spills. A spill response plan must be available at each operation that stores, handles, or accumulates hazmat and HW (maintenance facilities, supply activities, tactical refueling areas). The plan should address, at a minimum, site-specific response procedures and spill response equipment requirements for each operation. Exceptions will be made in cases of extreme emergency where the discharge is—

- Considered essential to protect human life.
- Authorized by a discharge permit or local, on-scene coordinator during a spill incident response.

Key References

4-38. The following support spill prevention and response plans:

- 40 CFR 110.
- 40 CFR 302.
- 40 CFR 355.
- AR 200-1.
- COCOM, base camp, or local regulations.
- GTA 05-08-017.
- MCO P5090.2A.
- TB MED 593.

Unit Actions

4-39. Units should take every reasonable precaution to prevent oil and hazardous-substance spills. The unit leader should—

- Provide facilities that store, handle, or use oils and hazmat and implement proper safety and security measures.
- Appoint (in writing) a spill coordinator and members of the unit spill response team.
- Maintain an up-to-date spill response plan for the AOs or for operations that deal with POL, hazmat, or HW transport. Check with the environmental chain of command to determine unit spill prevention or response responsibilities for the training area or base camp.
- Conduct appropriate training and periodic spill response drills. Maintain records of spill response training.
- Ensure that sufficient equipment and supplies (PPE and absorbent materials) for spill responses are on-hand and pre-positioned in the unit.
- Locate drains, drainage ditches, streams, ponds, and other water sources and outlets in the area and plan to prevent a spill from reaching them.
- Coordinate with the training area and base camp safety office, preventive-medicine office, and environmental management office to determine proper PPE. Know when to attempt to clean up a spill and when to leave the area and contact the spill response team for cleanup. The environmental management office or on-scene coordinator will determine when to dispatch a spill response team.
- Maintain a copy of the spill contingency plan. This plan, available from the environmental management office, contains critical and necessary information.
- Maintain a current emergency point-of-contact list in case of an emergency or major spill (for example, the fire department, safety office, provost marshal office, preventive-medicine office, and environmental management office).
- Maintain an up-to-date inventory of hazmat and HW and provide a copy to the local fire department for use in case of a chemical fire.
- Ensure that pollutants are not discharged into storm or washrack drains or poured onto the ground.
- Ensure that small spills are properly attended to, cleaned up and that spill residue is containerized and properly disposed.
- Maintain records of spills that reach soil or water sources or are at or above local reporting thresholds.
- Strictly control the discharge of ballast water from watercraft.
- Ensure that the waste management of or used oil complies with applicable federal, state, HN, and local requirements.
- Ensure that wastes produced during the cleaning of fuel storage tanks and combustion engine components are collected and managed as required before disposal.
- Monitor wastewater discharges that contain oil or hazardous substances to comply with permit or HN limits.
- Ensure that oil, fuel, or other hazmat spills are reported to the environmental management office and higher headquarters. The S-4 and assistant chief of staff, logistics (G-4) and the environmental management office can accurately determine the extent of a reportable spill. This staff will initiate or oversee the appropriate response protocols to effectively mitigate its impact.
- Establish hazmat, HW, and fire and explosion procedures.
- Establish emergency first aid procedures.
- Refer to applicable spill prevention references.

PROGRAM ASSESSMENT

4-40. Federal, state, or HN assessors or auditors may inspect a base camp. Often, the first indication that inspectors are on-site is when they visit the base camp environmental management office or the provost marshal's office, asking for directions to a specific site. Preparing for assessments or audits should be a necessary part of the day-to-day routine.

Note. If an environmental assessor arrives for an assessment without an escort from the environmental staff, contact the environmental management office or commander immediately.

4-41. Regular meetings between the commander and environmental management team (which may consist of the environmental coordinator, the public affairs officer, legal advisor, safety and occupational health manager, preventive-medicine officer, and resource manager) can demonstrate command emphasis and serve to nourish a healthy environmental program. The environmental management team should brief the commander regularly on specific area environmental issues.

4-42. Assessments for base camp environmental programs depend on the base camp size, mission, duration, and maturity. As base camp operations become more established and expanded, a requirement for more formal assessments of activities that affect the environment may become more complex and comprehensive. Units should coordinate with the base camp environmental office to determine if there are locally required assessment and inspection checklists.

4-43. The commander ensures that the environmental program of the unit is effective through self-assessment. The unit may use a self-assessment general checklist to assess its environmental program status. Environmental officers, with the assistance of personnel from the training area or base camp environmental staff, determine the frequency of self-assessment checks.

4-44. The environmental officer uses self-assessment checklists to check the following unit areas:

- Program management (to include record keeping).
- Accumulation sites.
- Hazmat and HW management.
- Solid-waste management.
- Wastewater management.
- Spill prevention and response.
- Washracks.
- Pollution prevention and waste minimization.
- Environmental training.

4-45. External assessments and self-assessments are used to identify gaps or areas of concern in the environmental program. If assistance is needed to develop a corrective action, contact the COCOM or base camp environmental management team. There are also supporting agencies available for reachback support. (See TM 3-34.56/MCIP 4-11.01 for a listing and description of these resources.)

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Chapter 5
Environmental Duties and Responsibilities

Commanders, staffs, subordinate leaders, and individual Soldiers and Marines must understand their respective duties and responsibilities toward environmental stewardship. To become better stewards of the environment, personnel must understand the basic environmental management responsibilities that apply to work areas and duty assignments. They must also understand the roles and responsibilities for incorporating environmental considerations into the planning and operations. This includes the specific planning process for those missions and the integration of environmental considerations into unit training.

COMMAND RESPONSIBILITIES

5-1. Command and staff environmental responsibilities vary by location. When operating in bases and base camps, ensure that Army and Marine Corps personnel participate in the environmental management system of the command or implement a separate system that meets Service environmental management system requirements.

BRIGADE COMBAT TEAM/REGIMENTAL COMBAT TEAM AND BATTALION LEVEL

5-2. An effective BCT/regimental combat team and battalion environmental program begins with command policy and SOP establishment. These documents integrate the base camp, training areas, and their respective operational requirements into daily routines. Command environmental programs include guidance for subordinate commanders, staffs, subordinate leaders, and personnel. At a minimum, Soldiers and Marines should strive to perform work assignments in an environmentally responsible manner.

COMMANDER

5-3. Commander's environmental responsibilities are specified in 32 CFR 651, AR 200-1, AR 700-141, DA Pamphlet 700-142, and MCO P5090.2A. These responsibilities are to—

- Ensure that environmental reconnaissance is conducted for operations planning.
- Integrate environmental considerations into the mission analysis/problem framing phase of the MDMP/MCPP.
- Ensure that an EBS (see appendix K) is performed before siting a base camp or contingency base.
- Comply with the environmental policy/management system and appropriate federal, state, HN, and local laws and regulations (see appendix B).
- Establish an environmental quality control committee.
- Develop an environmental SOP (see appendix E) and ensure that it contains environmental considerations and legal requirements appropriate for the level of command.
- Promote environmental stewardship and sustainability.
- Understand the links between environmental considerations and the associated impact on FHP, safety, and other protection aspects.
- Appoint an environmental officer (see appendix H) and an HW coordinator at the proper level and ensure that they are properly trained.
- Ensure that law-mandated environmental training occurs.
- Address environmental concerns throughout the training and operational cycles.

- Conduct an environmental self-assessment or an internal environmental performance assessment.
- Ensure that rear-party detachments have a trained environmental officer; are aware of their environmental responsibilities; have spill response and hazmat management-related PPE and other equipment; and have access to hazmat lockers, containers, or POL storage containers.

5-4. When deployed, commanders will often work from base camps. Base camps are comparable to small towns and require environmental considerations as part of support operations. A base camp mayor assists the base camp commander with the control of base camp operations. A base camp management or operations center may provide expertise and support to the commander, largely through its subordinate base camp assistance and assessment team. This assistance team maintains environmental expertise, supports the base camp commander and the designated base operating support integrators, provides technical recommendations, and maintains appropriate standards. (See ATP 3-37.10/MCRP 3-17.7N for more information.)

EXECUTIVE OFFICER

5-5. As the commander's principal staff officer, the executive officer directs staff tasks and coordination and ensures that an efficient and prompt staff response occurs. The executive officer is responsible for integrating RM/ORM into operations planning and execution. As a supervisor, the executive officer also ensures that staff members analyze operational effects on the environment and assess the environmental status while the operations staff officer (S-3) integrates environmental planning and execution into operations.

COMMAND SERGEANT MAJOR

5-6. The command sergeant major is the senior enlisted trainer and spokesperson that enforces established environmental policies and personnel standards. The duties of the command sergeant major are to—

- Provide advice and make recommendations to the commander and staff on matters pertaining to environmental sustainability.
- Assist with the inspection of command activities and facilities as prescribed by the commander.
- Ensure adherence to command environmental policies.
- Ensure that newly assigned enlisted personnel are instructed in command regulations and policies related to environmental stewardship.
- Assess environmental training at all levels and provide feedback to the appropriate commanders and leaders.
- Note environmental deficiencies and initiate appropriate corrective action.

PRIMARY STAFF RESPONSIBILITIES

5-7. Whether developing the running estimate, the protection levels, or the EBS, environmental protection requires that each staff member actively participate. Environmental factors may influence a wide range of activities or require a significant expenditure of resources. A single point of contact for all environmental considerations is not effective or efficient.

5-8. Personnel are responsible for certain environmental actions within their areas of expertise. While some of these responsibilities may depend on the command or commander, all personnel undertake many of them. Unit SOPs at battalion and company levels incorporate specific responsibilities.

5-9. Unit staffs also integrate environmental considerations into the planning and execution processes. Common staff duties provide the basis for some environmental responsibilities while FM 6-0 provides a basis for others.

PERSONNEL STAFF OFFICER

5-10. As the principal staff officer for matters concerning human resources and personnel, the personnel staff officer (S-1) ensures that the command maintains the requisite expertise to fulfill environmental requirements. Depending on the level of the command, experts may include military and civilian personnel.

The S-1 is the coordinating staff officer for the medical officer, SJA, and public affairs officer and coordinates environmental issues between these personnel and across the staff.

INTELLIGENCE STAFF OFFICER

5-11. As the staff officer responsible for conducting IPB and defining and characterizing the AO, the intelligence staff officer (S-2) is responsible for incorporating significant environmental factors, which should include key transportation nodes (bridges, tunnels, expressways), key industrial sites (POL storage areas, electrical generation facilities, water treatment plants, industrial parks with their potential hazmat), ammunition storage sites, agricultural warehousing areas, hospitals, and cultural heritage sites (museums, shrines, cemeteries, protected areas, religious sites). The S-2 must also collaborate with other staff officers to effectively coordinate environmental intelligence requirements.

OPERATIONS STAFF OFFICER

5-12. The S-3 is responsible for ensuring that significant collateral environmental damage caused by command-directed operations is understood and approved by the commander during the MDMP. The S-3 establishes and supervises the command training programs. These programs include providing environmental skill and awareness training to support the mission. The S-3 also ensures that the unit protects and maintains training areas. As the overall ground manager and planner for troop movements, bivouac, and quartering, the S-3 understands and considers environmental vulnerabilities during operations. The S-3 also requires, and coordinates for, the initial EBS before occupying a site and for the environmental site closure survey and/or environmental closure report before leaving a site.

5-13. The S-3 may assign special missions to tactical units to secure and safeguard critical environmental resources (wastewater treatment plants in urban areas). When appropriate, the S-3 prepares counterterrorism and security plans to combat possible environmental sabotage. The S-3 must coordinate with the engineer staff officer, the S-2, the civil affairs operations staff officer (S-9), and the unit surgeon to establish environmental vulnerability protection levels.

LOGISTICS STAFF OFFICER

5-14. As the principal staff officer integrating supply, maintenance, and services for the command, the S-4 oversees many functions that have a potential for generating HW. Significant environmental issues for logistics personnel include procurement, transportation, storage, distribution, and hazmat and HW disposal. The S-4 establishes procedures for requisitioning, storing, reducing, and controlling hazmat and recommends command policies for solid-waste, HW, and wastewater disposal. The S-4 also recommends command policies for pollution prevention and, in coordination with the S-3 and environmental officer, oversees and coordinates the preparation of spill prevention and response plans. In staff planning and in supervising food, bath, and laundry services, the S-4 ensures appropriate controls over wastes and effluents are exercised and implemented.

5-15. The S-4 coordinates property disposal actions (such as the decontamination and disposition of excess equipment and waste) and establishes the authority to conduct nonstandard supply operations for hazmat requisitioning (such as a hazmat center). The S-4 office tracks disposal actions on the unit document register, prepares the proper turn-in documentation, and maintains turn-in receipts. To perform these actions, the S-4 coordinates with appropriate DOD activities, including the Defense Reutilization and Marketing Office, and Defense Logistics Agency and considers the Logistics Civilian Augmentation Program.

CIVIL AFFAIRS STAFF OFFICER

5-16. As the principal staff officer for civil affairs, the S-9 is familiar with the relationships between the local population and their environment. These relationships include an understanding of the underlying conflict causes, and public health threats and a knowledge of critical vulnerabilities to the disruption of

environmental services (clean water, useable croplands). ***Environmental services are the various combinations of scientific, technical, and advisory activities (including modification processes and the influence of man-made and natural factors) required to acquire, produce, and supply information on the past, present, and future states of space, atmospheric, oceanographic, and terrestrial surroundings for use in military planning and decisionmaking processes or to modify those surroundings to enhance military operations.***

5-17. In conjunction with the SJA and the environmental officer, the S-9 advises the commander of the obligations regarding the long- and short-term effects (economical, environmental, and health) of military operations on indigenous populations and institutions. The S-9 must also coordinate with the fire support coordinator and environmental officer to protect culturally significant sites and targets. In many areas of the world, these obligations include protecting critical environmental resources (cultural heritage sites, water sources, endangered species habitats). Along with the SJA, the S-9 should also be familiar with local environmental laws, especially in overseas deployment areas. The S-9 may supervise civil affairs units assisting local governments with environmental protection services. Finally, the S-9 also serves as the coordinator for foreign nation support and indigenous labor and coordinates with the SJA, engineer staff officer, and environmental officer on civilian claims against the U.S. government for environmental damage.

SPECIAL STAFF RESPONSIBILITIES

5-18. Special staff officers have functional environmental responsibilities. The following are the key special staff officers with environmental protection expertise and responsibilities.

MEDICAL OFFICER

5-19. The medical officer advises the commander on regional health matters within the commander's area of interest. The medical officer also maintains direct access to environmental, preventive-medicine, and public health services. The medical officer—

- Advises on medical threats (environmental, endemic, epidemic diseases).
- Conducts pre- and posthealth assessments.
- Conducts medical surveillance activities.
- Monitors environmental and occupational health hazards, pest management, food service sanitation, drinking-water supplies, field hygiene, and sanitation activities.
- Ensures that medical waste is disposed of properly.

5-20. In more demanding situations, the medical officer may rely on the capabilities of the Army Medical Laboratory, U.S. Army Public Health Command, and Navy and Marine Corps Public Health Command to assist in providing recommendations to the commander. The commander and the unit staff may call on the medical officer to assist in determining the public health implications of damage to critical environmental resources.

5-21. The Army environmental science and engineering officer or the Navy environmental health officer work with the engineer staff officer to ensure scientific validity and scrutiny in monitoring and managing environmental- and health-related activities.

SAFETY OFFICER

5-22. The safety officer is the special staff officer responsible for coordinating safety activities throughout the command. The safety officer works closely with the environmental staff to help prevent accidents that could threaten or damage human health or the environment.

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR OFFICER

5-23. The CBRN officer is the special staff officer responsible for using and requiring chemical assets, CBRN defense, and obscuration operations. A CBRN officer exists at every echelon of command and integrates chemical reconnaissance assets to assist in performing site assessments. In conjunction with the medical officer, the CBRN officer provides the commander with information to understand the current and

predicted situation, while providing actual and potential impacts of CBRN hazards and their effects on personnel and equipment. The CBRN officer also has training in hazmat operations and is a good resource when the environmental officer is not available.

ENGINEER STAFF OFFICER

5-24. The engineer staff officer is the special staff officer for coordinating engineer assets and operations for the command. Each Service level component engineer staff officer should assume responsibility for promulgating and enforcing combatant command environmental policies that govern deploying units operating within theater. As the senior engineer officer in the force, the engineer staff officer—

- Advises the commander on environmental issues (waste management practices and operations, resource protection or restoration, energy management).
- Prepares the commander's engineer estimate of supportability and the engineer support plan to the logistics annex, integrating environmental considerations throughout the process.
- Works with other staff officers to determine the impact of operations on the mission, environment, local community, and resources.
- Assists the commander in integrating environmental considerations into the MDMP.
- Integrates geospatial engineering throughout the operations process.
- Plans and coordinates environmental protection, critical areas, and protection levels.
- Provides analysis on a broad range of potential targets and the impacts on current and future missions.
- Provides analysis of environmental protection considerations and the requirements needed for hazmat and HW transport throughout the AO.

5-25. The engineer staff officer works with the S-4 in performing site assessments for base camps and facilities. The engineer staff officer and the SJA advise the commander on the necessity for environmental assessments. When a project has mitigating environmental impacts that do not call for a complete environmental impact statement, the agency can develop an environmental assessment for site-specific projects to meet foreign nation or EO 12114 requirements. The engineer staff officer is also responsible for advising the S-2 on significant environmental factors and integrating these impacts into the IPB.

TRANSPORTATION OFFICER

5-26. The transportation officer plans and supervises administrative movements. When these movements contain hazmat and HW, the transportation officer ensures that unit personnel follow applicable laws and regulations. These requirements include—

- Training personnel on hazmat and HW transport.
- Ensuring that personnel understand spill response and reporting requirements.
- Ensuring that personnel have spill kits available during transportation.
- Manifesting cargo.
- Inspecting loads.
- Segregating loads.
- Marking vehicles.
- Arranging for hazardous cargo routes, as necessary.

MAINTENANCE OFFICER

5-27. The maintenance officer plans and supervises maintenance and repair activities. In many instances, these activities require significant quantities of hazmat and generate HW. The maintenance officer ensures the safe use, storage, and disposal of these materials—which often includes operating temporary storage areas for products (used oils, contaminated fuels, paint residues, spill cleanup residues, solvents). Since maintenance personnel work with hazmat, the maintenance officer must ensure that personnel comply with hazmat management program requirements.

WEATHER OFFICER

5-28. For the force projection phases listed in chapter 3, meteorological and climatological information are relevant planning factors for determining the effect, if any, that weather will have on the environment. The staff weather officer assists the assistant chief of staff, intelligence (G-2)/S-2 in developing weather estimates, conducting weather analysis, and providing weather products for IPB. The staff weather officer also provides to planners climatological information for use in strategic planning and analysis and advises engineers, CBRN personnel, the S-2, and other staff personnel of the effects of weather on the operations and on the environment.

PERSONAL STAFF RESPONSIBILITIES

5-29. Some staffs include personal staff officers who work under the immediate control of the commander, which gives him direct access to them. The commander establishes guidelines or gives specific guidance to the personal staff officer who informs or coordinates with the chief of staff or other staff members.

STAFF JUDGE ADVOCATE

5-30. The SJA advises the commander on compliance with environmental laws, regulations, treaties, agreements, and conventions. The SJA provides legal advice and assistance concerning contracts, health care, environmental matters, and compensation matters. The SJA helps other staff officers to understand the legal aspects involved in their respective specialties.

PUBLIC AFFAIRS OFFICER

5-31. Public perceptions of environmental threats may be more significant to mission accomplishment than the threat itself. The public affairs officer advises the commander on the methods of conveying information and responding to information from the public. When deployed overseas, the public affairs officer coordinates with the appropriate staff and commanders to plan and execute public relations efforts in support of the mission objectives. In the CONUS, various environmental laws require public involvement. The public affairs officer identifies and prepares plans for meeting these requirements.

SMALL-UNIT RESPONSIBILTIES

5-32. In addition to senior command and staff responsibilities, small units must meet similar requirements. In general, these requirements mirror those of senior commands, but they are directed at a different scale and echelon.

COMMANDER

5-33. The commander's role in environmental sustainment centers on building environmental ethics in personnel by training and counseling them on environmental stewardship and sustainability, leading by example, and enforcing compliance with laws and regulations. The commander—

- Communicates environmental ethics to assigned personnel while training them to be good environmental stewards.
- Develops and sustains a positive and proactive commitment to environmental protection.
- Protects the environment during training and other activities.
- Trains peers and subordinates to identify the environmental effects of plans, actions, and operations in relation to the mission, environment, community, and fiscal resources.
- Trains personnel on the importance of protecting the environment and the possible consequences of noncompliance and nonsustainable practices.
- Understands the links between environmental considerations and the associated impacts on FHP, safety, and other protection aspects.
- Oversees the environmental officer’s performance.

EXECUTIVE OFFICER AND OPERATIONS OFFICER

5-34. As the commander's principal company officer, the executive officer is responsible for the day-to-day operations of the company. The executive officer and operations officer will—

- Identify the environmental-related risks associated with individual, collective, and mission-essential tasks.
- Plan and conduct environmentally sustainable actions and training.
- Analyze the influence of environmental factors on mission accomplishment.
- Integrate environmental considerations into unit activities.
- Ensure that personnel are familiar with the unit SOPs and supervise personnel compliance with legal requirements and sustainable practices.
- Incorporate environmental considerations into after action reviews.

FIRST SERGEANT AND COMPANY GUNNERY SERGEANT

5-35. As an essential member of the Army command team, the first sergeant must be tactically and technically competent and totally committed to the Soldiers, their mission, and the military. Within the Marine Corps, these responsibilities are assumed by the S-4 logistics chief at the battalion level and the company gunnery sergeant at the company level. The first sergeant and company gunnery sergeant will—

- Manage the field sanitation section of the unit SOP (see appendix E).
- Ensure that the field sanitation team is properly trained.
- Incorporate personal hygiene and preventive-medicine measures.
- Maintain field water supply.
- Maintain field waste disposal.
- Inspect unit activities and facilities to identify environmental issues and discrepancies and initiate corrective action.
- Assist the commander in planning, conducting, evaluating, and assessing unit environmental training.
- Ensure that personnel who provide environmental training are training to standard.

MAINTENANCE OFFICER

5-36. The maintenance officer plans and supervises maintenance and repair activities. In many instances, these activities use significant quantities of hazmat and generate HW. The maintenance officer and noncommissioned officer ensure that personnel are safely using, storing, accumulating, and disposing of these materials. This may include operating temporary storage areas for products (used oils, contaminated fuels, paint residues, spill cleanup residues, solvents). Since maintenance personnel work with hazardous chemicals, the maintenance officer must ensure that personnel comply with hazmat management requirements. Maintenance officers—

- Maintain SDSs for the AO (see appendix J).
- Provide the required PPE, ensure that maintenance personnel are properly trained on PPE usage and maintenance, and ensure that PPE is used consistently and properly.
- Set up HW accumulation points collection.
- Ensure that personnel wear the proper PPE.
- Ensure that maintenance personnel properly manage hazmat and HW.
- Ensure that sufficient HW containers and secondary containment are available.
- Prepare a spill response plan.
- Provide trained spill response teams.

SUPPLY PERSONNEL

5-37. Hazmat and HW should be managed through the unit supply channel. Support platoons within the maneuver and forward support battalions supply hazmat to tactical units at designated logistics release points and should, at the same time, retrograde HW for proper storage and disposal. Supply personnel—

- Provide hazmat for the company.
- Retrograde HW from the company to the battalion storage area.
- Maintain a log of HW accumulated within the company storage area.
- Coordinate with the unit environmental officer to update or develop new pollution prevention and waste minimization procedures.
- Complete the appropriate turn-in documents for HW generated by the company.
- Coordinate with the battalion S-4 for HW final transport or disposal.

PLATOON LEADER AND PLATOON SERGEANT

5-38. The role of the platoon leader and platoon sergeant in environmental sustainability centers on building environmental ethics in Soldiers and Marines. The general duties of platoon leader and the platoon sergeant are to train and counsel subordinates in environmental stewardship and sustainable practices; lead by example; and enforce compliance with laws, regulations, policies, and SOPs. Leaders—

- Communicate environmental ethics to Soldiers and Marines while training them as good environmental stewards.
- Develop and sustain a positive and proactive commitment to environmental protection and sustainability.
- Understand the links between environmental considerations and their associated impact on FHP, safety, and other protection aspects.
- Identify the environmental-related risks associated with individual, collective, and mission-essential tasks and implement control measures to reduce those risks.
- Plan and conduct environmentally sustainable actions and training.
- Integrate environmental considerations into unit activities.
- Counsel Soldiers and Marines on the importance of protecting the environment and the possible consequences of noncompliance or nonsustainable practices.
- Ensure that Soldiers and Marines are familiar with unit SOPs (see appendix E), and supervise their compliance with laws, regulations, policies, and best management practices.
- Incorporate environmental considerations into after action reviews.
- Coordinate with unit environmental officers, as appropriate.

SAFETY OFFICER AND TACTICAL SAFETY SPECIALIST

5-39. The unit safety officer or tactical safety specialist is the officer responsible for coordinating safety activities throughout the unit. The safety officer or tactical safety specialist works closely with the environmental officer to help prevent accidents that could threaten or damage human health and the environment, especially the planning for the transportation, storage, and disposal of hazmat and HW.

ENVIRONMENTAL OFFICER

5-40. The environmental officer accomplishes environmental requirements on behalf of the commander and advises the commander on environmental issues. (See appendix H for more information.)The environmental officer—

- Acts as a liaison between the unit commander and external environmental personnel.
- Ensures that environmental considerations are integrated into unit activities.
- Coordinates unit environmental training.
- Conducts unit self-assessments.
- Identifies and implements corrective actions for deficiencies.

SOLDIERS AND MARINES

5-41. Soldiers and Marines maintain inherent professional and personal responsibilities for understanding and supporting the unit environmental program. Soldiers and Marines—

- Comply with the environmental requirements in unit and base camp and training area SOPs. (See appendix E.)
- Attend the required environmental-awareness training.
- Maintain environmental awareness throughout daily activities.
- Provide recommendations to the chain of command on the techniques necessary to ensure compliance with environmental requirements and sustainable practices.
- Identify the environmental-related risks associated with individual and team tasks.
- Support sustainable programs (waste reduction, pollution prevention, recycling programs).
- Report hazmat and HW spills immediately.
- Make sound environmental decisions based on guidance from the chain of command, training received, and individual concepts of right and wrong.

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Appendix A

Metric Conversion Chart

Table A-1 is a metric conversion chart. A complete listing of preferred metric units for general use is contained in Fed-Std-376B.

Table A-1. Metric conversion chart

U.S. Units	*Multiplied By*	*Equals Metric Units*
Feet	0.30480	Meters
Gallons	3.78540	Liters
Inches	2.54000	Centimeters
Inches	0.02540	Meters
Inches	25.40010	Millimeters
Yards	0.91440	Meters
Metric Units	***Multiplied By***	***Equals U.S. Units***
Centimeters	0.39370	Inches
Kilometers	0.62137	Miles
Meters	3.28080	Feet
Meters	39.37000	Inches
Meters	1.09361	Yards
Millimeters	0.03937	Inches
Liters	0.26420	Gallons
Legend: U.S. United States		

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Appendix B

Environmental Regulations, Laws, and Treaties

Environmental issues are a major concern for military forces. With continued deployments to new areas, environmental protection will continue to have a growing impact on operations. Violations of environmental laws or agreements that may occur during predeployment or deployment operations can result in civil and criminal penalties, increased U.S. financial liability, and damage to HN and community relations. Military personnel and leaders must understand these laws and respond accordingly. They must apply the respective regulations, ensure that unit personnel are properly trained, and ensure that legal and regulatory guidance and requirements (military and civilian) are met. This appendix provides a brief description of the primary environmental regulations and principal environmental laws that are applicable to military activities. It is not all-inclusive, and some regulations are applicable to overseas or force projection operations while others apply primarily to the CONUS predeployment requirements. The U.S. military does not expect commanders to be legal experts, but they must understand the requirements of environmental laws and regulations and how they apply to the operational phases. The supporting environmental management staff of the unit is the best source of assistance to ensure unit compliance with environmental laws and regulations.

SOURCES OF ENVIRONMENTAL LAWS AND REGULATIONS

B-1. Federal, state, local, and foreign governments and international organizations have established laws and regulations to protect human health and to protect natural and cultural resources from environmental degradation. Heightened public and federal environmental awareness has led agencies to develop policies to support regulatory compliance and stewardship. The President of the United States can and has directed the federal government through EOs; the DOD complies with these directives as it does with any other federal law. The regulations, orders, and pamphlets identified in this appendix provide additional guidance for commanders. The U.S. military will comply with these laws and regulations as they pertain to individual localities, installations, deployments, or operations.

B-2. As military forces prepare for deployment, various laws, regulations, treaties, conventions, and EOs govern operations. Reviewing these requirements will assist military forces in the early integration of environmental considerations into deployed operations. Identifying and understanding these requirements will assist commanders in executing operations in a manner that protects Soldier and Marine health and the environment while also protecting commanders from liability for environmental damage.

B-3. At most locations, environmental support personnel are available to help unit leaders understand the various laws and regulations. These support personnel include the chain of command and key personnel (COCOM or major command environmental staff, base camp, mayor cell environmental staff, SJA attorneys, and range officers). Unit leaders should consult with these environmental personnel on the specific requirements for each location. Given local differences in environmental laws, military personnel must understand that what is environmentally permissible in one area may not be permissible on another.

STATUS-OF-FORCES AGREEMENTS AND FINAL GOVERNING STANDARDS

B-4. In areas OCONUS, the military typically works with the HN to develop a SOFA and/or an FGS:

- A SOFA defines the rights and responsibilities of U.S. military forces in a foreign country. It usually encompasses more than environmental issues and is usually fairly broad in scope.
- FGSs are the set of environmental compliance standards for DOD installations or basing in a specific country or area. An FGS includes specific standards (for example, technical limitations on emissions or wastewater discharges) and management practices that apply to DOD installations and activities in that country unless an exemption or waiver applies. An FGS or changes to an FGS must be approved by the appropriate unified combatant commander.

B-5. The U.S. military is committed to actively addressing environmental quality issues in relation to neighboring communities and assuring that consideration of the environment is an integral part of decisions. In areas where an FGS or SOFA is not published, installations and units OCONUS that are not subject to federal environmental regulations promulgated by EPA will comply, with 32 CFR 651, AR 200-1, and DOD 4715.05-G. In countries where an FGS or SOFA is published, they will be used according to the executive agent of that country.

B-6. DOD 4715.05-G provides criteria, standards, and management practices for environmental compliance at DOD installations overseas. It provides the baseline information and standards from which FGSs for individual nations are devised. DOD 4715.05-G does not apply to contingency operations by U.S. forces.

INTERNATIONAL LAWS AND TREATIES

B-7. Commanders must consult the SJA for specific advice on international laws or conventions. The following international laws and treaties may affect military operations:

- Convention on Biological Diversity.
- International Tropical Timber Agreement.
- International Convention for the Prevention of Pollution From Ships (MARPOL).
- Convention for the Protection of Cultural Property in the Event of Armed Conflict.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- Basel Convention (HW).
- Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution Concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes (air pollution).
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter. (marine pollution from ships dumping wastes generated on land).
- The Montreal Protocol on Substances That Deplete the Ozone Layer (ozone-depleting substances).
- Kyoto Protocol (greenhouse gases).

B-8. U.S. armed forces are obligated to abide by the provisions of treaties and conventions to which the United States is bound. In addition, countries that U.S. forces operate in, with, or through may be bound by treaties that the United States has not ratified. These treaties can impact military operations in several ways. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, for example, could limit HW disposal options available to a deployed force. While, at this time, the treaty has not been ratified by the Senate, the United States is still a signatory to it. Whether bound by a treaty or not, its mere existence may affect operations. Examples from Bosnia-Herzegovina and other locations have confirmed this situation.

B-9. International treaties that govern armed conflict also affect U.S. military forces. One such treaty is the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques. This treaty prohibits any military use of engineer modification and any technique for changing the dynamics, composition, or structure of the environment through the deliberate manipulation of natural processes.

UNITED STATES LAWS, REGULATIONS, TREATIES, AND EXECUTIVE ORDERS AND DEPARTMENT OF DEFENSE PUBLICATIONS RELATING TO DEPLOYMENT OPERATIONS

B-10. While some of the laws, regulations, and EOs apply to CONUS operations, they may provide guidance in the absence of SOFA, an FGS, or local laws and regulations. Commanders and planners must work closely with their SJA to determine what laws, regulations, and EOs apply to their operations. The following descriptions have been organized by topic area for ease of use.

COMMAND ENVIRONMENTAL PROGRAM

B-11. The following paragraphs discuss the command environmental program and the applicable regulations.

ARMY REGULATION 200-1

B-12. Although this regulation implements federal, state, and local environmental laws and DOD policies for preserving, protecting, conserving, and restoring the quality of the environment at installations, it also serves as a basis for a command environmental program and for theater level environmental regulations. AR 200-1 provides guidance on the—

- Environmental components of sustainability.
- Environmental support to the Army training and testing mission.
- Environmental support during deployments and contingency operations.
- Compliance-related cleanup program.
- Army Defense Environmental Restoration Program.
- Formerly used defense sites.
- Defense and State Memoranda of Agreement and Cooperative Agreement Program.
- Pollution prevention.
- Compliance with environmental legal mandates.
- Natural resources.
- Cultural resources.
- Environmental protection aspects of pest management.
- Environmental training for military and civilian personnel.
- Base realignment and closure environmental program.
- National Environmental Policy Act (NEPA) requirements.
- Operational noise.
- Environmental-quality technology.
- Environmental legislative/regulatory analysis and monitoring program.
- Environmental reporting and information management.
- Environmental considerations in real estate and materiel acquisition programs.
- Army Environmental Management System.

MARINE CORPS ORDER P5090.2A

B-13. MCO P5090.2A implements overseas, federal, state, and local environmental laws, and DOD and Department of the Navy policies for preserving, protecting, conserving, and restoring the quality of the environment at installations. It also serves as a basis for regional and installation environmental programs. MCO P5090.2A provides guidance on the—

- Protection of human health and the environment.
- Compliance with the appropriate laws and regulations.
- Remediation of past contamination.
- Pollution prevention and sustainability.
- Preservation of natural, historical, and cultural resources.

- Environmental planning.
- Marine Corps Environmental Management Systems.

B-14. For environmental guidance while afloat, see OPNAVINST 5090.1D and its corresponding manual OPNAV M-5090.1.

DEPARTMENT OF DEFENSE DIRECTIVE 4715.1E

B-15. This directive emphasizes the following DOD policies. Additionally, it includes general guidance for supporting international activities that are consistent with national security policy relating to environmental security programs. DODD 4715.1E provides guidance on—

- Environmental leadership by considering environmental issues and other relevant issues.
- Full compliance with environmental statutes.
- Environmental protection and restoration.
- Prevention of adverse impacts to the environment.

DEPARTMENT OF DEFENSE INSTRUCTION 4715.05

B-16. DODI 4715.05 establishes policy, assigns responsibilities, and prescribes procedures for establishing the implementing environmental guidance and standards to ensure environmental protection at DOD facilities and installations in foreign countries. This instruction applies to the actions of DOD components at installations OCONUS and U.S. territories and possessions.

DEPARTMENT OF DEFENSE INSTRUCTION 4715.08

B-17. This instruction (enacted in 1998) establishes policy, assigns responsibilities, and prescribes procedures for the remediation of environmental contamination on DOD installations and facilities or caused by DOD actions OCONUS. This instruction is for the internal management of DOD and does not create any independent right enforceable against DOD; the U.S.; or their officers, agents, or employees. It authorizes the cleanups that the United States is obligated by international agreement to perform and contamination that is known to present imminent and substantial endangerment to human health and safety caused by current operations.

CULTURAL HERITAGE AND PROPERTY

B-18. The following paragraphs discuss regulations related to protecting cultural heritage and property.

ARCHAEOLOGICAL RESOURCES PROTECTION ACT OF 1979

B-19. This act stipulates that anyone excavating archaeological resources on federal land must have a permit or be subject to civil or criminal penalties. Persons requesting an Archaeological Resources Protection Act permit should be directed to the installation archaeologist or the United States Army Corps of Engineers (USACE) district engineer. Installation law enforcement personnel should be aware of archaeological resources in need of protection, and sites should be monitored regularly.

B-20. Unit leaders—

- Avoid digging or conducting operations in or near cultural sites or structures.
- Brief military personnel on the importance of avoiding, protecting, and safeguarding archaeological sites (including refraining from collecting artifacts).
- Report artifact discovery and wait for clearance to resume training.
- Emphasize prohibition of taking, buying, or selling of cultural resources.

NATIONAL HISTORIC PRESERVATION ACT OF 1966

B-21. The National Historic Preservation Act requires federal agencies to consider the effects of their actions on cultural and historical resources (construction, leases, land transactions, and base realignment and closure activities). It seeks to safeguard against the loss of irreplaceable historical properties, especially those located

on federal land. Many Army facilities are located on historical and archaeological sites (prehistoric settlements, 19th century cantonments).

B-22. Unit leaders—

- Identify and recognize possible archaeological and historical artifacts, sites, and structures.
- Plan and conduct training, operations, and logistics activities to avoid damage to archaeological or historical artifacts, sites, or structures.
- Instruct military personnel to leave historical artifacts in place and report newly discovered items to the chain of command.
- Report vandalism, theft, or damage to historical, cultural, or archaeological sites.

ENVIRONMENTAL ASSESSMENT

B-23. The following paragraphs discuss regulations related to environmental assessment.

NATIONAL ENVIRONMENTAL POLICY ACT

B-24. NEPA affects virtually every proposed action that uses federal funding. Planners should pay particular attention to actions that may present a danger to the health, safety, or welfare of civilian and military personnel or cause irreparable harm to animal or plant life. The act requires federal agencies to consider the environmental impacts of their actions during planning and decisionmaking.

B-25. Base camp managers and planners should document these considerations in the planning process. Only those actions categorically excluded from NEPA documentation requirements are exempt. (See 32 CFR 651 for a list of categorical exclusions. EO 12114 extends the application of the act philosophy to major federal actions in foreign nations. No impact to any resource should be implemented until an environmental assessment is completed.

B-26. Unit leaders—

- Identify areas of environmental concern.
- Identify mission-related environmental risks.
- Identify potential effects of environmental factors on missions and operations.
- Discuss environmental risk in training meetings and briefings.
- Identify alternative training scenarios and techniques.
- Consult base camp environmental office personnel regarding requirements for environmental assessment documentation.

PART 651, TITLE 32, CODE OF FEDERAL REGULATIONS, ENVIRONMENTAL ANALYSIS OF ARMY ACTIONS

B-27. This regulation implements the NEPA within the Army, which establishes Army policies and responsibilities for the early integration of environmental considerations into Army planning and decisionmaking. The process described in this regulation applies to installations and units. This regulation establishes criteria to determine whether Army actions are covered under categorical exclusion or if an environmental assessment or environmental impact statement is required. An environmental impact statement is a detailed description of the effects, impacts, or consequences associated with designing, manufacturing, testing, operating, maintaining, and disposing of weapon systems or automated information systems. Under the NEPA, an environmental impact statement is required when environmental and cultural resources may be damaged or significantly adversely affected. Contact the base camp environmental staff or the theater environmental staff for specific guidance.

EXECUTIVE ORDER 12114

B-28. EO 12114 addresses the environmental effects of major federal actions abroad. It establishes procedures so that federal agencies in foreign countries and global communities can consider the effects of their actions on the environment. The Department of State supervises and coordinates these efforts overseas.

The objective of this program is to provide information to decisionmakers, increase awareness and interest in environmental concerns, and encourage environmental cooperation with foreign nations.

MATERIAL AND WASTE MANAGEMENT

B-29. The following paragraphs discuss regulations related to material and waste management.

FEDERAL HAZARDOUS MATERIALS TRANSPORTATION LAW

B-30. The Federal Hazardous Materials Transportation Law authorizes the U.S. Department of Transportation to issue interstate and intrastate regulations related to the transportation of hazmat. U.S. Department of Transportation oversight applies to packing, repacking, handling, labeling, marking, placarding, and routing.

B-31. In addition, the Federal Hazardous Materials Transportation Law establishes record keeping requirements and a registration program for shippers, carriers, and container manufacturers. Units most commonly haul hazmat in the form of POL products and ordnance. Units comply with these requirements during operations and deployments that require vehicle movement or convoys on federal and state highways. Unit leaders—

- Train military personnel on proper transportation procedures (vehicle placarding, material packaging, vehicle loading, operator requirements, safety precautions, spill procedures).
- Ensure accountability for hazmat.
- Apply the RM/ORM process to each unit movement requirement.

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

B-32. The Federal Insecticide, Fungicide, and Rodenticide Act requires pesticide products to be licensed or registered by the Environmental Protection Agency. It also requires the proper management of pesticide use, storage, and disposal. Only certified personnel or someone under the direct supervision of a certified person may use restricted-use pesticides.

B-33. Unit leaders—

- Ensure that field sanitation teams are properly trained in the use of hazmat (pesticides, rodenticides, insecticides [insect repellent], and fungicides [foot powder]) in the field sanitation kit.
- Obtain pesticides through supply channels. (Do not purchase local pesticides without approval of command.)
- Employ procedures according to ATP 4-25.12.
- Notify the environmental staff or G-4 concerning pest control in unit billets and dining facilities.

MILITARY MUNITIONS RULE: HAZARDOUS WASTE IDENTIFICATION AND MANAGEMENT; EXPLOSIVES; EMERGENCIES; MANIFEST EXEMPTION FOR TRANSPORT OF HAZARDOUS WASTE ON RIGHT-OF-WAYS ON CONTIGUOUS PROPERTIES

B-34. This rule amends the Resource Conservation and Recovery Act (RCRA) and identifies when conventional and chemical munitions become HW under the law. It is a minimum federal standard for the management of military munitions waste and provides procedures for the storage, transport, and disposal of such waste. The DOD, other federal agencies, and government contractors who produce or use military munitions for DOD are affected by this rule. States may adopt military munitions requirements that are more stringent than the federal rules.

B-35. Unused munitions become waste when abandoned (buried, placed in landfills, or dumped at sea); detonated (except as a consequence of intended use); burned, incinerated, or treated before disposal; removed from storage for treatment/disposal; deteriorated or damaged beyond repair; recycled or reused; or declared as waste by an authorized military official.

B-36. Military munitions are not waste when they are used for their intended purpose (during training; research, development, testing, and evaluation activities; during range clearance activities on active and inactive ranges). This rule excludes unused munitions that are repaired, reused, recycled, reclaimed, disassembled, reconfigured, or are otherwise subject to material recovery activities. The assignment of a particular condition code or the placement in one of the DOD demilitarization accounts is not an indicator of whether an item is waste since many of these materials are subject to recovering, reusing, and recycling activities. (See the Federal Hazardous Materials Transportation Law.)

B-37. Unit leaders—

- Train military personnel on proper procedures for the transportation, storage, handling, and return of military munitions.
- Ensure accountability for munitions.
- Report problems with damaged or malfunctioning munitions through the chain of command to the issuing and turn-in facility.

OIL POLLUTION ACT OF 1990

B-38. The Oil Pollution Act is far more comprehensive and stringent than any previous U.S. or international oil pollution liability and prevention law. It focuses on averting oil spills, responding to oil spills, and removing oil that has been spilled. It establishes a standard for measuring natural resource damage that is applicable to actions for such damage.

B-39. Unit leaders—

- Train unit spill prevention/response teams.
- Report known or suspected spills through the chain of command and according to the unit SOP.
- Ensure that alarm and containment systems are working properly for storage tanks.
- Comply with the local spill contingency plan.
- Ensure that the unit has appropriate spill kits and PPE.
- Apply the RM/ORM process to each operation to reduce the probability and severity of potential spills.

RESOURCE CONSERVATION AND RECOVERY ACT OF 1976

B-40. The RCRA (with amendments), establishes guidelines and standards for HW generation, transportation, treatment, storage, and disposal. States require RCRA operating permits for HW treatment, storage, and disposal facilities. The act also covers the laws surrounding the disposal of regulated medical waste, underground storage tanks, and solid-waste (management, landfill regulation, recycling, affirmative procurement).

B-41. The RCRA requires training for military personnel who handle or manage hazmat, solid waste, and HW. The RCRA requires underground storage tank management and hydrocarbon contamination cleanup. Unit leaders—

- Comply with the HW management plan.
- Support the recycling program and ensure that Soldiers and Marines understand its importance.
- Remove expended brass, communication wire, concertina wire, and trip wires from waste (see Military Munitions Rule: Hazardous Waste Identification and Management; Explosives; Emergencies; Manifest Exemption for Transport of Hazardous Waste on Right-of-Ways on Contiguous Properties).
- Conduct police calls to collect and dispose of solid waste (trash).
- Dispose of kitchen waste only as authorized.
- Ensure that the unit SOP covers hazmat and HW (including spill contingencies).
- Collect and turn in hazmat and HW according to local procedures, in garrison and during deployments.
- Clean up, report, and document hazardous spills properly.
- Transport HW according to local procedures.

- Allow the use of hazmat only after military personnel have been properly trained.
- Ensure that the unit environmental officer is properly trained and that the training is documented.
- Maintain a current hazmat inventory and an SDS for every hazmat in the unit. Provide a copy of the hazmat inventory to the fire department or local environmental management office.

TOXIC SUBSTANCES CONTROL ACT OF 1976

B-42. The Toxic Substances Control Act places restrictions on certain chemical substances. These restrictions seek to limit human and environmental exposure to highly toxic substances (chlorofluorocarbons [CFCs], PCBs, asbestos-containing materials). This act requires the chemical testing of substances entering the environment and regulates the release of these chemicals.

B-43. Building codes in other countries may not restrict the use of CFCs, PCBs, asbestos-containing materials, lead-based paint, or other hazmats. Units renovating or using preexisting structures need to be aware of potential building-material hazards. In addition, some fill materials may contain naturally occurring toxins. (See UFC 1-201-02 for the evaluation and/or renovation of existing structures.)

B-44. Unit leaders—

- Ensure that units purchase refrigerants through the supply chain, not from local sources.
- Consult an engineer officer and preventive-medicine office for the appropriate testing of local building materials before purchase, excavation, or use.
- Report proposed building renovations to the base camp engineer or base camp management staff.
- Report suspected asbestos-containing materials or PCBs to the local environmental management office.
- Train military personnel who perform maintenance on air conditioning systems on the proper procedures for refrigerant use, recovery, recycling, or disposal.

NATURAL RESOURCES AND ENDANGERED SPECIES PROTECTION

B-45. The following paragraphs discuss regulations related to natural resources and endangered species protection.

ENDANGERED SPECIES ACT

B-46. The Endangered Species Act protects threatened or endangered plants and animals. Federal agencies are to ensure that any action (authorized, funded, or carried out) is not likely to jeopardize the continued existence of any listed species or result in destruction or adverse modification of the critical habitat. Public Law (PL) 108-136 (the National Defense Authorization Act of Fiscal Year 2004) amended the Endangered Species Act by allowing installations to be excluded from critical habitat if such designation would impact national security.

B-47. The Endangered Species Act prohibits anyone from taking, which includes harassing or harming, a listed fish or wildlife species unless permitted by the law. Additionally, the Endangered Species Act makes it unlawful to remove or maliciously damage or destroy listed plants in areas under federal jurisdiction. Laws imposed on federal agencies include requirements to—

- Conserve listed species.
- Not jeopardize listed species or cause destruction or adverse modification of critical habitat.
- Consult on actions that may affect listed species or critical habitat or to confer if the species is proposed for listing.
- Conduct biological assessments for major construction activities.
- Not take listed species.

B-48. The Endangered Species Act prohibits the destruction, capture, trade, sell, or purchase of listed species. DOD consults with the appropriate agency (National Oceanic and Atmospheric Agency–Fisheries or U.S.

Fish and Wildlife Service) before taking any action that may affect, adversely or beneficially, a listed species or designated critical habitat.

B-49. It is Army policy to proactively manage species at risk to prevent Endangered Species Act listings that could severely degrade military readiness. The Army identifies species at risk as those species that are official candidates for Endangered Species Act listing, classifications as critically imperiled on a global scale, or a concern for the Endangered Species Act listing in the foreseeable future. Implementing proactive measures to prevent the listing of a species at risk would be beneficial to the Army and the species.

B-50. Unit leaders—

- Enforce range control and local environmental regulations.
- Avoid actions that could harm protected plants and animals and their habitats.
- Recognize threatened and endangered species habitats and avoid them during training, operations, and logistics activities.
- Avoid actions that could harm species at risk and their habitats.
- Mark environmentally sensitive areas as restricted-movement areas.
- Consult and coordinate with the environmental office for other local requirements relating to wildlife and natural vegetation.
- Avoid brush and tree cutting for camouflage.
- Avoid damage to marked wildlife food plots and watering areas.
- Comply with the local endangered species management plan.
- Provide the environmental office with information, when applicable, on the impacts that critical habitat would have on the mission.
- Train Soldiers and Marines on the prohibition of purchasing endangered species items or derivatives (pelts, horns, tusks, ivory).
- Ensure that contracts for materials or services (fuel, water, building materials) do not deplete local sources.

EXECUTIVE ORDER 11987

B-51. EO 11987 directs federal agencies to prevent the introduction of exotic species (all plants and animals not occurring presently or historically in any ecosystem of the United States) into the natural ecosystems of the United States (United States refers to all 50 states, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, the Virgin Islands, Guam, and the Trust Territory of the Pacific Islands). This order is of special importance when addressing redeployments to the United States from areas OCONUS.

B-52. Unit leaders—

- Ensure that equipment and vehicles are decontaminated of soils and plant material before redeployment.
- Ensure that decontamination rinsate is disposed of according to local regulations.

EXECUTIVE ORDER 11990

B-53. EO 11990 addresses the actions that federal agencies must take to identify and protect wetlands. Additionally, it directs agencies to take into consideration the effects of actions within wetlands. The intent is to preserve and enhance the natural values of wetlands and to minimize the risk of wetland destruction.

OPERATIONAL ENERGY, WATER, AND WASTE MANAGEMENT AND SUSTAINABILITY

B-54. The following paragraphs discuss regulations related to operational energy, water, and waste management and sustainability.

POLLUTION PREVENTION ACT OF 1990

B-55. Preventing pollution saves money by reducing the amount of waste that needs managed and reducing cleanup efforts. The Pollution Prevention Act established the following national policy on pollution:

- Pollution should be prevented or reduced at the source when feasible.
- Pollution that cannot be prevented should be recycled in an environmentally safe manner.
- Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner.
- Disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

B-56. Unit leaders—

- Emphasize the procurement and use of environmentally preferable materials, pollution prevention equipment, and recycling equipment.
- Check available hazmat before ordering if a hazmat reuse center or hazmat pharmacy is available.
- Ensure that hazmat is ordered through the supply chain and/or is on the authorized-use list.
- Follow shelf life policies and first-in, first-out practices.
- Ensure that hazmat is returned to the hazmat reuse center instead of being disposed of.
- Ensure that HW is managed and disposed of according to regulations.

SAFE DRINKING WATER ACT OF 1974

B-57. The Safe Drinking Water Act (SDWA) regulates drinking water quality by basing assessments of water quality on levels of pollutants present in the water. Water supply facility managers analyze treated water regularly. If water quality is below standards, water supply providers must notify their customers.

B-58. Unit leaders—

- Enforce the local water conservation plan.
- Brief military personnel on the impact of polluting water sources.
- Employ pollution prevention practices.
- Report water quality concerns through the chain of command.

EXECUTIVE ORDER 13101

B-59. EO 13101 requires federal agencies to incorporate waste prevention and recycling into their daily operations and implement cost-effective procurement preference programs for recycled and environmentally preferable products and services. Pollution prevention, when feasible, is national policy. Pollution that cannot be prevented should be recycled; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be employed only as a last resort. Federal agencies comply with executive branch policies for the acquisition and use of environmentally preferable products and services and implement cost-effective procurement preference programs favoring the purchase of these products and services.

EXECUTIVE ORDER 13423

B-60. EO 13423 requires federal agencies to lead by example in advancing the energy, security, and environmental performance of the nation by achieving goals in the areas of—

- **Vehicles.** Increase the purchase of alternative fuel and hybrid, and plug-in, hybrid electric vehicles when commercially available.
- **Petroleum conservation.** Reduce petroleum consumption in fleet vehicles by 2 percent annually through the year 2015.
- **Alternative fuel use.** Increase alternative fuel consumption at least 10 percent annually.
- **Energy efficiency.** Reduce energy intensity by 3 percent annually through fiscal year (FY) 2015 (30 percent by the year 2015).
- **Greenhouse gases.** Reduce energy intensity by 3 percent annually (30 percent by the year 2015) to reduce greenhouse gas emissions.
- **Renewable power.** Ensure that At least 50 percent of current renewable energy purchases must come from new renewable sources (those in service after 1 January 1999).
- **Building performance.** Construct or renovate buildings according to sustainability strategies (resource conservation, reduction, and use; siting; indoor environmental quality).
- **Water conservation.** Reduce water consumption intensity by 2 percent annually through the year 2015.
- **Procurement.** Expand purchases of environmentally sound goods and services, including biobased products.
- **Pollution prevention.** Reduce chemical and toxic material use, and purchase lower-risk chemicals and toxic materials from the top priority list.

EXECUTIVE ORDER 13514

B-61. EO 13423 requires federal agencies to lead by example in advancing the nation's energy security and environmental performance by achieving goals in the areas of—

- **Greenhouse gas emissions.** Establish a percentage reduction target for agency-wide reduction of Scope 1 and 2 greenhouse gas emissions by FY 2020 relative to a 2008 baseline.
- **Agency strategic sustainability performance plan (sustainability pan).**
  - Develop, implement, and annually update an integrated sustainability plan to meet the requirements of EO 13514 (including greenhouse gas emission and petroleum reduction requirements from FY 2011 to FY 2021).
  - Determine the actions required to meet EO 13514 fleet greenhouse gas emission and petroleum reduction requirements. The agency also prioritizes and integrates actions for the strategic planning and budget process and the sustainability plan, which is aligned with the agency budget.
- **Fleet petroleum reduction.** Reduce its annual petroleum consumption by 2 percent each year from a FY 2005 baseline through FY 2020.
- **Electronics management.** Ensure that 95 percent of electronic products purchased must meet Electronic Product Environmental Assessment Tool standards where applicable; enable Energy Star® features on 100 percent of computers and monitors; and reuse, donate, sell, or recycle 100 percent of electronic products using environmentally sound management practices.
- **Environmental management systems.** Implement an environmental management system at the appropriate organizational levels to ensure the use of the environmental management system as the primary management approach for addressing environmental aspects of internal agency operations and activities.

B-62. Unit leaders—

- Ensure that the vehicle fleet is right-sized to the mission location.
- Implement an optimal petroleum reduction strategy.

- Reduce fuel consumption by consolidating and eliminating trip; for example, use video and web conferencing and similar tools.
- Ensure that government-owned, contractor-operated vehicles and government-owned, contractor-occupied facilities comply with EO 13514 and EO 13423 requirements.

Appendix C

Risk Management/Operational Risk Management

RM/ORM is the process of identifying and controlling hazards to conserve combat power and resources. Leaders should integrate environmental considerations into the RM/ORM process by including environmental-related risk and control measures. Commanders must consider risks to mission and personnel (military personnel, support civilian and contract personnel, and local populations). Regardless of enemy actions, hazards may exist in areas with no direct enemy contact and in areas outside enemy influence. This appendix provides examples of environmental-related risks and controls to help leaders integrate environmental considerations, but it is not all-inclusive. Risk decisions are the commander's responsibility. Such decisions are normally based on the next higher commander's guidance in determining an acceptable level of risk for the mission. Except in extreme circumstances, risk decisions should be made at the lowest possible level. Leaders and staff manage risk. Staff members continually look for hazards associated with their areas of expertise; then they recommend controls to reduce risks. Hazards and their resulting risks may vary as circumstances change and as experience is gained. Risk decisions should be based on situational awareness rather than mechanical habit. Leaders and individual military personnel serve as assessors for ever-changing hazards, such as those associated with the environment (climate; visibility; and contaminated air, water, and soil), equipment readiness, individual and unit experience, and fatigue. Leaders should advise the chain of command on risk and risk reduction measures (including those that involve environmental considerations). The HN or local environmental laws, policies, or practices may not be as stringent as U.S. standards and can negatively impact the environment where deployments occur. Local industrial activity, water management, waste management, and other environmental practices may also pose hazards to the mission. These risks should be considered part of the RM/ORM process. Leaders may not be able to change these HN or local policies or practices as part of risk mitigation, but they should consider options to avoid or reduce the risk and the impacts to the mission.

RISK MANAGEMENT PROCESS

C-1. Integrating environmental considerations into the RM/ORM process will identify, assess, and control environmental-related risk arising from operational factors and facilitate decisions that balance that environmental-related risk with mission benefits. JP 3-0 outlines the RM/ORM process and provides the framework for integrated RM/ORM as a routine part of planning, preparing, and executing operational missions and everyday tasks. The steps of the RM process are—

- **Step 1.** Identify hazards.
- **Step 2.** Assess hazards.
- **Step 3.** Develop controls and make decisions.
- **Step 4.** Implement controls.
- **Step 5.** Supervise and evaluate.

C-2. A knowledge of environmental factors is key to planning and decisionmaking. With this knowledge, leaders quantify risks, detect problem areas, reduce the risk of injury or death, reduce property damage, and ensure compliance with environmental laws and regulations. Leaders should conduct risk assessments using

DD Form 2977 *(Deliberate Risk Assessment Worksheet).* (See GTA 05-08-002 for information on completing DD Form 2977.)

ENVIRONMENTAL-RELATED HAZARD IDENTIFICATION

C-3. Leaders identify environmental hazards during the mission analysis. Environmental hazards include activities that may pollute, create negative noise-related effects, degrade archaeological and cultural resources, or negatively affect habitats of threatened or endangered species. Geospatial engineering can help the staff visualize and assess hazards associated with the physical environment. (See table C-1 for common environmental-related hazards identified by environmental media areas.)

Table C-1. Common environmental-related hazards

Environmental Media	*Environmental-Related Hazard*
Air	• Equipment exhaust • Convoy dust • Range fires • Open-air burning, smoke • Pyrotechnics/smoke pots/smoke grenades • Parts washer emissions • Paint emissions • Air conditioner/refrigeration CFC release • Hazmat and HW release or spills
Archaeological/ cultural areas	• Sensitive-area maneuver • Sensitive-area digging • Artifact disturbance or removal • Demolition/munitions effects • Hazmat and HW spills • Sonic booms/prop wash
Noise	• Low-flying aircraft (helicopters) • Demolition/munitions effects • Nighttime operations • Operations near post/camp boundaries or the civilian population • Vehicle convoys/maneuvers • Large-scale exercises
Threatened/ endangered species	• Sensitive-area maneuvers • Demolition/munitions effects, especially during breeding seasons • Individual species disturbance or habitat • Hazmat and HW spills or releases • Poor field sanitation • Improper cutting of vegetation • Coral reef damage

Table C-1. Common environmental-related hazards (continued)

Environmental Media	*Environmental-Related Hazard*
Soil (terrain)	• Maneuver area overuse • Demolition/munitions effects • Range fires • Poor field sanitation • Poor maneuver damage control • Erosion • Troop construction effects • Refueling operations • Hazmat and HW spills • Ecologically sensitive areas (wetlands, tundra) maneuver
Water	• Refueling operations near water sources • Hazmat and HW spills • Erosion and unchecked drainage • Amphibious/water-crossing operations • Troop construction effects • Poor field sanitation • Vehicle washing at unapproved sites
Legend: CFC chlorofluorocarbon HW hazardous waste	

HAZARD ASSESSMENT

C-4. Risk assessment is a three-stage process used to determine the risk of potential harm to the environment. Leaders consider probability and severity in determining risk. Probability is the frequency with which an environmental-related hazard is likely to occur. Severity is the effect that a hazard will have on the mission, human health, and the environment. Probability and severity are estimates requiring individual judgment and a working knowledge of the RM/ORM process and its terminology. (See ATP 5-19 and GTA 05-08-002 for the five degrees of probability for a hazard, the four degrees of severity for a hazard, and how to determine the risk category.)

ENVIRONMENTAL CONTROLS DEVELOPMENT AND DECISIONMAKING

C-5. Controls eliminate or reduce the probability or severity of each hazard, thereby lowering the overall risk to the mission, personnel health, and the environment. Many environmental-related controls are simply extensions of good management, housekeeping, operations security, and leadership practices. Risk reduction controls may include rehearsals, a change of venue, the establishment of procedures, and increased supervision. Controls may consist of one of the categories listed in table C-2, page C-4, which also lists examples.

C-6. A certain amount of risk will always remain, even after practicable risk control measures are in place. Based on the controls developed by leaders, personnel reassess the hazards and determine the residual risk for each hazard. The highest residual risk becomes the overall mission/task risk. This overall mission/task risk requires the commander's attention, and he will decide whether to accept the risk. The commander may direct subordinates to consider additional controls or a change in the COA.

Table C-2. Environmental-related controls

Control Type	*Environmental-Related Control Examples*
Educational	• Conducting unit environmental-awareness training • Conducting an environmental briefing before deployment • Performing tasks to environmental standards • Reviewing environmental considerations in AARs • Reading unit environmental SOPs and policies • Conducting spill prevention training • Publishing an environmental annex/appendix to the OPORD/OPLAN
Physical	• Providing spill prevention equipment • Establishing a field trash collection point and procedures • Establishing a field satellite accumulation point and procedures • Policing field locations • Practicing good field sanitation • Filling in fighting positions • Posting signs and warnings for off-limits areas • Installing secondary containment for storage tanks or waste accumulation points • Installing berms and barriers between incompatible hazmats
Avoidance	• Maneuvering around historical and cultural sites • Establishing refueling and maintenance areas away from wetlands and drainage areas • Crossing streams at approved sites • Preventing pollution • Limiting noise in habitats of endangered and threatened species • Avoiding refueling over or nearby water sources • Curtailing live vegetation use for camouflage
Legend: AAR — after action review OPLAN — operation plan OPORD — operation order SOP — standard operating procedure	

ENVIRONMENTAL CONTROLS IMPLEMENTATION

C-7. Implementing controls requires informing subordinates of the risk control measures. To do this, a leader defines the controls by stating the way in which each control will be implemented and assigns responsibility for the implementation. For example, if the control measures are for a fuel spill hazard, a leader ensures that operators are properly trained to dispense fuel, that appropriate spill equipment is available, and that these controls are in place before an operation.

C-8. A leader must anticipate environmental requirements and incorporate them as part of long-, short-, and near-term planning. The key to success is identifying the who, what, where, when, and how aspects of each control.

SUPERVISION AND EVALUATION

C-9. Leaders continuously monitor controls throughout an operation to ensure their effectiveness and modify them as required. To this end, leaders—

- Make on-the-spot corrections and evaluate individual and collective performances.
- Hold those in charge accountable.
- Require the performance of tasks that are applicable to environmental standards.
- Ensure that the after action review includes an evaluation of environmental-related hazards, controls, Soldier and Marine performance, and leader supervision.
- Ensure that environmental lessons learned are developed for use in future operations.

C-10. Each control identified and implemented must be evaluated to determine if the control was adequate for the associated risk. This evaluation should include feedback provided to the Soldiers and Marines associated with the risk.

SUMMARY

C-11. The ability of a leader to identify hazards, including environmental-related hazards, is key. The earlier the environmental-related risk is identified, the more efficient and cost-effective it is to implement control measures. Integrating environmental considerations into the RM/ORM process helps enhance the mission, protect the health of personnel and adjacent populations, and limit liability for environmental contamination or damage.

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Appendix D

Environmental Appendix to the Engineer Annex for Army Operation Plans and Operation Orders

The following annex lists typical environmental considerations for Army OPLAN, concept plan, and OPORD development and execution. For small units (battalions and companies), the format will provide a guide for finding necessary information for developing their own orders. For larger units (brigade and division), the format provides an example for developing a similar appendix. For divisions and corps operating as a joint task force, the joint planning process format is followed. Ensure that current examples are verified with these current references.

ENVIRONMENTAL ORDERS

D-1. Army orders normally include environmental considerations in the coordinating instructions if they are not included in a separate appendix within the engineer annex. When specific command procedures dictate, staff officers include some environmental considerations in logistics and medical annexes. Operations must comply with federal law to the extent possible.

D-2. Figure D-1; figure D-2, page D-5; figure D-3, page D-6; figure D-4, page D-6; and figure D-5, page D-7 are sample appendixes to annex G (Engineer) of an OPLAN/OPORD. The sample in figure D-1 assumes an overseas deployment in which the vast majority of federal environmental law is not applicable; however, the current SOFA or rules of engagement provide the guidance for environmental and cultural affairs considerations during the operation. The following reports, (found in FM 6-99) should be attached, as needed, to the order as enclosures:

- ECR—Report Number E035.
- Spill report—Report Number S050.

[CLASSIFICATION]

APPENDIX 6 (ENVIRONMENTAL CONSIDERATIONS) TO ANNEX G (ENGINEER) TO OPLAN/OPORD [NUMBER] [CODE NAME] [ISSUING HEADQUARTERS]

1. **References:**
   a. JP 3-34.
   b. DODI 4715.05.
   c. DODI 4715.08.
   d. Applicable country-specific FGS.
   e. DOD 4715.05-G (or the in-theater equivalent).
   f. Foreign nation agreements, local operating standards if different from FGS, command special instructions, SOPs, policies, guidance for environmental considerations, or references pertaining to significant environmental factors in the AO.
   g. Unit SOPs.
2. **Time zone:** Central.

[CLASSIFICATION]

Figure D-1. Sample appendix 6 (environmental considerations) to annex G (engineer)

[CLASSIFICATION]

3. **Situation.** Include information affecting the functional area that paragraph 1 of the OPLAN/OPORD does not cover or that needs to be expanded.

a. **Area of interest.** Refer to annex B as required.

b. **AO.** Refer to appendix 2 to annex C.

(1) **Terrain.** List critical terrain aspects that impact functional-area operations.

(2) **Weather.** List critical weather aspects that impact functional-area operations.

c. **Enemy forces.** Refer to the OPORD or to the environmental annex/appendix to the OPORD. State environmental factors or conditions that could adversely affect successful mission completion, and/or the health or welfare of friendly forces and the indigenous population.

(1) List known and templated significant environmental hazards. If the information is large and specific enough, this list may become an overlay.

(2) List significant enemy capabilities that may use environmental manipulation as a means to impede friendly forces or jeopardize long-term objectives.

(3) State the expected employment of enemy functional-area assets based on the most probable COA.

d. **Limiting factors.** Outline limitations that are due to a lack of foreign access, time, operations security, foreign nation rules or sensitivities, public affairs (foreign and domestic), legal considerations, and resources.

e. **Friendly forces.** Refer to an OPORD or an annex to an OPORD. State the concept of environmental operations for the higher headquarters. This concept covers relationships between environmental considerations and the supported OPORD, OPLAN, concept plan, or support plan.

f. **Interagency, intergovernmental, and nongovernmental organizations.** Identify and describe other organizations in the AO that may impact the conduct of functional-area operations or implementation of functional area-specific equipment and tactics.

g. **Civil considerations.** Refer to annex K as required.

h. **Attachments and detachments.** Refer to the OPORD or an annex to the OPORD (annex L if it is a joint planning OPORD). Identify special environmental teams or personnel.

i. **Assumptions.** List any functional area specific assumptions that support the annex development.

2. **Mission.** State the commander's concept for environmental actions. This concept answers the who, what, when, where, how, and why of the relationship between environmental considerations and the supported OPORD, OPLAN, concept plan, or functional plan. Normally the mission will be to protect, as much as practical, the health and welfare of U.S. personnel and the indigenous population from environmental threats during the operation to reduce long-term, adverse impacts on the economy and public health and to reduce U.S. costs and liabilities at completion of the operation.

3. **Execution.**

a. **Scheme of support.** Summarize the commander's concept of environmental actions required to support the OPLAN, OPORD, or concept plan. Identify issues and actions that should be addressed during all phases of the operation. Identify the desired environmental end state.

(1) **Operational effect on the environment.** List critical resources that should be protected during the operation (forests, croplands, water and sewage treatment facilities). Describe factors that should be considered by subordinate unit commanders when making collateral damage decisions.

(2) **Environmental resource effect on the operation.** List environmental conditions or factors that could impede successful completion of the operational mission or jeopardize the desired end state. Identify possible targets of environmental sabotage or terrorism.

(3) **Compliance requirements.** State regulatory, legal, and foreign nation compliance requirements that will apply and under what conditions they may be applicable (combat versus nonhostile, stability operation, or support operation; geographical differences; or event-triggered changes).

(4) **Phased compliance.** Describe in general terms the major environmental concerns and requirements during the different phases of the operation. Specify transition tasks and measures and the appropriate initiating control measures.

[CLASSIFICATION]

Figure D-1. Sample appendix 6 (environmental) to annex G (engineer) (continued)

[CLASSIFICATION]

b. **Tasks to subordinate units.** List functional-area tasks assigned to specific subordinate units not contained in the base order. It will be unusual to have an entry here. If it is important enough to task a given maneuver element to accomplish an environmental task, this tasking must be identified in paragraph 3b of the base order. If including tasks to subordinate units—

(1) List functional-area tasks that specific maneuver elements must accomplish and that the base OPORD does not contain.

(2) List functional area tasks the functional area units supporting maneuver elements must accomplish only, as necessary, to ensure unity of effort.

c. **Coordinating instructions.** Outline key coordination that must be accomplished by two or more units and not routinely covered in unit SOPs. Pay particular attention to coordination requirements with higher headquarters, the Office of the Secretary of Defense, and other federal agencies. Unit responsibilities and requirements may vary according to location, activity, or phase of the operation; attach a matrix that specifies various levels of environmental protection. Environmental responsibilities of the surgeon and the logistics officer may be included here if not incorporated in their respective annexes.

(1) **Environmental reconnaissance.** Identify general responsibilities here.

(2) **Environmental vulnerabilities.** Specify general responsibilities for intelligence collection, identification, and response planning for environmental threats to mission success.

(3) **Environmental assessments.** List conditions under which environmental assessments may be required, conditions when assessments may be sensible even when not required by law or order, and responsibilities for conducting and approving assessments (See Tab A and Tab B).

(4) **Occupation of base camps and rear assembly areas.** Occupation of base camps or rear assembly areas, and subsequent operations, will be accomplished incorporating environmental considerations when feasible and commensurate with the operational situation.

(a) An EBS is conducted to determine the preexisting condition of the site and its ecological resources. Direct the conduct of ECRs based on the duration of stay at a given site (to give interim snapshot condition reports) and in response to environmental incidents.

(b) Before departure or abandonment, units will ensure the performance of an ESCS and ESCR to document the final status/condition of the site.

(5) **Facilities.**

(a) **Environmental conditions surveys and reports.** Specify conditions, formats, responsibilities, and reporting for EBS, interim ECRs, ESCSs, and ESCR (see Tab C).

(b) **Operating procedures.** Provide guidance for environmental considerations and services in established facilities.

(c) **Closure.** Specify closure activities (documentation of the location of latrines/heads, HW sites, landfills, hospitals, maintenance activities, POL storage, and other environmentally sensitive activities using the ESCS and ESCR. Publication of these procedures may be delayed until a more appropriate phase of the operation.

(6) **Construction.** When planning and conducting general engineering operations, military designers should consider the project's effect on the environment, and the applicable U.S. and foreign nation agreements and applicable environmental laws and regulations. (Soil erosion/runoff control procedures and other common sense procedures will be applied to the maximum extent possible in any case.) (See Tab A).

(7) **Claims.** Under the provisions of a specific article of the agreement between the United States and the HN, claims by local national individuals or organizations for damages arising from spills will be handled through established claims procedures.

4. **Sustainment**.

a. Identify those environmental planning factors that, although not mandated as law or regulation, will support successful execution of the OPLAN, OPORD, concept plan, or functional plan in all phases and protect the health and safety of U.S. forces, allied forces, and noncombatants.

(1) Development, use, and protection of potable water sources.

(2) Solid and liquid waste management.

[CLASSIFICATION]

Figure D-1. Sample appendix 6 (environmental) to annex G (engineer) (continued)

[CLASSIFICATION]

(a) **Solid waste.** Requirements include disposal of solid waste (includes sludge); approval process for the use of landfills or approved incinerators; and protection of solid-waste transportation, transfer, and disposal facilities.

(b) **Human waste.** Handle storage and disposal of human waste in a way that best supports the mission and is most protective of human health. This factor is particularly significant in densely populated areas where basic public health services may be disrupted and standard field sanitation procedures are inadequate.

(c) **Gray water.** At locations lacking sewage treatment facilities, the preferred method for handling gray water is collection and proper disposal via wartime foreign nation support. If these preferred options are not achievable during contingency operations or wartime, effluents from showers/bathing facilities will be located downstream of water sources. Construction of temporary drainage facilities must ensure proper drainage of gray water runoff that precludes pooling. Measures will be taken to prevent creating pest breeding areas.

(d) **Medical waste.** This section includes procedures and locations for storage and disposal of medical waste under normal and emergency conditions, and the responsibilities and procedures for approval of disposal methods.

(3) Hazmat/HW management.
(a) HW management.
(b) Hazmat management.
(c) Abandonment.
(d) Spill prevention/control procedures.

(4) **Ecosystem protection.** Protect special flora and fauna, wetlands, forests, and croplands and seek approval for the clearing of large areas and approved methods and chemicals, if any, for clearing.

(5) **Air and noise emissions.** Give special consideration to preventing air and noise emissions that are normally confined to theater rear areas or to security, support, or humanitarian missions.

(6) **Archaeological and historical preservation.** State the requirements to minimize damage to historical sites and buildings, monuments, and works of art. A separate overlay may be required.

b. **Logistics.** Address any necessary guidance for administering the environmental effort by the commander. Provide guidance for logistics support to environmental support and compliance.

(1) **Hazmat management.** Specify unique control measures used in supply, storage, transportation, and retrograde to reduce and regulate the use of hazmat.

(2) **Environmental considerations and services locations.** Provide, when appropriate, the location of landfills, incinerators, HW collection facilities, water and wastewater treatment plants, watershed protection areas, ecologically sensitive areas, contaminated areas, potentially dangerous industrial facilities, and other points of environmental sensitivity or interest to the command. Include cultural resources if not noted elsewhere.

5. Command and control.

a. **Command.** Identify the executive agent for environmental functions in each command post location. Specify responsibilities and levels for issuing guidance and waivers.

b. **Liaison requirements.** State the functional area liaison requirements not covered in the base order.

c. **Signal.** List environmental reporting instructions not specified in unit SOPs; identify the required reports, formats, times, and distribution lists.

ACKNOWLEDGE: Include only if attachment is distributed separately from the base order.
[Authenticator's last name]
[Authenticator's rank]
The commander or the coordinating staff officer responsible for the functional area may sign attachments.

Tabs:
A. Environmental Assessments.
B. Environmental Assessment Exemptions.
C. Environmental Conditions Surveys and Reports (EBS, ECRs, ESCS, and ESCR).
D. Base Camp Closure Standards. (To be published)
E. Electronic Environmental Report Message Formats. (See FM 6-99.)

[CLASSIFICATION]

Figure D-1. Sample appendix 6 (environmental) to annex G (engineer) (continued)

[CLASSIFICATION]

DISTRIBUTION: Show only if distributed separately from the base order or higher-level attachment.

[CLASSIFICATION]

Legend:

AO	area of operations
COA	course of action
DOD	Department of Defense
DODI	Department of Defense instruction
EBS	environmental baseline survey
ECR	environmental conditions report
ESCR	environmental site closure report
ESCS	environmental site closure survey
FGS	final governing standards
FM	field manual
HN	host nation
HW	hazardous waste
JP	joint publication
OPLAN	operation plan
OPORD	operation order
POL	petroleum, oils, and lubricants
SOP	standard operating procedure
U.S.	United States

Figure D-1. Sample appendix 6 (environmental) to annex G (engineer) (continued)

[CLASSIFICATION]

TAB A (ENVIRONMENTAL ASSESSMENTS) TO APPENDIX 6 (ENVIRONMENTAL CONSIDERATIONS) TO ANNEX G (ENGINEER) [CODE NAME] [ISSUING HEADQUARTERS] OPLAN [NUMBER]

1. **References:**
   a. DODD 3000.10 and DODD 4715.1E.
   b. JP 3-34.
   c. Applicable country-specific FGS.
   d. DOD 4715.05-G or in-theater equivalent.
   e. Engineer support plan in AOR.

2. **Purpose.** State the regulatory, legal, troop protection, financial, or other reasons for conducting an environmental assessment in conjunction with the supported operation.

3. **Background.** State the purpose and concept of the operation and a brief explanation of the need for environmental assessments for successful mission completion.

4. **Description of actions.** State the assessment types and conditions under which actions are required. When major actions are included in the operation, indicate if an exemption applies (Tab B). If no exemption is being invoked, state the assessments types to be prepared (environmental impact statement, environmental statement, or environmental report). Indicate the requirements for a facility EBS.

5. **Exemption or exclusion.** Describe the basis for exemption (Tab B), and determine and document its applicability to the operation. Seek approval from a higher authority according to Reference A, if applicability is not clearly stated.

6. **Analysis of options or alternatives.** If an environmental report, environmental statement, or environmental impact statement is required, document the actions and alternatives that were considered in planning the supported operation to minimize environmental impact.

Figure D-2. Sample appendix 6 (environmental) to annex G (engineer), Tab A

[CLASSIFICATION]

7. **Environmental setting of the operation.** (This and the following paragraphs are useful for scoping/tiering analyses.) Describe or provide references for the description of the general environmental conditions of the operational area (vegetation, climate, wildlife, archaeological and historical sites, water quality, and air quality).

8. **Environmental impact of the operation.** Describe the impact on the topography, vegetation, water quality, air quality, ecosystem functioning, archaeological and historical sites, wildlife, socioeconomic and political end state, land use, safety and public and occupational health, and hazmat and HW use and disposal.

[CLASSIFICATION]9. **Mitigation and monitoring.**

a. **Requirements.** Describe actions and assign responsibilities for mitigation and monitoring of environmental impacts of the supported operation.

b. **Compliance responsibilities.** State applicability and responsibility for implementation of the OEBGD or FGS during the posthostilities phase.

[CLASSIFICATION]

Legend:

AOR	area of responsibility
DOD	Department of Defense
DODD	Department of Defense directive
EBS	environmental baseline survey
FGS	final governing standards
HW	hazardous waste
JP	joint publication
OEBGD	overseas environmental baseline guidance
OPLAN	operation plan

Figure D-2. Sample appendix 6 (environmental) to annex G (engineer), Tab A (continued)

[CLASSIFICATION]

TAB B (ENVIRONMENTAL ASSESSMENT EXEMPTIONS) TO APPENDIX 6 (ENVIRONMENTAL CONSIDERATIONS) TO ANNEX G (ENGINEER) [CODE NAME] [ISSUING HEADQUARTERS] OPLAN [NUMBER]

1. **Reference.** DODD 3000.10 and DODD 4715.1E.

2. **Purpose.** State the basis for invoking or requesting an exclusion or exemption from environmental assessment for the supported operation.

3. **Background.** State facts identified in the planning process that support an exemption from the requirement of environmental analysis and documentation.

4. **Discussion.** Provide factual rationale for invoking an exemption. Assign responsibility for making exemption determination.

5. **Determination.** Identify and document the authority making the exemption determination.

[CLASSIFICATION]

Legend:

DODD	Department of Defense directive

Figure D-3. Sample appendix 6 (environmental) to annex G (engineer), Tab B

[**CLASSIFICATION]**

TAB C (ENVIRONMENTAL CONDITIONS SURVEYS AND REPORTS) TO APPENDIX 6 (ENVIRONMENTAL CONSIDERATIONS) TO ANNEX G (ENGINEER) TO XXTH MECHANIZED DIVISION OPLAN [NUMBER]

1. **References.** DODD 3000.10 and DODD 4715.1E.

2. **Purpose.** State the purpose of the environmental conditions surveys and reports.

3. **Environmental Conditions Surveys and Reports Requirement.** State the requirement for performing an EBS, ECRs, ESCSs, and ESCR, the time by which they are to be completed, and the responsibilities for conducting surveys and reporting.

4. **Applicability.** Describe conditions under which the EBS is required or may be waived.

[**CLASSIFICATION]**

Figure D-4. Sample appendix 6 (environmental) to annex G (engineer), Tab C

[CLASSIFICATION]

5. **Description.** Enter the executive summary from the reports and attach a copy of the reports at enclosures listed below or provide the information to access it, if needed.

6. **Support.** List military or contractual support for conducting the environmental conditions surveys and reports. This list may include training for unit officers, preventive medicine personnel, chemical reconnaissance platoons, Logistics Civil Augmentation Program, and USACE support.

7. **Reporting.** Describe survey or report formats, reporting chain, and disposition.

Enclosures:

1. EBS.
2. ECR.
3. ESCSs.
4. ESCR.
5. Other associated maps, photographs, and digital data.

[CLASSIFICATION]

Legend:

DODD	Department of Defense directive
EBS	environmental baseline survey
ECR	environmental conditions report
ESCS	environmental site closure survey
ESCR	environmental site closure report
OPLAN	operation plan
USACE	United States Army Corps of Engineers

Figure D-4. Sample appendix 6 (environmental) to annex G (engineer), Tab C (continued)

TAB D (BASE CAMP CLOSURE STANDARDS) TO APPENDIX 6 (ENVIRONMENTAL CONSIDERATIONS) TO ANNEX G (ENGINEER) TO XXTH MECHANIZED DIVISION OPLAN [number] (U)

Check with MACOM or Theater level environmental staff for guidance.

Legend:

MACOM	major command
OPLAN	operation plan

Figure D-5. Sample appendix 6 (environmental) to annex G (engineer), Tab D

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Appendix E

Unit Environmental Standard Operating Procedures

This appendix provides a sample Army unit environmental SOP that outlines the command environmental program within a unit. Unit environmental SOPs are described in figure E-1. Due to differing local or HN requirements, these SOPs must be modified based on consultation with unit higher headquarters and the local/base camp environmental staff. This sample SOP is divided into six sections (maintenance, supply, CBRN, communication, field mess operations, and operations/training), which corresponds with a typical unit organization. Units should extract the information in these sections and incorporate them into the appropriate section of their SOP. Units may also use these samples as a guide to develop stand-alone environmental SOPs. While this approach elevates the visibility and importance of environmental issues and procedures, unit personnel in specific functional areas may overlook the information without adequate command emphasis. The environmental SOP should reflect requirements (FGS, base camp, theater regulations) as they pertain to the daily unit operations. The SOP should emphasize sustainable practices and integrate environmental considerations into daily operations and should be flexible enough to accommodate predeployment training and deployment environmental considerations. Additional information for specific requirements during deployments can be found in the mission OPORD/OPLAN or specific base camp SOPs.

APPENDIX [number] TO ANNEX [letter]
ENVIRONMENTAL STANDARD OPERATING PROCEDURES

Unit Designation
Mailing Address/Location
Date

1. **References.**
Base Camp Environmental SOP, Higher Headquarters Environmental SOP, and AR 200-1.
2. **Purpose.**
a. This appendix standardizes procedures for integrating environmental considerations into unit operations and to ensure compliance with applicable federal, international, local, and HN laws and regulations. Failure to adhere to this SOP may result in the following:
(1) Endangerment of personnel health and safety.
(2) Citations by assessing agencies.
(3) Contamination of water, soil, and air.
(4) Hostility from surrounding communities,
(5) Inefficient use of resources (manpower, equipment, and funds),
(6) Increased liability of the U.S. government to HN.
(7) Delay or halt in mission accomplishment.
b. This appendix is applicable to assigned or attached personnel and governs the environmental aspects of unit activities.

Figure E-1. Sample unit environmental SOP

3. **Responsibilities.**
   a. The commander—
      (1) Establishes a unit hazmat and HW management policy.
      (2) Ensures that personnel comply with the provisions of referenced SOPs, regulations, and public law.
      (3) Ensures that the environmental officer, the hazmat/HW coordinator, and senior personnel have received the proper training and that they, in turn, train their subordinates.
      (4) Ensures that personnel exposed to hazmat in the course of their work receive initial training within 90 days of assignment concerning the hazards to which they are exposed and the precautions required to protect themselves in the work environment. These personnel must also receive annual refresher training.
      (1) Ensures that unit personnel receive initial environmental awareness training within 90 days of assignment and refresher training annually thereafter.
      (2) Ensures that unit personnel have received HAZCOM training (OSHA requirement).
      (3) Ensures that environmental training is properly documented and records are filed in the unit operations/training office.
      (4) Ensures that a self-assessment program is in effect for the unit.
   b. The executive officer—
      (1) Serves as the commander's eyes and ears for environmental matters.
      (2) Conducts periodic unit self-assessment surveys.
      (3) Oversees environmental integration into staff operations.
   c. The environmental officer and HW/hazmat (MOS 9954) Marine—
      (1) Provides advice on environmental compliance to the commander.
      (2) Serves as a link between the unit commander and higher/installation headquarters environmental staff.
      (3) Performs other duties as outlined in this manual.
   d. The maintenance officer—
      (1) Serves as the unit hazmat/HW coordinator.
      (2) Serves as the unit spill response coordinator.
      (3) Ensures accountability for hazmat and HW.
      (4) Ensures that hazmat and HW are stored and disposed of properly.
      (5) Ensures that hazmat and HW spills are immediately contained and reported to the fire department and the base camp environmental office.
      (6) Reports nonfunctional/inoperative treatment/collection facilities (oil/grease interceptors, floor drains, catch basins, and waste tanks) to the base camp environmental office via the unit environmental officer.
   e. The motor sergeant—
      (1) Establishes and maintains an HW accumulation (HW less than 55 gallons) area with proper separation of incompatible products.
      (2) Inspects HW accumulation areas weekly and documents results.
      (3) Ensures that leaking containers are overpacked and/or the uncontaminated contents containerized in functional containers.
      (4) Ensures that only waste oil is placed in the waste oil tank or drums.
      (5) Ensures that the waste oil tank or drums are pumped out when full or 90 days after previous pumping, whichever occurs first (check with base camp environmental coordinator).
      (6) Ensures that the washrack oil/water separator is clean and serviceable.
      (7) Maintains an inventory log of stored waste products (including the exact location of each container).
      (8) Labels HW containers properly as they are put in service and ensures turn-in and delivery to the DRMO or contractor and pick up within 90 days of accumulation start date (coordinate with the environmental management office).
   f. The unit supply sergeant—
      (1) Initiates and processes turn-in documents for the turn-in of hazmat and HW.
      (2) Maintains a suspense file and validates receipt copies of turn-in documents for scrap, hazmat, and HW shipped to the DRMO or the appropriate agency.

Figure E-1. Sample unit environmental SOP (continued)

g. The prescribed load list clerk—requisitions mercury and lithium batteries with recoverability code "A" only upon turn-in of a like item and quantity.

h. The CBRN NCO—

(1) Inspects all possible HTH and STB accumulation sites (CONEXes, wall lockers, and POL accumulation area) to ensure that these products have been properly turned over to DOL/supply for consolidated storage.

(2) If the unit is temporarily in possession of decontamination agents HTH or STB:

(a) Ensures that HTH and STB are stored in separate locations.

(b) Inspects containers monthly for leakage, and records results. Arranges for leakers to be overpacked and turned in to the DRMO or appropriate agency.

(c) Properly disposes of CBRN-related training material that is classified as hazardous according to base camp directives and DRMO policies.

i. Mechanics—

(1) Place HW in properly designated containers.

(2) Never place HW in a dumpster; this is an illegal disposal.

(3) Promptly report leaks/spills to the motor sergeant and/or maintenance officer. Report spills directly to the fire department and base camp's environmental office, if necessary, to ensure prompt response.

(4) Wear proper protective clothing when handling hazmat or HW.

(5) Keep hazmat and HW accumulation containers closed except to add or remove product.

j. Medics—

(1) Segregate medical waste from nonmedical waste at the point of generation.

(2) Place medical waste in designated containers.

(3) Wear proper protective clothing when handling medical waste.

(4) Store collected medical waste in a secure manner/area.

k. Individual Soldiers and Marines—

(1) Comply with the unit's environmental requirements and the base camp's SOP.

(2) Maintain environmental awareness throughout daily activities.

(3) Provide recommendations to the chain of command on techniques to ensure better use of resources and/or compliance with environmental regulatory requirements.

(4) Identify the environmental-related risks associated with individual and team tasks and implement control measures to minimize risks.

(5) Support recycling, reduction, and reuse programs.

(6) Report hazmat and HW spills immediately to (phone number for spill reporting).

(7) Make sound environmental decisions in the absence of a supervisor or specific command guidance by considering the following:

(a) Prior training.

(b) General guidance from the chain of command.

(c) Concept of right and wrong.

(d) Common sense.

(e) Environmental ethic.

4. **Safety.**

a. **SDSs.** SDSs provide critical information for safeguarding human health and protecting the environment. This information includes the hazardous characteristics of the substance, the appropriate PPE, spill response procedures, signs and symptoms of overexposure, and first aid procedures. SDSs can be obtained through unit supply channels and should be maintained at each location where hazmat is being used. It is important to note that SDSs are material- and manufacturer-specific, which means that each brand of a chemical has a different SDS.

b. **PPE.** PPE is the primary means of safeguarding human health when handling hazmat/HW. The most important aspect when choosing the appropriate PPE for a given operation is the hazardous characteristics of the substance. Always refer to the manufacturer's SDS before choosing the appropriate PPE. If the prescribed PPE cannot be obtained during a field or contingency operation, field-expedient PPE should be used to help protect Soldiers and Marines when handling hazmat/HW or in the event of a spill. Leaders ensure that their Soldiers and Marines have the appropriate PPE when exposed to hazmat/HW during handling. Recommended field-expedient PPE is listed below:

Figure E-1. Sample unit environmental SOP (continued)

Hazmat/HW stream	Field-expedient PPE
1. Fuel products	1. Field gloves, goggles, and wet weather gear
2. Oil products/lubricants	2. Field gloves and goggles
3. Antifreeze	3. Field gloves and goggles
4. Acid batteries	4. Double-lined field gloves, goggles, and wet weather gear
5. Medical waste	5. Field gloves, goggles, and wet weather gear
6. Pesticides	6. Consult the SDS and preventive-medicine information

Note. Field-expedient PPE should only be worn when the required PPE is not available, since it does not provide the manufacturer recommended protection level. Field-expedient PPE used for handling hazmat and HW should not be reused for normal operations.

SECTION 1–MAINTENANCE

1. **General.**
   a. Select maintenance activity sites so that POL-contaminated water will not enter a storm drain.
   b. Conduct the following activities daily:
      (1) Check the level of used oil in storage tanks. Schedule for tanks to be picked up when 3/4 full.
      (2) Clean foreign material from drip pans and aboveground oil tank screens.
      (3) Empty refuse barrels when 3/4 full to prevent overflows.
   c. Procure, store, and use only those chemical products specifically authorized by the appropriate TM or lubrication order for the level of maintenance performed.
   d. Keep SDSs for chemicals, solvents, and materials used in work areas in a file that is readily accessible to personnel who work there. Brief personnel on chemical hazards, protective clothing requirements, first aid, and spill response before they use hazardous chemicals.
   e. Use products that are safe and biodegradable, when possible.
   f. Properly label, segregate, and store hazmat.
2. **Maintenance bays.**
   a. Conduct maintenance washing/steam cleaning at the motor pool washrack—not in the maintenance bay. (Maintenance cleaning in the bays will be authorized only during extended, below freezing temperatures that interfere with the vehicle maintenance mission [applicable only if equipped with an oil/water separator].)
   b. Do not wash heavily soiled and/or oily maintenance bay floors with solvent or other unauthorized material. Clean up oil and fuel with dry-sweep or rags only. Collect dry-sweep and dirt in nonleaking containers as HW for disposal through the DRMO or appropriate agency.
   c. Confine solvent use to solvent washing machines that meet the National Fire Prevention Association's safety regulation standards. Obtain approval for solvent use, other than mineral spirits, from the base camp environmental office.
   d. Ensure that solvent washing tanks have lids that remain closed when not in use.
   e. Do not sweep or dump trash, garbage, nuts, bolts, and other solid waste into floor drains or mix with used dry-sweep. Put such items into covered, leak-proof containers.
   f. Empty containers into dumpsters, as needed, to prevent spillover.
   g. Place drip pans under points of leakage on vehicles with known seeps and leaks to preclude ground contamination or discharges into wastewater collection systems. Drain water from drip pans daily and dispose of through an oil separator.
   h. Use the exhaust ventilation system when a stationary vehicle is running inside the maintenance bay.
   i. Keep catch buckets in floor drains designed for them. Inspect and empty dry-sweep and trash daily. In bays not equipped with oil and water separators, keep floor drains permanently closed if hazmat/HW are handled or stored there.
3. **Grease racks and pits.**
   a. Use approved used oil tanks to collect and subsequently recycle used oil. (Grease racks and maintenance or inspection pits are designed for oil change and vehicle lubrication only.)
   b. Introduce only uncontaminated used motor oil into the used oil tanks. Use separate containers for hydraulic, transmission, and brake fluids. Do not place solvent, fuel, water, antifreeze, dirt, dry-sweep, hardware, or trash in used oil tanks.
   c. Dispose of used oil, transmission, and fuel filters in normal trash containers after draining for 24 hours and double bagging in plastic. (Units/base camps should consider the purchase of equipment for pressing oil from filters and then recycling the metal if feasible for operation.)
   d. Mark and position containers for new and used dry-sweep at the grease rack to clean up spills or leaks.
   e. Keep floor of the grease rack and the immediate surrounding area free of POL buildup.

Figure E-1. Sample unit environmental SOP (continued)

4. **Washracks.**
   a. Washracks should have an oil and water separator even if only a field-expedient one separator. Use field-expedient washracks for light exterior washing only. Wash extremely soiled vehicles at the base camp central vehicle wash facilities.
   b. Hot water pressure washers are effective for cleaning without the use of cleaners, solvents, or soaps. Check with base camp environmental office to see if there are authorized cleaners for use in washing activities, since cleaners will drain into the sanitary sewer. Post readable signs to indicate whether authorized cleaners, solvents, or soaps may be used and which specific ones are authorized.
   c. Do not use portable steam cleaners or clean engines at washracks. These activities cause the oil to suspend in the water and the separator to function improperly. Only use steam cleaners in designated areas.
   d. Do not pour POL products, solvents, antifreeze, or other regulated substances into washrack drains.
   e. Position trash containers at washracks for disposal of refuse generated during the washing process.
   f. Do not sweep dirt and trash resulting from washing vehicles into the washrack or pile trash along the perimeter. Place trash in proper containers for proper disposal. Report quantities of dirt in excess of what can reasonably be placed in a trash container to the base camp for disposal.
   g. To prevent pooling and possible discharge into storm drains, immediately discontinue washing if a washrack drain becomes clogged. Notify a supervisor to call in a work order request immediately. Maintain washrack as out of service until repairs are made.
   h. The motor sergeant will do the following on a daily basis:
      (1) Check for leaking water hydrants and report leaks to the base camp management staff.
      (2) Check for proper policing of the washrack, and ensure that the area is free of trash, oil-soaked rags, and soil/sand.
      (3) Inspect drains and sand traps to ensure proper operation of the washrack drainage system. Call the base camp management staff if plugged.
      (4) Inspect oil-water separator for proper operation.
5. **Parts/material requisitioning and storage areas.**
   a. Requisition the minimum quantity required for mission accomplishment.
   b. Ensure that recoverability codes are used when applicable.
   c. Keep a copy of the applicable SDS for each hazmat on hand in a binder in the parts storage area.
   d. Label and segregate hazmat from nonhazardous items.
   e. Make special indications for materials that have shelf life considerations.
   f. Consider alternative, nonhazardous substitutes when processing a request for hazmat. Check with the base camp environmental office for suggestions.
6. **POL storage areas.**
   a. Store POL products with secondary containment. Construct berms 1 1/2 times the volume of the largest container ("must contain the contents of the single largest tank plus sufficient freeboard for precipitation") stored in the storage area to preclude spillage outside the immediate area. Obtain exceptions to this policy from the base camp environmental office.
   b. Store hazmat in a location protected from the elements to maintain container integrity (to prevent rusting and protect labels from fading).
   c. Inspect containers and labels weekly for leaks and incomplete/unreadable or out-of-date labels. Stop leaks in containers (overpack the container or place the contents in a nonleaking container). Maintain legible labels to reflect actual container contents.
   d. Maintain an inventory of POL products. Keep SDSs on hand for any hazmat present.
   e. Use POL and other hazmat stock on a first-in, first-out basis.
   f. Do not tip a drum on its side to issue POL products outside the POL storage area. Use transfer pumps (preferred method) for dispensing POL products.
   g. Place a drip box or pan under the supply valve when the drum is tipped on its side. Line boxes and pans with absorbent pads and maintain on a regular basis. Clean up spillage immediately using dry-sweep in areas with concrete floors.
   h. Immediately report spills of any quantity that enter the environment (soil, water, or drain) to the unit environmental officer and the appropriate base camp officials. (See Tab A.)
   i. Keep used oil free of contamination (water, dry-sweep, hardware, trash, solvent, antifreeze), and store only in approved used oil aboveground storage tanks.
   j. Use separate containers to store used brake fluid, solvents, and hydraulic and transmission oils. (Should mixing of waste streams occur, the product becomes "waste contaminated with an unknown substance" and will require analysis by the DRMO or appropriate agency before disposal.)

Figure E-1. Sample unit environmental SOP (continued)

k. Contact DRMO for pumping or turn-in, whichever applies, when used oil tanks/barrels are 3/4 full. (Units may be required to go through the base camp environmental management office, who will contact the DRMO or appropriate agency.)

l. Discontinue accumulation of used oils if leaks in storage containers are detected. Immediately report leaks to the unit environmental officer and the base camp environmental management office.

m. Obtain approved containers from the DRMO or appropriate agency for proper disposal of contaminated dry-sweep and other accumulated HW. Clearly mark containers for proper waste disposal.

n. Dispose of used filters for oil, transmission, and fuel as normal trash after draining for 24 hours and double bagging in plastic. (Units/base camps should investigate whether the purchase and use of equipment for pressing oil from filters and then recycling the metal is feasible.)

o. Permanently close floor drains in maintenance areas where hazmat/HW are handled or stored and provide for secondary-containment, single-wall containers. Do not store hazmat near sanitary or storm sewer drains. Immediately report any amount of POL spillage entering a floor or storm drain to the unit environmental officer and the base camp environmental management office.

p. Place each hazmat container of 5 gallons or more accumulation capacity in a POL shed or portable secondary containment device. (If these storage means are not available, the storage area will be bermed to contain 1 1/2 times the largest container volume in the event of a spill.)

7. **Fuel dispensing and storage area.**

a. Two personnel perform the operation when filling containers with fuel—one person runs the pump, and another dispenses the fuel. This procedure provides adequate manpower, to monitor the pump for leaks and shut off the pump in case of an emergency. It also prevents overfilling the container.

b. Handle fuel contaminated with dirt and water as HW, and dispose through the DRMO or appropriate agency.

c. Dispose of oil-contaminated fuel, as a result of fuel cell leaks or other mechanical system failure, as HW through DRMO or appropriate agency.

d. Contact the direct support unit for assistance and guidance if tankers or fuel pods must be purged.

11. **Procedures for the accumulation site.**

a. Provide accumulation sites for used petroleum products and HW.

b. Place sites aboveground on a nonpermeable, bermed hardstand; label them; and locate them 50 feet or more from any building. Leaking, corroded, or otherwise deteriorated containers must be overpacked in DOT-approved drums.

c. Coordinate with the installation or base camp environmental management office for assistance in determining the appropriate overpack containers, labeling/marking requirements, arranging for pick up of used oil, and other HW/hazmat collection issues.

d. Keep an accumulation log for each used oil or HW container in use. Specify as follows:
   (1) Contents.
   (2) Date the container was opened.
   (3) Date and quantity of each addition to the container.
   (4) Name of person adding to the container.
   (5) Date container is filled or closed.
   (6) Date the container is removed by DRMO or appropriate agency.

e. Store used oil and HW according to installation guidelines.
   (1) Place accumulation of HW on a nonpermeable bermed hardstand.
   (2) Label and locate the stand 50 feet or more from any building.
   (3) Protect the accumulated HW from the elements, including heat and cold.
   (4) Provide an enclosure to keep containers free from obscuring snow cover to allow for routine visual inspections in areas prone to heavy snowfall.
   (5) Store used greases, solvents, brake fluids, hydraulic fluid, motor oil, and antifreeze in separate containers.
   (6) Keep containers (drums, cans, or tanks) closed, except when depositing waste, as a safeguard against spills and to prevent water from entering the containers.
   (7) Obtain a replacement through the prescribed load list section or the troop support office if 2 1/2- or 2 3/4-inch threaded caps on 55-gallon drums are missing.
   (8) Ensure that secondary containment is provided that is capable of containing 1 1/2 times the volume of the largest container stored in the storage area.
   (9) Do not accumulate HW in an open container; it is a serious violation of HW regulations.

Figure E-1. Sample unit environmental SOP (continued)

f. Leave the following headspace to prevent overflow due to expansion (need to allow double the spacing for hot climates):
   a. 55-gallon drum, 3 to 4 inches.
   b. 5-gallon cans1 1/2 to 2 inches.
   c. 1-gallon can, 1 inch.

g. Dispose of used oil in an appropriate aboveground container.
   (1) Label the storage tanks *USED OIL ONLY* (by type such as motor oil, transmission oil, or hydraulic oil), and make certain personnel are trained to place only used oil in the tanks. If a 55-gallon drum is needed, use NSN 8110-00-030-7780.
   (2) Ensure that waste oil tanks are pumped on a regular schedule. Notify the motor sergeant or the unit hazmat/HW coordinator if the tank fills up before the scheduled pick up date or the tank is not pumped on schedule.

h. Use vermiculite (NSN 7930-00-269-1272) or absorbent pads to soak up puddles and Safe Step™ (NSN 7930-01-145-5797) or sawdust (NSN 7930-00-633-9849) to clean up hardstands if hazmat or HW is spilled. Place contaminated soil and absorbent material in removable head drums (NSN 8110-00-030-7780) and turn in to the DRMO or appropriate agency. Notify the base camp environmental office.

i. Overpack chemical products and POL contained in leaking, corroded, or otherwise deteriorated containers in approved drums, and dispose of them as HW through the DRMO or appropriate agency. Contact the base camp environmental office for assistance in determining the appropriate overpack containers.
   (1) To be accepted for turn-in, waste material must be in a safe, nonleaking, durable container.
      (a) Overpack leaking containers in steel or plastic removable head overpack drums, available through the supply system.
      (b) Pack leaking containers of liquids in absorbent material (NSN 7930-00-269-1272), available at the GSA store or through GSA or Defense Logistics Agency catalogs.
      (c) Overpack a leaking 55-gallon drum in an 85-gallon drum. Place absorbent material around a leaking, overpacked container (including underneath the container and with the maximum amount possible placed in the space between the overpack container and leaking container). There must be 6 inches of absorbent on the bottom and top of the interior container, with at least 2 inches around the sides (adjust for different size drums and overpacks).
      (d) Overpack leaking containers of nonliquid HW in a serviceable container. Call the base camp environmental office or the DRMO or appropriate agency when in doubt as to the type of container to use since many liquids (such as battery acid cannot be packed in steel containers).
      (e) Contact the environmental office of the base camp for a loaner if drums are not available for overpacking an emergency spill. Requisition a replacement drum for the base camp environmental office. Used drums are frequently available at the DRMO or appropriate agency. Removable head 55-gallon drums (NSN 8110-00-030-7780) should be stocked by base camp supply. Ensure that spill kits are procured for handling future spills.
      (f) Request assistance from the base camp environmental office on compatibility of waste, packing, and labeling of containers. Maintain this information in the waste-stream file for each waste.
      (g) Inspect HW weekly. Document results of the inspection on a log made accessible to environmental assessors. Identify description of the waste, location, quantity, date accumulation started, end of 90-day period, date removed to the DRMO or by contractor, remarks (condition of storage area and containers), inspector's printed name, signature, and date of inspection. Coordinate this action with the base camp environmental office.

9. **Vehicle parking areas.**
   a. Park vehicles only in designated parking areas.
   b. Do not discharge any POL product or contaminated soil into or near a storm drain. This is forbidden. Vehicle parking areas drain into storm sewers; storm sewers drain into streams, which lead into the nearest surface-water body.
   c. Place drip boxes/pans under drip points of vehicles with potential for leaking POL.
   d. Use dry-sweep to clean up POL spills where vehicles are parked, and dispose as HW through the DRMO or appropriate agency.
   e. Do not wash vehicles on the vehicle parking line. Wash according to Section 1 of this SOP.
   f. Ensure that no vehicle leaves the motor pool if it leaves a visible, continuous, or intermittent trail of POL on the ground (Class 3 leak).

Figure E-1. Sample unit environmental SOP (continued)

10. **Disposal of empty containers and hazardous items.** Include information on turn-in of mufflers and exhaust pipes, brake shoes and clutch plates, fuel tanks, aerosol cans, PCB capacitors and transformers, hydraulic rams and gas cylinders, shock absorbers, oil-saturated wood and pallets, paint and paint containers, solvents and thinners, oils and greases, antifreeze, oily rags, sweeping compound, oil and fuel filters, washrack soil/sand residue, spill cleanup debris and residue, and products with expiration dates.

a. Turn-in procedures. The turn-in procedures for hazmat varies widely due to differing theater and local requirements. Seek the assistance of the supporting base camp and DRMO (or appropriate agency) for information on filling out and processing the turn-in document.

b. Transport. HW transportation is strictly controlled. Check with the supporting base camp and DRMO (or appropriate agency) to determine if transport by the unit is allowed.

11. **Refueling operations.**

a. General.

(1) Conduct tactical refueling operations at a designated logistics resupply point.

(2) Avoid conducting refueling operations in a unit operations area due to the safety hazards associated with fuel tanker or HEMTT maneuver. Conduct grounding operations at each vehicle.

(3) Ensure POL section personnel conduct the actual refueling, when possible.

b. Secondary containment.

(1) Place secondary containment (large drip pans) under the vehicle and under the fuel hoses during refueling operations.

(2) Place 5-gallon fuel cans inside the drip pan when refueling, for secondary containment, preventing small volume fuel spills from accumulating and contaminating the soil.

(3) Transfer spilled fuel to a labeled 5-gallon waste-fuel container, and dispose as HW.

c. Emergency equipment.

(1) Firefighting. Supply each refueling vehicle with a minimum of two fire extinguishers. Set up fire extinguishers on each side of the tanker or HEMTT during refuel operations to expedite emergency response measures. Ensure that vehicles have their basic issue inventory items.

(2) Emergency eyewash. Ensure that potable water is readily available for emergency eye washing to provide first aid measures on-site in the event a spill or leak occurs during refueling operations.

(3) PPE. Ensure that each refueling vehicle has two sets of PPE. Refer to the SDS for the required PPE or paragraph 4 of this SOP for field-expedient PPE. Wear gloves and goggles when conducting refueling operations. Use aprons or wet weather gear to respond to a spill or repair a leak. Ensure that this equipment is available.

(4) Spill response. Ensure that a copy of the spill response plan is readily available during refueling operations.

12. Spills. (See TM 3-34.56/MCIP 4-11.01 and GTA 05-08-003 for spill procedures.)

a. Protect yourself and personnel, stop the flow, and then contain the spill. Immediately contain and report spills that have entered or threaten to enter floor or storm drains.

b. Report spills through the chain of command according to the base camp spill contingency plan. Reporting procedures and reportable quantities may vary from base camp to base camp. The unit spill response team conducts cleanup. Allow light fuel to evaporate into the atmosphere; absorb oil with dry-sweep or an equivalent (see TM 3-34.56/MCIP 4-11.01).

c. Report POL spills larger than 1 gallon of heavy oil or 5 gallons of fuel to the base camp fire department. (Check the base camp spill contingency plan for any differing local requirements.)

d. Conduct spill cleanup per the base camp spill response plan. Additional cleanup guidance will be provided when the spill is reported.

e. Keep the supplies and equipment (absorbent materials) appropriate for initial containment of the types of spills possible in the unit. Refer to the SDS associated with each product, or call the HW material section of the DRMO or appropriate agency for guidance on spill response supplies (see TM 3-34.56/MCIP 4-11.01).

Figure E-1. Sample unit environmental SOP (continued)

SECTION 2–SUPPLY

1. **Requisition**. Check with the base camp environmental office for a list of hazmat and guidance on the Army Hazardous Substance Management System. The Army Hazardous Substance Management System, with its centralized management and strict inventory control, will reduce the use and disposal of hazardous substances.
   a. Requisition the minimum quantity required for mission accomplishment.
   b. When processing a hazmat request, consider alternative, nonhazardous substitutes. Check with the base camp or installation environmental office for suggestions.
   c. Ensure that recoverability codes are used when applicable.
   d. Special indications will be made for any materials that have shelf life considerations.
2. **Storage.**
   a. Label and segregate hazmat from nonhazmat items.
   b. Keep a copy of the applicable SDS for each hazmat on hand in a binder in the hazmat supply storage area.
3. **Turn-in/disposal**. Check with the supporting base camp and DRMO (or appropriate agency) for local requirements for turn-in of HW and unused hazmat.
   a. Keep an accumulation log for each HW that is waiting turn-in to DRMO or another appropriate agency.
   b. Identify the date each container was opened, date and quantity of each addition to the container, name of the person adding to the container, date container is filled or closed, and date of turn-in to DRMO or appropriate agency.
   c. Keep turn-in documents for hazmat and HW on file for 2 years. Keep HW manifests on file for 50 years. (Check with base camp or theater level environmental staff for local variation on time requirements.)
4. **Paint.**
   a. Do not open more than one can of each color of paint at any time.
   b. Store paints indoors in a nonflammable material locker or in a POL shed. Store paints by compatibility.
   c. Keep paint in original, labeled containers.
   d. Maintain an SDS in the paint locker for each type of paint stored.
   e. Turn in unopened, reusable, excess, or no longer needed paint products to the appropriate material management support activity for redistribution or sale.
   f. Store waste paint and thinners/solvents separate from unused or good paint products.
   g. Consult the base camp environmental management office and chain of command for proper disposal of all paint.
   h. Store and dispose of paint thinners (hazmat) as directed by the environmental office and the DRMO or appropriate agency.
5. **Batteries.**
   a. Exchange batteries on a one-for-one basis, if feasible for operations.
   b. Store used batteries separately by type while awaiting turn-in, and include an accumulation log. Coordinate with the local base camp environmental management office to confirm proper labeling requirements.
   c. Check for leaking batteries, handle batteries carefully, and place leaking batteries in appropriate containers.
   d. Keep turn-in documents on file for 2 years. (Check with the base camp or theater level environmental staff for local variation on time requirements.)

SECTION 3–CBRN

1. **Requisitioning, storage, and disposal/turn-in.**
   a. Process requisitions and turn-ins through unit supply.
   b. Keep a copy of the applicable SDS for each hazmat on hand in a binder in the storage area.
   c. Store HTH and STB containers in dry and well-ventilated separate locations.
   d. Check daily HTH and STB containers for leaks or corrosion.
   e. Overpack and turn in to DRMO (or appropriate agency) any HTH and STB container found to be leaking.
   f. Properly dispose of out-of-date chemical agent testing kits as HW.

Figure E-1. Sample unit environmental SOP (continued)

SECTION 4–COMMUNICATION

1. **Requisitioning, storage, and disposal/turn-In.** (See Section 2.)
2. **Batteries.**
   a. Issue batteries by exchanging them with used batteries on a one-for-one basis if feasible for operations.
   b. Immediately turn in used batteries to unit supply for storage. Supply will coordinate used battery turn-in to DRMO or another appropriate agency.

SECTION 5 – FIELD MESS OPERATIONS

Field mess personnel use burners that operate on fuel during field and contingency operations. The major safety and environmental issues are fuel storage, filling, and lighting operations.

1. **Fuel storage.**
   a. Store 5-gallon fuel cans closed at all times.
   b. Do not attach open funnels or tubes to the containers. Maintain containers in good condition.
   c. Do not use rusty or residue-covered containers. They are unsafe and unacceptable.
2. **Filling operations.**
   a. Conduct filling operations on a tarp or plastic liner with a soil berm or sandbag perimeter for secondary containment in the event of a spill.
   b. Immediately collect spilled fuel using an absorbent material.
   c. Place used absorbent material in DOT-approved containers, and dispose of as HW.

c. Lighting operations.

   a. Conduct lighting operations at least 50 feet away from fuel storage and burner filling operations.
   b. Conduct lighting operations on open soil so that any residual fuel will freely burn during the operation.

SECTION 6–OPERATIONS/TRAINING

1. Training.

   a. Provide initial environmental-awareness training to personnel within 90 days of assignment and annually thereafter.
   b. Train personnel to accomplish their tasks according to laws and regulations and to respond properly in emergencies.
   c. Ensure that personnel who have not yet received initial environmental training are properly supervised when they work with materials potentially hazardous to themselves or the environment.
   d. Document environmental training and keep on file in the operations/training office.
   e. Identify quarterly requirements for environmental officer training. Request training allocations from the base camp environmental management office for two personnel (primary and alternate) in the theater or base camp environmental officer course, if available. Request an additional training allocation when the environmental officer is within 90 days of departure.

2. Risk assessment.

   a. Complete an environmental-related risk assessment for operations and field training of platoon size or larger units. (See GTA 05-08-002.)
   b. Use checklists for long-range, short-range, and near-term planning, training execution, and training evaluation as an aid in minimizing negative environmental impacts for those areas found to have high risk.

3. Maneuver damage.

   a. Designate a maneuver damage control officer for each FTX.
   b. Incorporate maneuver damage considerations into the OPORD for each FTX.
   c. Brief unit personnel on maneuver damage considerations and minimization measures before each exercise.
   d. Include maneuver damage as a discussion topic at AARs.

Tabs:

   A. Electronic message report formats. (See FM 6-99.)
   B. POCs for assistance.

Figure E-1. Sample unit environmental SOP (continued)

Legend:	
AAR	after action review
AR	Army regulation
CBRN	chemical, biological, radiological, and nuclear
CONEX	container express
DLA	Defense Logistics Agency
DOL	directorate of logistics
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
FTX	field training exercise
GSA	General Services Administration
GTA	graphic training aid
HAZCOM	hazard communication
HEMTT	heavy expanded mobility tactical truck
HN	host nation
HTH	high test hypochlorite
HW	hazardous waste
MOS	military occupational specialty
NCO	noncommissioned officer
OPORD	operation order
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
POC	point of contact
POL	petroleum, oils, and lubricant
PPE	personal protective equipment
SDS	safety data sheet
SOP	standard operating procedure
STB	super tropical bleach
U.S.	United States

Figure E-1. Sample unit environmental SOP (continued)

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Appendix F

Base Camp Operations

This appendix provides guidelines for integrating environmental considerations into base camp operations. The increase in the number of expeditions and contingency operations has led to an increased requirement for military personnel to operate from base camp facilities. The establishment of base camps and the occupation of existing facilities (ports, airfields) require the extensive integration of environmental considerations. These sites, which may approach the size of small cities, can require a tremendous allocation of resources. In addition, base camps generate waste in quantities similar to that of small cities but without the existing infrastructure to support it. Planning for base camp operations must begin as early as possible in the operation, including in the establishment of environmental guidelines, oversight authority, site selection, and camp operating procedures. (See ATP 3-37.10/MCRP 3-17.7N and ATP 3-34.40 for additional information.)

OVERSIGHT AND PLANNING

F-1. Senior commands may establish a base camp management center, base operations center, or joint environmental management board to assist in operations. While these agencies perform separate functions, their coordination is important to ensure consistent operations. The base camp management center establishes the standards for and coordinates the location, construction, and occupancy of base camps and installations. The joint environmental management board establishes and coordinates policy for environmental matters. While sometimes referred to as a temporary board, the joint environmental management board is a requirement as long as there are base camps and similar sites to manage. The joint environmental management board should even be created during the planning phase to support the integration of environmental considerations into the planning process. Chaired by the senior engineer or a staff member, the joint environmental management board includes primary staff membership (legal, medical, civil affairs) expertise to round out input for all environmental considerations. These two agencies complement each other in their efforts and provide great synergy when coordinating together.

F-2. Base camp planning is typically initiated at the joint level and is a function of the collaboration between operators and logistics personnel as they attempt to define the number, size, and locations of potential base camps to support a deployment and the standards (construction and other) for each base camp. Staff assessments are collated by the engineer and fed into the base camp planning process. For each site, a base camp development site plan is developed with a supporting base camp development plan. The base camp development plan is a set of interrelated documents that record the planning process for laying out, determining the scope, and initiating implementation actions for the base camp.

SITE SELECTION

F-3. The selection of base camp and installation sites is critical to integrating environmental considerations. While the tactical situation may often dictate the locations, when possible, environmental considerations need to be integrated into the decision process. Units must avoid areas that may contain contamination (industrial facilities, other areas that include or are adjacent to landfills or other health hazards). In addition, military personnel should not be billeted in structures with a high potential for contamination (ammunition bunkers, aircraft hangers) for extended periods of time to avoid exposure to TIC/TIM. Some areas of consideration in site selection include the—

- Presence of TIC/TIM or hazmat/HW, hazards including asbestos and PCBs.
- Industrial facilities in the area that may subject personnel to contaminants.

- Potential for dust or noise.
- Existing solid-waste management areas (landfills, dumps, incinerators, ash pits, recycling centers, composting sites).
- Drainage (into and out of the site).
- Proximity to indigenous populations and institutions.
- Adequate space for integrated waste and POL management and storage.
- Adequate space for showers, laundries, latrines, and treatment facilities for black water and gray water.
- Existing environmental infrastructure (utilities, water, sewer).
- Water supply vulnerabilities.
- Overall safety of structures on the site.
- Proximity to areas of standing water that may spread illness.
- Possible endangered species or critical habitats.
- Presence of historical, cultural, or religious properties or sites.
- Interference with the normal routine of the local civilians.

F-4. Although not all of these conditions may be optimal, a good balance of factors will help to ensure the protection of the environment and base camp personnel health and adjacent populations. As always, the tactical mission and the requirements of protection will also weigh heavily on base camp locations. The EBS is an important part of determining site suitability.

ENVIRONMENTAL BASELINE SURVEYS

F-5. An EBS (see the *Environmental Surveys Handbook: Contingency Operations [Overseas]*) should be conducted during site selection and before site occupation. If this is not possible, it should be conducted within 30 days of site occupation. This survey helps to address three primary issues: the identification of risk factors, the determination of initial site conditions, and assistance in base camp or installation layout. Environmental and safety risks to the health of base camp personnel and local populations may be determined by investigating the site. This helps determine the overall site suitability for occupation. Factors (evidence of environmental or unexploded ordnance contamination, landfills, surrounding land/industrial uses) may impact site suitability. Determining initial site conditions also helps when comparing the conditions before base camp closure; this prevents liability to the U.S. government for damage or contamination that may have been present before site occupation. The existing infrastructure and the surrounding area are surveyed to help planners determine the best locations (from an environmental and health standpoint) for life support areas, maintenance, sanitation, hazmat/HW and POL storage, and motor pool locations.

F-6. The EBS requires personnel with the necessary technical training and expertise to identify potential hazards and may require the collection of various air, soil, and water samples. The EBS will help determine previous site usage, hazards on the site, and the potential for hazards generated from areas surrounding the site. Hazards are those things that are generated as a result of military operations and include both those presented to personnel occupying the site and to the surrounding indigenous populations and institutions.

OCCUPATIONAL ENVIRONMENTAL HEALTH SITE ASSESSMENT

F-7. An occupational environmental health site assessment is conducted to determine whether environmental contaminants from current or prior land use, disease vectors, or other environmental health conditions that could pose health risks to deployed personnel exist at the deployment sites. Additionally, it also identifies industrial facility operations and commodities near the site that could, if damaged or destroyed, release contaminants harmful to personnel. An occupational environmental health site assessment is generally conducted in conjunction with an EBS because the two documents support each other. While the EBS is generally more visual and engineer-related, the occupational environmental health site assessment is more analytical (including a greater variety and detail of sampling), with a greater focus on health hazards.

ENVIRONMENTAL, SAFETY, AND OCCUPATIONAL HEALTH

F-8. Environmental, safety, and occupational health standards should be addressed from a safety and environmental standpoint. Initial site selection, structure use, and repair estimates must include environmental, safety, and occupational health standard factors. These factors include items electrical systems; water systems; ventilation; air quality; slip, trip, and fall hazards; structural integrity; PPE; and the use of existing industrial infrastructure (overhead lifts, chain hoists, cable systems).

BASE CAMP LAYOUT

F-9. While base camps are unique in their layout due to variables (terrain, use, size, type of tenant units), certain relationships between base camp layout and environmental considerations tend to be constant. Considerations with regard to base camp layout include—

- Locating POL and hazmat/HW storage areas and motor pools away from billeting areas and drainage features.
- Locating latrines and gray water disposal areas away from dining facilities, food storage areas, and water distribution points.
- Locating landfills, incinerators, and approved burn pits downwind from the camp or from billeting areas.
- Locating billeting areas away from low-lying areas, standing water, or where there are large numbers of confined domesticated animals.
- Excavating berm material from outside the perimeter to limit impacts to drainage within the perimeter.

BASE CAMP OPERATIONS

F-10. The operation of base camps and other associated facilities (airfields, ports, internment/resettlement facilities, detention centers) requires integrating environmental considerations. Commanders and staffs must identify and use available knowledge, including reachback capabilities to CONUS, to assist in meeting these challenges. Certain areas of base camp operation require particular attention to avoid environmental impacts and to protect base camp personnel and adjacent population health and quality of life. Environmental considerations in the development and operation of these sites include the following:

- Hazmat/HW management, storage, transportation, disposal, and protection.
- Spill response and reporting.
- Potential for base camp or mission expansion.
- POL and other energy source storage, management, and protection.
- Solid waste collection, management, recycling, and disposal sites.
- Dust abatement.
- Latrine and shower facility locations.
- Gray water and black water collection, disposal, or removal.
- Food waste and grease management at mess facility locations.
- Establishment of guidance and policy on environmental, safety, and occupational health standards.
- Medical and infectious waste storage and disposal.
- Protection against disease vectors (rodents, insects).
- Guidelines for pesticide use.
- Motor pool locations.
- Washrack locations and operation.
- Drainage.

FIELD SANITATION

F-11. The baseline FHP concern for field commanders is in field sanitation. This is directly linked to preventive medicine, which each commander may directly affect as a resident unit of a base camp. (See ATP 4-25.12 and TC 4-02.3 for information on unit-focused protective and preventive measures.) Most of these measures should be captured in unit SOPs, and the transition to applying them to base camp standards should be virtually seamless in its application. As standards on the base camp improve, some of these considerations will be alleviated by improvements in camp facilities.

HAZMAT AND HAZARDOUS WASTE MANAGEMENT

F-12. Controlling and managing hazmat/HW protects the water, the soil, and the air of a base camp from harmful levels of contamination. The military uses large quantities of hazmat (fuels, paints, batteries, pesticides, solvents). Often, these compounds contain acids, metals, and other toxins. The military work environment is at least as conducive to hazmat/HW spills as is the standard workplace. Given these conditions, U.S. military forces must take extra precautions to ensure that they minimize environmental contamination by hazmat/HW. Even low-level exposure to hazmat may adversely affect the health of base camp personnel and local populations. This is one of the first environmental protection issues that should be addressed at base camps. Its FHP aspects cause it to be of critical importance to the base camp commander and the units living there. (ATP 3-37.10/MCRP 3-17.7N and TM 3-34.56/MCIP 4-11.01 provide additional guidance on hazmat/HW operations.)

PETROLEUM, OIL, AND LUBRICANTS OPERATIONS

F-13. The refueling of vehicles and containers always raises the level of risk that spills will occur. Because refueling operations are a necessity for base camps and the units associated with them, commanders must make them a priority. Spills have significant implications for safety, FHP, and environmental protection—especially the potential effect on water supplies. Because of these realities, POL operations are a focus area for base camps, even in their initial stages of development. In addition, these operations may have a potentially damaging effect to the inhabitants of the base camp. Planning for spills and spill response should already be a part of unit SOPs, and base camp personnel should generally follow these basic procedures in conjunction with base camp guidance. (See TM 3-34.56/MCIP 4-11.01 for additional information on POL procedures and spill response.)

DUST SUPPRESSION

F-14. Dust created by operations presents a health hazard and hazard to equipment. Unfortunately, clearing large areas for motor pools, helicopter landing pads, roads, and billeting areas creates significant dust hazards. Various techniques (placing larger aggregate paving areas when feasible, ensuring that vegetative strips remain in place, applying various chemical dust palliatives) help to suppress dust. When feasible, logistics planners should use a phased approach to dust suppression. The most durable method used by engineers is to first apply geotextile materials and then crushed stone or gravel (if available) over concern areas. Chemical admixtures of dust palliatives or synthetic oils can provide some relief but may require reapplication at very short time intervals for highly trafficked concern areas. In most cases, these chemicals are simply a short-term solution until more deliberate efforts can be accomplished. In some cases it is more practical to use the chemical admixtures or synthetic oils where it is not feasible to do deliberate construction (forward arming and refueling points, helicopter landing zones at combat outposts or small forward operating bases).

Note. See the *Dust Abatement Handbook–Standard Practices for Mitigating Dust on Helipads, Roads, Airfields, and Base Camps;* TM 5-830-3/AFM 88-17, chapter 3; and GTA 05-08-018 for additional information.

BASE CAMP SUSTAINMENT

F-15. The longer U.S. forces operate a base camp, the more likely it is that efforts will be made to increase the quality of life for the personnel living there and the subsequent improvements to environmental conditions. Local environmental policies, regulations, and SOPs may become more complex as the base camp

matures. The reestablishment of a HN government and the ensuing establishment of an FGS for that nation may also affect environmental standards. From an environmental considerations view, sustainment includes monitoring and evaluation of conformance with environmental policies, regulations, and/or SOPs through routine assessments and corrective actions. In addition, changes in environmental conditions of the base camp must be documented (typically using the ECR).

BASE CAMP CLOSURE

F-16. The closure of a base camp is a part of the initial planning process that identified the need for a given base camp and provided an estimate for its duration. The environmental considerations included in the initial planning must attempt to factor in the end state of a base camp and the requirement to ultimately return the real estate and facilities to another U.S. agency, coalition force, or the HN. In some cases, restoration involving the removal of pollutants and contaminants from the environment may be required. An Environmental Site Closure Survey is included in the process of closure to provide the final snapshot of conditions for documentation. Together with the initial EBS and occupational environmental health site assessment and subsequent ECRs/medical inspections, the Environmental Site Closure Survey/Environmental Site Closure Report provides a picture of the environmental life of a base camp, which may be used to negotiate closure agreements or to address questions of FHP after the site is no longer occupied by U.S. forces. Areas of environmental concern in the closure of base camps include—

- Removing hazmat/HW and POL stockpiles.
- Removing soil contaminated by hazmat/HW or POL.
- Filling in fighting positions and bunkers and removing tactical and communications wires.
- Closing, marking, and reporting solid-waste management areas and latrines/field heads.

ENVIRONMENTAL PROGRAM GOALS AND IMPACTS

F-17. Environmental program areas provide the framework for programs on base camp to integrate environmental considerations into operations and provide environmental protection. Military programs protecting the environment correspond to legal requirements and theater or site-specific standards to protect air, land, water, human health, and natural and cultural resources. Table F-1 summarizes program goals and their impacts.

Table F-1. Typical environmental program areas and goals/impacts

Program Area	*Goal*	*Military Impact*
Air	Control emissions	POL storage, energy production, waste disposal, smoke operations, fugitive dust
Asbestos management	Minimize release of and exposure to asbestos	Building acquisition, site renovation and demolition, vehicle repair costs
Cultural properties management	Protect historical and cultural properties and heritage	Restricted buildings, alternative measures for building renovations
Hazmat management	Prevent pollution, comply with hazmat regulations	Procurement, base camp hazmat storage and inventory management, turn-in programs for hazmat
HW and solid-waste management	Minimize waste generation	Procure equipment, establish procedures, and provide training in segregation, recycling, and substitution
Pollution prevention	Reduce pollution and waste generation	Procure less hazardous products, procure recyclable products and establish turn-in procedures for reusable items and recycling
Spill prevention and response	Prevent and respond to spills	Base camp and unit spill plans
Water resource management	Conserve and protect water sources	Erosion control, storm water control, vehicle drip pans, washracks, water conservation and reuse

Table F-1. Typical environmental program areas and goals/impacts (continued)

Legend:	
HW	hazardous waste
POL	petroleum, oils, and lubricants

F-18. In general, at the battalion level or below, these program requirements are integrated into existing unit programs and procedures. They need not be addressed as separate environmental programs. However, commanders should coordinate with appropriate base camp environmental staff (and the base camp coordination agency and base camp assistance/assessment team) to determine their application.

Appendix G

Sample Command Environmental Policy

This appendix provides a sample environmental policy letter and environmental officer appointment order. Figure G-1 is a sample environmental policy letter; and figure G-2, page G-2, is a sample environmental officer appointment order. Additional policy letters may be required for specific operations within a unit and may be drafted using the basic format provided in this appendix.

DEPARTMENT OF THE ARMY
100TH COMBAT SUPPORT BATTALION, APO AE 09096

ABCD-UVW-CO 27 March 2014

SUBJECT: 100th CSB CP 8-5, Command Environmental Program

1. The mission of the 100th CSB is to support troop units by operating, maintaining, and repairing infrastructure and facilities. This policy implements the 100th CSB Environmental Program to protect and conserve the environment. The program includes the—
   a. Employment of environmental considerations into procedures to prevent activities and/or conditions that pose a threat to human health, safety, and the environment.
   b. Compliance with applicable environmental policy, laws, and regulations and ensuring that activities are in compliance with environmental regulations and other requirements.
   c. Environmental-related risk analysis as part of the risk management process and that environmental-related controls are implemented as described in the risk management analyses.
   d. Assessment of 100th CSB activities and services in an effort to plan for avoidance, mitigation, or minimization of potentially negative impacts to the environment and to ensure that activities do not adversely affect the environment.
   e. Resources of energy and water efficiently and reducing the amount of waste that must be disposed. Maximize recycling, reusing, and reducing waste.
   f. Integration of environmental considerations into of mission procedures, work practices, and training so that environmental awareness and compliance are a routine part of the way 100th CSB activities and services are executed.
   g. Cooperation with local communities and HN agencies to further common environmental objectives.
2. Supervisors ensure that copies of this policy are posted in maintenance shops, work areas, and offices. This policy will be available for review at the battalion headquarters.
3. The contents of this policy will be reviewed and revalidated annually or as the mission changes. Revalidation will be sent to the 100th CSB adjutant within 2 weeks of the anniversary date of this policy. Policies requiring revision will be submitted 30 days before the anniversary date for the commander's approval.
4. The POC for this policy is MAJ Joseph Dogwood, BN environmental officer at DSN 555-1212.

Legend:

AE	Armed Forces Europe
APO	Army post office
BN	battalion
CP	command post
CSB	combat support battalion
DSN	Defense Switched Network
HN	host nation
MAJ	major
POC	point of contact

Figure G-1. Sample commander's environmental policy letter

DEPARTMENT OF THE ARMY

100TH COMBAT SUPPORT BATTALION, APO AE 09096

ABCD-UVW-CO 27 March 2014

MEMORANDUM FOR: See Distribution

SUBJECT: Environmental Officer Appointment effective 27 March 2014, the following individual is appointed as the Environmental Officer for the unit indicated: MAJ Joseph Dogwood

Headquarters Company, 100th Combat Support Battalion, APO AE 09096

1. Authority: AR 200-1

2. Purpose: To plan, execute, and monitor aspects of the Command Environmental Program for the 100th CSB.

3. Period: Until officially released or relieved.

4. Specific duties:

- Advise the commander on environmental laws and regulations that affect unit operations.
- Assess the unit environmental program to include:
  - Unit accumulation sites.
  - Hazmat/HW management program.
  - Solid-waste management program.
  - Unit spill prevention program.
  - Unit pollution prevention and recycling program.
  - Energy, water, and waste sustainable use program.
  - Integration of environmental considerations in military operations and RM/ORM program.
  - Respond to hazmat/HW/POL spills.
  - Plan, conduct, and/or supervise environmental awareness training.
  - Monitor/assess the Command Environmental Program continually.

5. Special instructions: the environmental officer will use the chain of command, plus any specified local notification chain when applicable. The environmental officer is responsible for implementing the Command Environmental Program. The environmental officer is authorized and encouraged to consult with the higher-level/base camp environmental office and subject matter experts for guidance and assistance in accomplishing these duties.

SIGNATURE BLOCK

DISTRIBUTION:

1 – Ea Individual
1 – Unit File
1 – Ea Subordinate File

Legend:

AE	Armed Forces Europe
APO	Army post office
AR	Army regulation
CSB	combat support battalion
Ea	each
HW	hazardous waste
POL	petroleum, oils, and lubricants

Figure G-2. Sample environmental officer appointment order

Appendix H

Environmental Officer

AR 200-1 defines an environmental officer/environmental compliance coordinator as an individual assigned to an organization or unit to accomplish environmental requirements on behalf of the commander, director, or supervisor. The designated person also coordinates with supporting chain of command or base camp environmental staff for requirements clarification and assistance. The commander determines organizational levels and the required grade suitable for environmental officers. Environmental officers are generally required at battalion, squadron, and unit (company, battery, or troop) level.

ENVIRONMENTAL OFFICER

H-1. The environmental officer manages environmental issues within the unit and ensures environmental standards are met. He also coordinates through the respective chain of command with the supporting environmental staff to clarify requirements and obtain assistance. While this position of responsibility is not a formal staff position, the environmental officer is critical to the commander's environmental program. In units that include a staff officer with similar responsibilities that individual will usually be appointed the additional duty of environmental officer. In company-size units, this duty will generally translate to an additional duty.

H-2. The environmental officer—

- Advises the unit on environmental policies, regulations, and procedures to be followed during training, operations, and logistics functions.
- Advises and updates the commander on integrating environmental considerations and environmental requirements.
- Updates and maintains the environmental portion of the SOP.
- Coordinates between the unit and higher/base camp headquarters environmental staffs.
- Manages information concerning unit environmental training and certification requirements.
- Conducts unit environmental self-assessments.
- Incorporates environmental-related risk analysis into unit risk assessments.
- Serves as the subject matter expert to the commander on integrating environmental considerations into OPLANs/OPORDs.

H-3. Table H-1, page H-2, provides information related to the environmental officer duties and applicable references, required training, and the point of contact for each duty. The environmental officer must identify and assess the status of compliance with any new regulatory requirements enacted since the last assessment and address any special areas of concern specified by higher headquarters.

Table H-1. Environmental officer duties

Duties	*Applicable References*	*Specific Training*	*Points of Contact*
Advise the commander on environmental considerations affecting unit operations; and provide liaison between the unit, higher headquarters, and supporting environmental management office	• AR 200-1 • MCO P5090.2A	NA	• Supporting environmental management office • Safety office • Office of the SJA • USAES, DEI • USAEC
Assess unit environmental management program	• AR 200-1 • Command policies and regulations • MCO P5090.2A	Training in compliance topics that are applicable to the organization and unit/organizational compliance assessment tools and techniques	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI • USAEC
Assess unit HW accumulation site	• AR 200-1 • Command policies and regulations • MCO P5090.2A • TM 3-34.56/MCIP 4-11.01	• Annual training in HW requirements related to the job and measures to take during an emergency • Satellite accumulation point training	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI • USAEC
Assess unit hazmat and HW management program	• AR 200-1 • Command policies and regulations • TM 3-34.56/MCIP 4-11.01	• Annual training in HW requirements related to the job and measures to take during an emergency • Annual training in hazmat requirements of the job and measures to take during an emergency	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI • USAEC

Table H-1. Environmental officer duties (continued)

Duties	*Applicable References*	*Specific Training*	*Points of Contact*
Assess unit solid-waste management program	• AR 200-1 • Command policies and regulations • MCO P5090.2A	NA	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI • USAEC
Assess unit spill prevention program and pollution prevention program	• AR 200-1 • MCO P5090.2A	Annual training; hours vary	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI • USAEC
Respond to a spill	• AR 200-1 • Command policies and regulations • MCO P5090.2A	Annual training; hours vary	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI • USAEC
Assess unit recycling program	• AR 200-1 • MCO P5090.2A	NA	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI • USAEC
Coordinate unit training area management procedures (field operations)	• AR 350-19 • Command policies and regulations • Local installation regulations for training area usage	• Integrated training area management program briefing • Range safety officer briefing	• Chain of command • Local integrated training area management program coordinator • Safety office • USAES, DEI • USAEC
Assess environmental-related risks in military operations	Unit SOP	• Unit level training • Safety officer training	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI

Table H-1. Environmental officer duties (continued)

Duties	*Applicable References*	*Specific Training*	*Points of Contact*
Conduct environmental-awareness training	• AR 200-1 • Command policies and regulations • MCO P5090.2A • Unit SOP	Ongoing, with use of posters, briefings, and written information	• Chain of command • Supporting environmental management office • Safety office • USAES, DEI
Integrate environmental consideration into unit SOPs, policies and procedures, and OPORDs/OPLANs	• AR 200-1 • ADP 5-0/ ADRP 5-0 • Command policies and regulations • MCO P5090.2A • Unit SOP	Command information briefings	• Chain of command • Supporting environmental management office • Safety office • USAES,DEI

Legend:

ADP	Army doctrine publication
ADRP	Army doctrine reference publication
AR	Army regulation
DEI	Directorate of Environmental Integration
HW	hazardous waste
MCO	Marine Corps order
NA	not applicable
OPLAN	operation plan
OPORD	operation order
SJA	staff judge advocate
SOP	standard operating procedure
USAEC	United States Environmental Command
USAES	United States Army Engineer School

ENVIRONMENTAL OFFICER TRAINING

H-4. The environmental officer will be trained to accomplish assigned duties. Improper training may result in notices of violation, fines, and more work. The training requirements for the environmental officer depend on the environmental issues within the unit and the coordination required through the respective chain of command. Units should consult with their higher headquarters and supporting environmental management office for location-specific training requirements outlined in table F-1.

H-5. Theater commands may require predeployment or site-specific training programs. Installations may also have site-specific environmental officer training. Check with the supporting environmental management office for attendance requirements. An online environmental officer course is available from the USAES, Directorate of Environmental Integration. (See the USAES, Directorate of Environmental Integration Web site for more information or visit the MSCoE Blackboard Portal.)

Appendix I

Environmental Program Resources

This appendix provides a listing of resources available for implementing and sustaining the unit environmental program. Information on training assets, significant references and Web sites, lessons learned, and points of contact are included.

TRAINING

I-1. Training is key to ensuring that personnel integrate environmental considerations properly to protect themselves and the environment. Implementing general and specialized training programs and integrating environmental considerations into training exercises ensure that units are prepared to meet environmental requirements.

ENVIRONMENTAL AWARENESS

I-2. Environmental awareness training is required for personnel. Such training provides basic information on theater-wide, base camp, and unit environmental practices. It leads to safer performance and establishes an environmental ethic among Soldiers and Marines. Awareness training should occur as early as possible following an assignment to a unit, and environmental officers reinforce environmental awareness training annually and as part of predeployment training.

ENVIRONMENTAL-SPECIFIC TRAINING REQUIREMENTS

I-3. In addition to general environmental awareness training, individuals with certain duties and responsibilities require specialized training. As part of their ongoing technical skills training, units provide some specialized environmental training through integrated instruction or supplemental material.

RESOURCES

I-4. A variety of resources are available to assist units in the development and implementation of environmental training programs. Check with the unit training officer or noncommissioned officer for the resources available, which may include training aids, devices, simulators, and simulations.

United States Army Engineer School Products

I-5. The USAES, Directorate of Environmental Integration has training products available through the Army Training Support Center and the Army Training Network. An environmental toolbox CD is available upon request by contacting the USAES, Directorate of Environmental Integration, which may be done by visiting the USAES, Directorate of Environmental Integration Web site.

Web-Based Environmental Officer Course

I-6. This Web-based course trains designated regular Army, Army National Guard, and U.S. Army Reserve environmental officers. For more information, go to the USAES, Directorate of Environmental Integration Web site. The web-based environmental officer course consists of the following modules:

- Environmental officer duties.
- Unit environmental program development.
- Natural/cultural resources.
- Hazmat/HW.

- Solid wastes and wastewater.
- Other areas of environmental concern.

Installation Environmental Management Office

I-7. The installation environmental management office is usually found in the directorate of public works. It can provide unit personnel with installation/training area-specific environmental information and training. Contact them for further information.

Resident Training

I-8. Resident training pertains to instruction presented in a formal setting by trained instructors. It may be presented by conventional methods (such as conferences, advanced technology, computers, distributed learning methods, or a combination of these methods). USAES has developed training support packages for inclusion in various initial-entry, precommissioning, and professional development courses. For more information, contact USAES, Directorate of Environmental Integration.

Graphic Training Aids

I-9. GTAs are available through the Army Training Network. The following GTAs are quick references for environmental-related actions:

- GTA 05-08-002.
- GTA 05-08-003.
- GTA 05-08-004.
- GTA 05-08-005.
- GTA 05-08-012.
- GTA 05-08-014.
- GTA 05-08-016.
- GTA 05-08-017.
- GTA 05-08-019.

LESSONS LEARNED

I-10. The collection and study of lessons learned are valuable means of accessing the wealth and experience of units in deployed settings and a way to improve the integration of environmental considerations. Many units have developed improved techniques and procedures or have identified issues that may occur during deployment. There are several sources of lessons learned (the Joint Universal Lessons Learned System, the Center for Army Lessons Learned, the Marine Corps Center for Lessons Learned, the MSCoE Quality Assurance Office, the USAES).

SOURCES OF ASSISTANCE

I-11. Many sources of assistance are available to help units during predeployment and postdeployment operations. These sources include base camp staffs, subject matter experts at other agencies (such as USACE), and various online tools.

INSTALLATION/OPERATIONS STAFFS

I-12. Most training centers and installations maintain environmental staffs that are available to assist military units with environmental requirements. Some of this expertise may be found in specific environmental offices, while other areas of expertise are embedded in installation agencies (directorate of public works, facilities or range management offices).

Environmental Management Office

I-13. The environmental management office is staffed with scientists and engineers who are responsible for developing and implementing environmental programs. This office is usually a division within the installation directorate of public works or the facilities management office of the state area coordinator for the Army National Guard. Many environmental management offices are organized according to the installation environmental program that encompasses five general components. The components include—

- Compliance elements that monitor current operations and ensure that units follow environmental guidelines.
- Pollution prevention elements that manage installation initiatives (source reduction, HW minimization, recycling, materials substitution).
- Natural and cultural resource management elements that manage installation conservation initiatives for forests, wildlife, wetlands, and historical resources.
- Restoration elements that manage the cleanup of contamination sites on the installation.
- Planning and documenting elements that address the possible environmental impacts of future operations and activities.

Directorate of Logistics

I-14. The directorate of logistics and the G-4 are responsible for POL and hazmat management. The directorate and staff section also exercise environmental control and oversight of hazmat (including ammunition) maintenance, transportation, and storage activities.

Directorate of Plans, Training, and Mobilization

I-15. The responsibilities of the directorate of plans, training, and mobilization or the assistant chief of staff, operations (G-3) include installation/unit operations and training. These offices coordinate training activities (budgeting, development, training area maintenance, the Integrated Training Area Management Program, mission priorities). This directorate also coordinates the range division and maintains overall responsibility for range operations, maintenance, and construction.

Staff Judge Advocate

I-16. The SJA provides the commander with advice regarding compliance with environmental laws, regulations, treaties, agreements, and conventions, especially those concerning the interpretation and application of environmental laws and rules to installation activities. This may be particularly important when assessing the environmental impact of a new initiative (such as construction).

Public Affairs Officer

I-17. The public affairs office is the official spokesperson for the installation or unit and manages public involvement activities and responses—particularly during public controversy—in close coordination with other key installation/unit members. This is particularly important when assessing the environmental impact of a new initiative (such as construction).

Safety Officer

I-18. The safety officer works closely with the environmental staff on programs to help prevent accidents that could threaten or damage human health and the environment. Hazard communication, SDSs, and OSHA-mandated training are the purview of the safety office.

Preventive-Medicine Office

I-19. The preventive-medicine office is the point of contact for the medical monitoring program and for work-related health problems. The preventive-medicine office is often collocated with medical units or hospitals and can provide critical information concerning public health issues (such pesticide use).

Fire Department

I-20. The fire department provides firefighting and spill response support to the installation. In many instances, the fire department is also staffed with highly trained spill response personnel who provide expert advice on spill reaction measures.

Defense Reutilization and Marketing Office

I-21. The Defense Reutilization and Marketing Office works closely with the directorate of public works and directorate of logistics to store and provide for disposal of solid waste, including HW generated at the installation. This DOD organization becomes critical to units that are attempting to turn in potentially hazardous substances or hazmat. Unit personnel with questions on turn-in procedures for potentially hazardous substances or hazmat should check with the receiving Defense Reutilization and Marketing Office facility to determine documentation and packaging requirements.

SOURCES OF ASSISTANCE DURING TACTICAL OPERATIONS

I-22. While units may be able to benefit from the assistance of standard installation or base operations support during tactical operations, the likelihood is that the benefit will only be minor, perhaps supporting players to provide assistance. Tactical operations will shift more support requirements to operational staffs rather than to installation staff support. Some potential sources of assistance are identified in the following paragraphs.

Operational/Deployment Staff

I-23. The unit staff takes on a much larger role in environmental assistance when a unit is deployed or in an operational status. The load will tend to rest on these staffs in the case of deployment to relatively remote OCONUS locations. As time goes on and the duration of stay increases, it is highly possible that the command will establish organizations like the base camp coordination agency and its subordinate base camp assistance/assessment team. These organizations will provide tactical/operational commanders with the military environmental protection support they need.

Base Camp Management Center and Base Operations Center

I-24. The base camp management center and base operations center perform an important and vital role, which essentially replaces the roles performed by installation staffs. They may draw on resources from home base or theater level sources since they are located at tactical/operational locations (such as base camps), which they typically support.

Joint Environmental Management Board

I-25. Operational or tactical units may operate in-theater or as part of a joint task force. As participants in a joint force, units may be required to interface with the actions of a temporary board, a joint environmental management board (which the joint commander or the designated commander, joint task force may activate). The joint environmental management board establishes policies, procedures, priorities, and the overall direction for environmental management requirements in-theater according to the DOD 4715.05-G and FGS or applicable regulations or agreements in effect for the countries within the area of responsibility. If appropriate, the board may assume responsibility for the preparation of the environmental management support plan. (See JP 3-34 for more information on the joint environmental management board.)

Host Nation

I-26. Depending on the capabilities of the HN and agreements that have been made, HN support to the commander is possible. Senior-level staffs will typically be responsible for initiating and securing this type of support.

Contractors

I-27. Environmental support assistance for the tactical/operational commander may be provided by a contractor. Coordination for this support will likely come through the theater or base camp contracting agency, USACE, or a similar agency with contracting capability.

Other

I-28. Regardless of the location, a myriad of sources are available with access to a telephone, e-mail, or other electronic means of communication. The Defense Environmental Network and Information Exchange Web site contains additional information. This Web site, operated by DOD, is sponsored by the Department of Environmental Security Corporate Information Management. It provides timely access to environmental legislative compliance, restoration, cleanup, and DOD guidance. (See the DOD Environment, Safety and Occupational Health Network and Information Exchange Web site for more information.)

I-29. The Army Environmental Center implements the environmental program for the Army by providing a broad range of innovative and cost-effective products and services in support of Army training, operations, and sound stewardship. (See the U.S. AEC Web site for more information).

I-30. The U.S. Army Public Health Command has developed the Hazardous and Medical Waste Program Audiovisual Lending Library.

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Appendix J
Safety Data Sheets

An SDS is a summary of information on a given hazardous chemical, which identifies the chemical composition, its health and physical hazards, its exposure limits, and the precautions involved. An SDS also describes the hazardous chemical and provides information on the way the hazardous chemical may be safely handled, used, and stored. Soldiers and Marines will request a copy of an SDS when receiving a hazardous chemical from supply (if it is not provided with the chemical) and retain it for as long as the chemical is handled, stored, or used in the work area. The SDS may also be needed for turn-in purposes. Commanders or their environmental officers should periodically review each SDS to ensure they are current and associated with the hazardous chemicals that Soldiers and Marines are handling, using, or storing and to ensure a quick response when identifying symptoms and handling emergencies. Personnel in the AO who may be exposed to the hazardous chemicals handled, used, or stored must be familiar with the hazards they pose. SDSs must be easily accessible to personnel for each hazardous chemical in the work area. The mandatory and nonmandatory components of an SDS are outlined in 29 CFR 1910.1200. The SDS can be obtained from the supply sergeant, through the Hazardous Material Information Resource System of the Defense Logistics Agency online or directly from the product vendor or supplier.

J-1. This information allows a unit to—

- Protect the health of personnel in the unit area.
- Store materials safely.
- Respond to spills and emergencies quickly and correctly.

J-2. When a new material is issued, Soldiers and Marines should ask to review the SDS so they are familiar with the appropriate use, hazards, and response procedures. A summary of contents in an SDS is shown in Table J-1. If an SDS is unavailable for a particular hazardous chemical or mixture contact the safety office for assistance. (See TM 3-34.56/MCIP 4-11.01 for more information.)

Table J-1. Minimum information for an SDS

Section/Topic	*Summary of Contents*
Section 1–Identification	• Product identifier used on the label • Other means of identification (common names or synonyms) • Recommended use of the chemical and restrictions on use • Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party • Emergency phone number

Table J-1. Minimum information for an SDS (continued)

Section/Topic	*Summary of Contents*
Section 2–Hazards identification	• Hazard classification of the chemical • Signal word, hazard statements, symbols, and precautionary statements (hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol [flame, skull and crossbones]) • Description of any hazards not otherwise classified that have been identified during the classification process • For a mixture that contains an ingredients with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredients with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredients
Section 3–Composition/information on ingredients	• For substances • Chemical name • Common name and synonyms • Chemical abstract system number and other unique identifiers • Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance • For mixtures (In addition to the information required for substances) –The chemical name and concentration (exact percentage) or concentration ranges of ingredients, which are classified as health hazards • For chemicals claimed as trade secrets – A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret
Section 4–First-aid measures	• Description of necessary measures, subdivided by the different routes of exposure (inhalation, skin and eye contact, ingestion) • Most important symptoms/effects, acute and delayed. • Indication of immediate medical attention and special treatment needed, if necessary
Section 5–Fire-fighting measures	• Suitable (and unsuitable) extinguishing media • Specific hazards arising from the chemical (nature of hazardous combustion products) • Special protective equipment and precautions for fire-fighters
Section 6–Accidental release measures	• Personal precautions, PPE, and emergency procedures • Methods and materials for containment and cleaning up
Section 7–Handling and storage	• Precautions for safe handling • Conditions for safe storage, including any incompatibilities
Section 8–Exposure controls/personal protection	• OSHA PEL, ACGIH TLV, and other exposure limits used or recommended by the chemical manufacturer, importer, or employer preparing the SDS • Appropriate engineering controls • Individual protection measures (such as PPE)

Table J-1. Minimum information for an SDS (continued)

Section/Topic	*Summary of Contents*
Section 9–Physical and chemical properties	• Appearance (physical state, color) • Odor and odor threshold • pH • Melting point/freezing point • Initial boiling point and boiling range • Flash point • Evaporation point/rate • Flammability (solid, gas) • Upper/lower flammability or explosive limits • Vapor pressure • Vapor density • Relative density • Solubility • Partition coefficient: n-octonal/water • Autoignition temperature • Decomposition temperature • Viscosity
Section 10–Stability and reactivity	• Reactivity • Chemical stability • Possibility of hazardous reactions • Conditions to avoid (static discharge, shock, vibration) • Incompatible materials • Hazardous decomposition products
Section 11–Toxicological information	• Description of various toxicological (health) effects and the available data used to identify these effects, including— ▪ Information on likely routes of exposure (inhalation, ingestion, skin and eye contact) ▪ Symptoms related to the physical, chemical and toxicological characteristics ▪ Delayed and immediate effects and chronic effects from short- and long-term exposure ▪ Numerical measures of toxicity (such as acute toxicity estimates) ▪ Hazardous chemical that is listed as a carcinogen on any recognized official list
Section 12–Ecological information (not mandatory)	• Ecotoxicity (aquatic and terrestrial, where available) • Persistence and degradability • Bioaccumulative potential • Mobility in soil • Other adverse effects (such as hazardous to the ozone layer)
Section 13–Disposal considerations (not mandatory)	• Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Table J-1. Minimum information for an SDS (continued)

Section/Topic	*Summary of Contents*
Section 14–Transport information (not mandatory)	• UN number • UN proper shipping name • Transport hazard classes • Packing group, if applicable • Environmental hazards (such as marine pollution) • Transport in bulk • Special precautions that a user needs to be aware of, or needs to comply with, in connection with transport or conveyance within or outside their premises
Section 15–Regulatory information (not mandatory)	• Safety, health, and environmental regulations specific for the product in question
Section 16–Other information, including date of preparation or last revision	• Date of preparation or date of last modification of the SDS

Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
PPE	personal protective equipment
SDS	safety data sheet
TLV	threshold limit value
UN	United Nations

Appendix K

Environmental Conditions Forms

Environmental conditions forms are required as part of base camp operations. Environmental conditions forms are DD Form 2993 *(Environmental Baseline Survey [EBS] Checklist),* DD Form 2994 *(Environmental Baseline Survey [EBS] Report),* and DD Form 2995 *(Environmental Site Closure Survey).* These forms help to identify areas of environmental concern and develop the optimal configuration for the mission and health of personnel, and they are used for the life cycle of the site from selection to transfer or closure. DD Form 2993 and DD Form 2994 are completed to determine if a proposed base camp location is appropriate for use. The completed DD Form 2993 and DD Form 2994 includes extensive reviews of current and past site uses. DD Form 2993 and DD Form 2994 are normally completed before the base camp is established to identify and document environmental concerns (existing contamination, industrial activity, historical and cultural resources, natural resources, endangered species). Documenting these environmental concerns protects personnel, facilitates the mission by identifying environmental obstacles, and reduces U.S. liability by providing a snapshot of the existing conditions of the location. The environmental conditions reports (FM 6-99) document includes incidents or discoveries that change the baseline of the property documented in the DD Form 2993 and DD Form 2994 during operation of the site. When a notification of base closure or transfer is received, DD Form 2995 is completed to identify environmental concerns that will need to be addressed before the site can be transferred to another entity or returned to HN control. DD Form 2993, DD Form 2994, and the ECRs are used for comparison when completing DD Form 2995. The environmental closure action plan aids in tracking environmental task completion for proper base camp transfer or closure. DD Form 2995 documents the final environmental condition of the base camp at transfer or closure.

BASE CAMP SITE SELECTION

K-1. Before DD Form 2993 (figure K-1, page K-2) and DD Form 2994 (figure K-2, page K-24) can be completed, the staff must determine the commander's intent for the mission, activities, and duration of a base camp and begin the planning process. As part of the planning process, the staff will research the AO and the specific potential sites that the commander will want to inhabit. This research is part of the normal planning process for evaluating environmental considerations. If adequate information is not available on likely sites, these information requirements are fed into the information collection plan (some of these information requirements may be critical enough to be considered priority information requirements). This information is usually obtained through environmental reconnaissance (see FM 3-34.170/MCWP 3-17.4), which verifies existing information and visually identifies other areas of environmental concern that were not previously identified.

Classification: Unclassified

ENVIRONMENTAL BASELINE SURVEY (EBS) CHECKLIST

For use of this form, see ATP 3-34.5/MCRP 4-11B; the proponent agency is TRADOC.

Note: Do not leave any blanks empty. If they do not apply to the current site, enter not applicable (NA) or nothing significant to report (NSTR) to show the section has been investigated. The section numbers in the checklist correspond to the section numbers in the report format.
**Items that are completed in DD Form 2994, Environmental Baseline Survey (EBS) Report. These items are shown in the EBS Checklist to ensure that item numbers are matched between the checklist and the report.* Continue Click this button to add a continuation page if more space is needed for any item.

1. ADMINISTRATIVE DATA

a. LOCATION NAME	*(Official name and legal address of the location being assessed. Name of country, city, township, or area of operation for the site location.)* Desert Airbase 1		
b. LOCATION ALIASES	*(Other names the base is currently or was previously known as.)* Desert Town		
c. START DATE AND TIME	070004022015	d. END DATE	04022015
e. ORGANIZATION CONDUCTING SURVEY	*(Name of the unit or activity conducting the assessment.)* MCICOM		
f. SURVEYOR'S NAME, RANK, GRADE, AND TITLE	SSGT John Doe, Environmental Compliance Officer		
g. SURVEYOR'S TELEPHONE	555-555-0000		
h. SURVEYOR'S E-MAIL	john.doe@mail		

i. GEOGRAPHIC LOCATION

Note: If this information is classified, enter it in Section 14 of this checklist. The 8-digit military grid coordinates are mandatory for the site using the center of the camp for reference. Coordinates may also be taken from the outside corners of the site to provide site boundaries. A global positioning system may be used in addition to the grid coordinates. The 8-digit military grid coordinates will always include the 3-character zone designator and the 2-character grid square identifier.

Coordinate 1	XXXX XXXX	Coordinate 2	XXXX XXXX
Coordinate 3	XXXX XXXX	Coordinate 4	XXXX XXXX

NOTES *(Enter notes associated with the geographic location, for example, the datum associated with the location, map type, map number, global positioning system used, and so forth.)*
MGRS; 1:50,000, map number L145 K123

2. EXECUTIVE SUMMARY *

(Completed after information gathered is analyzed and recommendations developed. This is a synopsis of significant findings, conclusions, and recommendations based on the data analysis with the ultimate recommendation being to use or not use the site.)

3. INTRODUCTION

a. LIMITATIONS OF ASSESSMENT

(Enter the physical obstructions, limiting conditions (such as weather), mission restrictions, and the lack of equipment and supplies encountered during the assessment.)

There is limited access to ammunition storage bunkers. There are multiple aboveground storage bunkers, and several of these were damaged or destroyed. There is a large quantity of UXO in the area. This area is secured, and access is limited to prevent injury. The bunkers were not closely inspected due to the UXO presence. The seasonal rain prevented river-crossing operations and caused the low-water crossing to be too deep for vehicles. USAF personnel are conducting an airfield assessment on the runways and associated areas.

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Adobe Designer 9.0

Figure K-1. Sample DD Form 2993

Classification: Unclassified Continue

b. GENERAL DATA GAPS

(Enter data that was either not obtainable at the time of the survey or that will be received in the future; for example, awaiting analytical data, personnel not available to be interviewed, and locations of key facilities may be unknown or may move before occupation.)

Soil- and air-sampling analysis is pending, and water analysis and certification is ongoing.

4. SITE CHARACTERISTICS

(Attach site maps and photographs to the survey. Take at least one photograph per section or area of concern. Photographs can be used to document conditions before and after occupation. Create a photograph log that documents the date, time, location, and a brief description of each photograph.)

a. UNITS AND DETACHMENTS, TEAMS, AND ELEMENTS PRESENT

Note: If this information is classified, enter it in Section 14 of this checklist. Include as much detail as possible and include all Services.

1st MAW MWSS 171	3d Armored Cavalry Regiment and attached units	4th Squadron (AVN) and support squadron
Appendix A Environmental Conditions Survey Environmental Conditions SU122 Engineer BN	Forward elements of 142 CSB	

b. CAMP FIXED POPULATION

Note: If this information is classified, enter it in Section 14 of this checklist. Enter the population of the location, if known. Separate by military and civilian categories.

3,000 total (1,500 U.S. military, 100 contractors, and 1,400 coalition military personnel)

c. ROTATION SCHEDULE

Note: If this information is classified, enter it in Section 14 of this checklist.

(What is the unit rotation schedule [months, years, and so forth]).

Every 7 months

d. NUMBER OF UNITED STATES TROOPS IF NOT A UNITED STATES CAMP

Note: If this information is classified, enter it in Section 14 of this checklist.

1,500

e. PHYSICAL SETTING

(Provide a description of the general geography, topography, geology, hydrology, vegetation, raw materials, natural resources, and urban and rural settings. Make note of any obvious damage caused by natural and manmade events such as earthquakes, flooding, tornadoes, hurricanes, tsunami, or mining.)

The site is located in the desert and is centered on XXXX XXXX. The surrounding area is mostly desert with many deeply cut wadis running from west to east. The soil is sandy, and two former quarries are located to the west and the south. Sedimentary rock is found in the area. (A topographic map of the area is attached to this form.) There is sparse vegetation used for grazing in the basin of the Al Asad Wadi. The land is rugged and barren for the most part. Grazing areas to the east are in good shape and not subject to overgrazing in the near future. The site includes over 200 buildings. More than 80% of the site has power and water. The buildings require some maintenance but are structurally sound. There was wide-scale vandalism and petty theft before property seizure by coalition forces. There are currently no designated training areas. The adjacent property is almost entirely vacant desert. To the north of the fence line, there appears to be the remains of a battalion infantry fighting position. To the west and south, there are two rock quarries and a sand quarry. None of the quarries are in use. The basin of the desert wadi lies to the east-northeast. This basin has sparse vegetation and is used as grazing land for sheep.

f. CLIMATE AND WEATHER

(Provide information regarding the climate and weather in the area; for example, temperature range, predominate wind direction, or normal rainfall. Identify if the area is prone to seasonal or periodic events such as hurricanes, tornadoes, tsunamis, or monsoons. Attach five recent previous years of meteorological data (if possible, in an electronic format), the source of the data, and a point of contact for the source.)

The climate and weather of the area is dry and hot during the day and cool at night with a predominately western wind. The wadis fill during the seasonal rains, and a river runs outside the site. No other surface water is located near the site. A river was noted at XXXX XXXX during site reconnaissance.

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Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

g. SOIL

(Note the types, permeability, drainage ditches, low lying areas [standing water], unusual or out-of-place mounds, disturbed areas, discolored soil, areas unusually devoid of vegetation, and so forth. Is the area prone to sink holes? Provide 8-digit military grid coordinates of the areas identified. A global positioning system may be used in addition to the grid coordinates.)

The soil is sandy with scrub brush. There is some grass in low-lying areas. Sedimentary rock is found in the area. There is a flood zone on both sides of the river, and this flood zone has a sand and silt mixture.

h. GROUNDWATER

(Groundwater is any water source present beneath the surface of the ground. What is the depth of the groundwater and in what general direction does it flow?)

Groundwater is down 200 feet and flows from north to south.

i. SURFACE WATER

(What surface water is present on the site; lakes, ponds, rivers, or streams? What is the direction of flow for surface water and drainage? Indicate the direction of surface drainage on graphics or a site map. Note any standing [nonflowing or sluggish] water.)

There is a river near the site that flows northwest to southeast.

j. WETLANDS, FLOOD ZONES, COASTAL ZONES

(Is the site located in or near a wetland, flood zone, or coastal zone; for example, swamp, marsh, bog, or areas prone to flooding? Include the location of the wetlands and flood zones on graphics or site maps as appropriate. Note any areas that are flooded, show evidence of past flooding or flash flooding, and any potential wadis, washes, or dry creek beds.)

There is a flood zone for 500 feet on both sides of the river.

5. DETAILED SITE AND ADJACENT PROPERTY DESCRIPTION

(Make a detailed sketch or map overlay of the site, noting the areas of significance including the date, the surveyor's name and unit, a north arrow, scale, and legend. Take photographs and include grid coordinates and a description of both the area and reason for taking the photograph.)

Note: Everything examined in this section for the site must also be examined for all adjacent property and documented in Section 7 below.

a. DESCRIPTION OF STRUCTURES

(Describe the structures and their use: housing, maintenance, or office space. Include heating and ventilation systems and potential for Radon. Note the condition of the materials that may contain asbestos, such as roof shingles, floor tiles, or pipe insulation. These may release hazardous fibers if damaged. Look for signs of chipping or peeling lead-based paint. Look for electrical hazards and structural damage. Determine current and prior usage of structures. Document water and sewer capability. Look for evidence of previous spills, hazardous materials, or waste storage. Note any chemical-type or strange odors. Look for evidence of pest infestation.)

☐ Tents *(soft-sided structure)* ☒ Semipermanent *(hard buildings without permanent below surface foundations)*

☒ Permanent *(hard buildings with permanent below surface foundations)*

Various structure types are present. Working and living spaces are trailer-like structures protected by T-walls. Other structures present include an aircraft hangar, ASPs, maintenance areas, industrial sites, and administrative buildings and housing areas. The site is centered on XXXX XXXX. More than 80% of the site has power and water. Most of the buildings require some maintenance but are structurally sound. There was wide-scale vandalism and petty theft before seizure by coalition forces. There are currently no designated training areas. The adjacent property is almost entirely vacant desert. To the north of the fence line, there lies the remains of what appears to be a battalion infantry fighting position. To the west and south, there are two rock quarries and a sand quarry. None of the quarries are in use. To the east-northeast, there lies the basin of the desert wadi, which has sparse vegetation and is used as grazing land for sheep. Throughout the site, the roads are paved and in generally good condition. There are traffic circles located on-site to control some intersections. Many intersections are not marked, so traffic control measures will need to be established. Roads are narrow and may not support heavy or tracked vehicles for extended periods. The external perimeter roads are largely gravel, and there is some evidence of POL being used for dust suppression.

(See the continuation sheet.)

NOTES

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Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

b. DESCRIPTION OF ROADS AND HARDSTAND

(Describe the road conditions: paved, gravel, or dirt. Are there problems with dust generated from vehicle traffic? Is there a defined parking area? What kind of parking area is it: paved, gravel, or dirt? Attach a map, sketch, or photographs.)

Most of the roads on-site are made of crushed rock. There are a few paved roads, and these roads are in generally good condition. There are dust and sand parking lots on-site. Traffic circles are used to control some intersections. Most other intersections are not marked, so traffic control measures will need to be established. The roads are narrow and may not support heavy or tracked vehicles for extended periods of time. The external perimeter roads are largely gravel, and there is some evidence of POL being used for dust suppression.

c. DESCRIPTION OF POWER GENERATION

(Describe how power is supplied to the camp: individual and/or bulk generators or grid power. Include potential electrical hazards and sources of polychlorinated biphenyls). Note transformers, substations, and power lines present. Document leaking transformers, 8-digit military grid coordinates,and take photographs.)

[X] Tactical Generators [ ] Commercial Generators [X] Municipal and Local Grid

NOTES: Electrical transmission systems are largely intact, and the power station is still in good condition. Electrical distribution systems have been looted, and many power lines have been left hanging. Electrical systems in administrative buildings and housing areas are questionable. Maintenance Area 10 has electrical wiring that is frayed and exposed. Areas without working municipal power are being powered with tactical generators.

d. CONTRACTOR SERVICES

(What services are contractors performing at the site? Include contractors, subcontractors, or host nation contracts with the point of contact, company information, and the initiating agency.)

[X] Food [ ] Vector Control [ ] Laundry [X] Hazardous Waste [ ] Power [ ] Medical Waste [X] Solid Waste
[ ] Hazardous Materials Spill Response and Remediation [X] Waste [ ] Water Waste [ ] Ranges [ ] Firefighting and Suppression

NOTES: The following is contact information for areas where contractors are employed: the Al Asad Wastewater Treatment Plant, 555-555-1111; the local landfill, 555-555-0002; and Al Asad Utilities, 555-555-0003. There are no HW management records, but local landfill personnel indicated that a local contractor was used for HW disposal off-site.

e. HAZARDOUS MATERIALS

(1) STORAGE CONTAINERS

(Describe the type, number, contents, volume, and coordinates of all storage containers. Is there secondary containment? What is done with water that accumulates in the secondary containment? Note the condition of the containers. Determine if they are currently leaking or have leaked in the past. Look for soil discoloration, stains, rust, and any containment of spill residue. Are materials stored inside or outside? Take photographs.)

INDIVIDUAL STORAGE CONTAINERS

(a) Location Description *(Where is it? Inside or under cover?)*	(b) Container Type *(Plastic, metal, single or double walled.)*	(c) Size *(Labeled volume or dimensions.)*	(d) Age	(e) Above or Below Ground?	(f) Contents *(What has been stored, what is currently being stored, and what will be stored in the future?)*
Outside in a storage locker	Metal	3 by 2 by 7 foot	15 years	Above	POL
NOTES	*(Condition of container? Labeled with contents?)* The container has some rust, and the contents inside were mostly labeled.				
Five tanks outside	Single-walled	10,000 gallons	20 years	Above	Jet fuel
NOTES					
Compressed-gas bottles	Metal	60 cubic feet	5	Above	Empty, but they are designated for oxygen and nitrogen.
NOTES	There are 200 to 300 bottles at a compressed-gas plant.				
NOTES					

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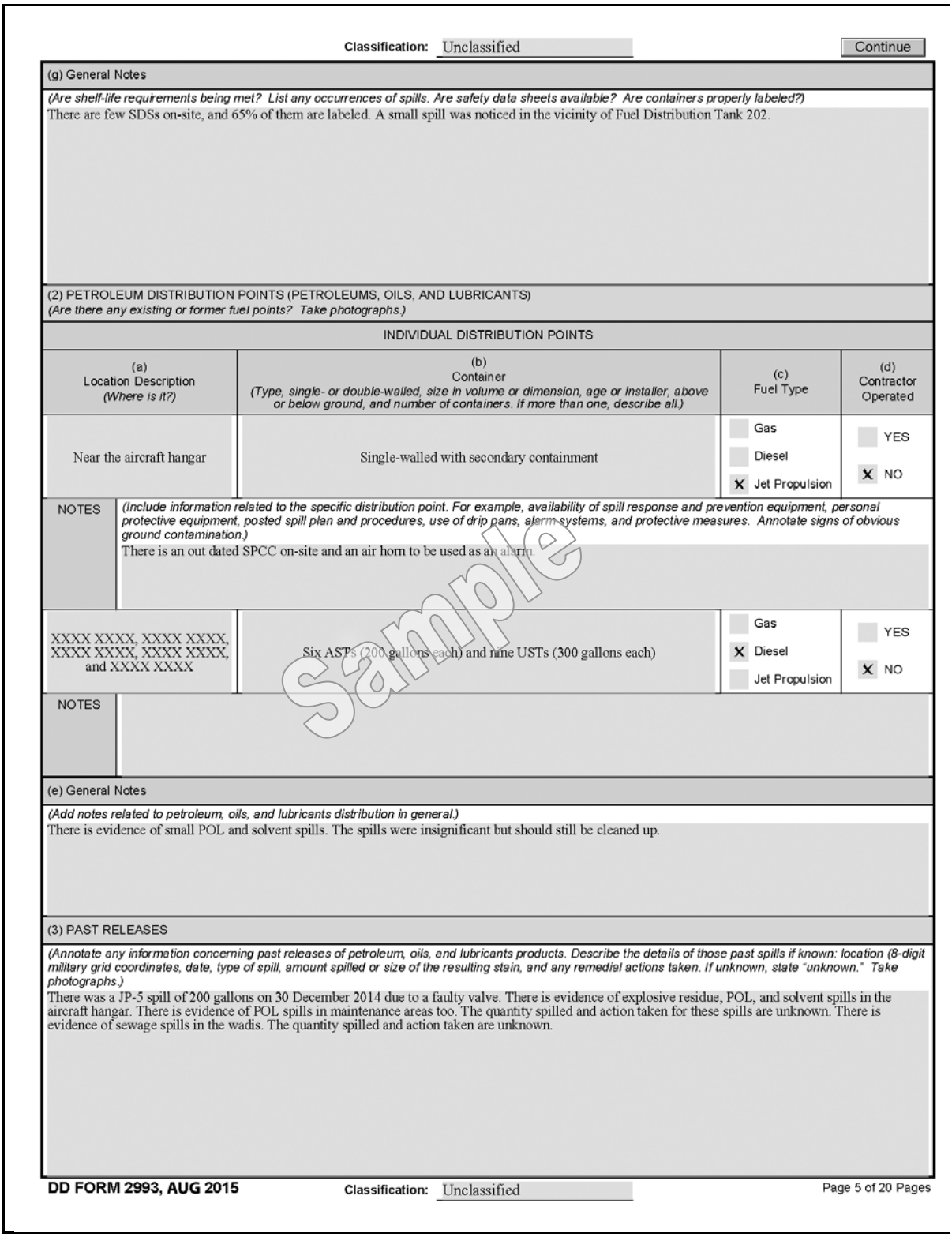
Figure K-1. Sample DD Form 2993 (continued)



Classification: Unclassified

Continue

(g) General Notes

(Are shelf-life requirements being met? List any occurrences of spills. Are safety data sheets available? Are containers properly labeled?)

There are few SDSs on-site, and 65% of them are labeled. A small spill was noticed in the vicinity of Fuel Distribution Tank 202.

(2) PETROLEUM DISTRIBUTION POINTS (PETROLEUMS, OILS, AND LUBRICANTS)

(Are there any existing or former fuel points? Take photographs.)

INDIVIDUAL DISTRIBUTION POINTS

(a) Location Description *(Where is it?)*	(b) Container *(Type, single- or double-walled, size in volume or dimension, age or installer, above or below ground, and number of containers. If more than one, describe all.)*	(c) Fuel Type	(d) Contractor Operated
Near the aircraft hangar	Single-walled with secondary containment	☐ Gas ☐ Diesel ☒ Jet Propulsion	☐ YES ☒ NO

NOTES *(Include information related to the specific distribution point. For example, availability of spill response and prevention equipment, personal protective equipment, posted spill plan and procedures, use of drip pans, alarm systems, and protective measures. Annotate signs of obvious ground contamination.)*

There is an out dated SPCC on-site and an air horn to be used as an alarm.

XXXX XXXX, XXXX XXXX, XXXX XXXX, XXXX XXXX, and XXXX XXXX	Six ASTs (200 gallons each) and nine USTs (300 gallons each)	☐ Gas ☒ Diesel ☐ Jet Propulsion	☐ YES ☒ NO

NOTES

(e) General Notes

(Add notes related to petroleum, oils, and lubricants distribution in general.)

There is evidence of small POL and solvent spills. The spills were insignificant but should still be cleaned up.

(3) PAST RELEASES

(Annotate any information concerning past releases of petroleum, oils, and lubricants products. Describe the details of those past spills if known: location (8-digit military grid coordinates, date, type of spill, amount spilled or size of the resulting stain, and any remedial actions taken. If unknown, state "unknown." Take photographs.)

There was a JP-5 spill of 200 gallons on 30 December 2014 due to a faulty valve. There is evidence of explosive residue, POL, and solvent spills in the aircraft hangar. There is evidence of POL spills in maintenance areas too. The quantity spilled and action taken for these spills are unknown. There is evidence of sewage spills in the wadis. The quantity spilled and action taken are unknown.

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Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

(4) POTENTIAL RELEASES

(Discuss areas where the potential for releases to occur is likely. This may include refueling, storage facilities, pipelines, fuel transfer points, or other fuel handling operations.)

All fuel storage areas are potential spill sites. Maintenance areas and the aircraft hangar have the highest potential for spills.

(5) HAZARDOUS AND UNIDENTIFIED SUBSTANCES

(Hazardous and unidentified substances are anything other than petroleum, oils, and lubricants. This may also include past use industries that have contaminated the area prior to United States occupation. Identify the hazardous substance and location.)

Chlorine gas is stored at a water treatment facility outside the site.

(6) HAZARDOUS MATERIAL STORAGE

(Describe storage sites and controls. For example, engineering, administrative, and personal protective equipment. Take photographs.)

INDIVIDUAL HAZARDOUS MATERIAL STORAGE SITES

(a) Location Description *(Where is it? Inside or under cover?)*	(b) Material Type *(What is stored, for example corrosives, batteries, ammunition, asbestos?)*	(c) Material Amount *(How much is currently stored? What is the most that will be stored?)*	(d) Date Noted
Inside the MWSS 171 trailer	Batteries	~20 lithium up to 50	4 April 2015
NOTES	*(Add notes related to the specific hazardous material storage site.)*		
Aircraft hangars and maintenance areas	Cleaning solvents	Three solvent tanks and several cases of solvents with containers and labels in various stages of disintegration	4 April 2015
NOTES	Solvent samples were taken and are being sent for analysis to determine their chemical composition.		

(e) General Notes

(Add notes related to hazardous material storage in general.)

(7) SPILLS

(a) What	(b) Where	(c) When	(d) Quantity
JP-5	Tank 1	30 December 2014	200 gallons
NOTES	*(What caused the spill? Who responded to it? Was a spill plan on site? Was it followed? Is spill response equipment on site? Are there established evacuation routes? How was it cleaned up? How was the waste material handled? Who was notified?)* The spill was due to a faulty valve. It was cleaned up with absorbent pads, and the contaminated soil was removed.		

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Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified — Continue

(a) What	(b) Where	(c) When	(d) Quantity
Solvents	Aircraft hangar and maintenance areas	Unknown	Unknown

NOTES: The soil and concrete flooring show evidence of past solvent and POL spills. The quantities spilled are unknown.

(e) General Notes

f. WASTE MANAGEMENT

(1) SOLID AND HAZARDOUS WASTE

(General description of solid and hazardous waste disposal practices. Describe whether burn pits, composting, landfills, or incinerators are used. Note any signs of dumping and determine what might have been dumped. Take photographs.)

INDIVIDUAL SOLID AND HAZARDOUS WASTE DESCRIPTIONS

(a) Type of Waste *(What is the waste? For example, is it residential, industrial, agricultural, or explosive ordnance?)*	(b) Source of Waste *(For example, is it dining facility, housing, office, or construction debris?)*	(c) Disposal Method *(For example, open dumping, incineration, open burning, landfill, or composting?)*	(d) Contractor Operated
Residential	Housing areas	Landfill	☐ Defense Reutilization and Marketing Office ☐ United States ☒ Local

NOTES: *(Add notes related to specific types of waste. Include contractor information, host nation and local company point of contact and telephone number, the name of the individual who picks it up, the method of pickup, the frequency of pickups, where it goes, the location with grid coordinates, and how long it remains on site. How is it stored? Take photographs.)*
The local landfill (555-555-0005) has unsorted waste. The landfill is made with compacted soil, there is no liner, and daily cover is 4 to 6 inches The contractor picks up waste on a daily basis

Explosive ordnance	Ammunition Storage Bunkers 1, 2, and 3	There is no disposal method. There are many instances of materials with significant hazards.	☐ Defense Reutilization and Marketing Office ☐ United States ☒ Local

NOTES: The area is currently marked as off-limits due to hazards.

Sanitary waste (black water)	There is waste backup from when power outages occurred at the treatment plant. The waste overflows into the wadis.	NA, seasonal issue (only occurs during the rainy season)	☐ Defense Reutilization and Marketing Office ☐ United States ☒ Local

NOTES:

Solid and mixed waste	Trash dump (currently not in use and covered)	NA	☐ Defense Reutilization and Marketing Office ☐ United States ☐ Local

NOTES: This is a trash dump where past, improper waste disposal occurred. The incinerator for paper disposal is located near the old trash dump (XXXX XXXX).

(e) General Notes

(Include contractor and subcontractor information, point of contact, telephone number, storage locations, quantities, and frequency of removal. Who is responsible for removing waste? Methods used to remove, such as dumpsters or trucks. If disposal is by burn pit, are wastes segregated? What is the frequency of burning in the pit? How far away is the nearest occupied area? Who lives and works in the area and is there any record of complaints or concerns associated with the burn pits? Take photographs.)
The landfill is about 10 miles off-site. Items are not segregated in the dump.

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Figure K-1. Sample DD Form 2993 (continued)

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(2) NONHAZARDOUS WASTE	
(i) REUSE, RECYCLING, AND COMPACTION FACILITIES	
(a) Location	*(Where is it located and the distance from living areas. Provide grid coordinates.)* 10 miles north of the site
(b) Materials and Volume Managed	*(Types and quantity of materials reused and recycled. Document procedures for collection, management, and disposition.)* Scrap metal
(c) Equipment Utilized	*(List all equipment and containers used.)* Crusher
(d) Operator	*(Name and contact information.)* XYZ Metal Recycling, 555-555-0066
(e) General Notes	*(Make note of any problems or issues that exist with the current process or procedures.)* Stockpiling metal during seasonal rains can cause standing water issues that may result in mosquito or fly populations, which can be vectors of disease. Ensure proper drainage of metal yard on the airfield.
(ii) LANDFILLS	
(a) Location	*(Where in the camp is it located? Note the distance from living areas and nearest airfield. Provide 8-digit military grid coordinates.)* 10 miles north of the site
(b) Material Disposed	*(Types of material disposed.)* Garbage
(c) Disposal Volume/Day	*(In weight or volume, obtain from the landfill coordinator.)* 10,000 pounds per day
(d) Operator	*(Name and contact information.)* Local contractor
(e) Daily Cover	*(Is daily cover applied?)* There is minimum daily cover 4 to 6 inches per day.
(f) Description	*(General size, how long in use, materials excluded, such as medical waste, batteries, tires, or petroleum, oils, and lubricants. Are there monitoring wells for gas or leachate? Describe the landfill construction.)* The landfill is 2 acres in size. Tires are not allowed in the waste stream. No monitoring wells were installed. The landfill is made of compacted soil with no liner. Waste is comingled and not monitored to ensure that medical and HW is separated.
(iii) INCINERATORS AND BURN PITS	
(a) Location	*(Where in the camp is it located and the distance from living areas. Provide grid coordinates and prevailing wind direction of the area.)* X Incinerator Burn pit XXXX XXXX
(b) Material Disposed	*(Types of material disposed.)* Paper
(c) Disposal Rate Per Day	*(Obtain from the incinerator and burn pit operator the weight or volume. For incinerators, note the unit's capacity from the specification plate on the unit.)* 1,000 pounds per day
(d) Operator	*(Name and contact information.)* MWSS 171
(e) Manufacturer	*(Obtain from the specification plate on the unit. Describe the unit.)* Unknown
(f) Hours of Operation Per Day	*(Obtain from the operator.)* 2 hours per day, usually from 1700 to 1900
(g) Frequency of Burning	*(Days per week, hours per day, time of day.)* 7 days a week
(h) Supplemental Fuel	*(For example, diesel, propane, or waste oil.)* Diesel
(i) General Notes	*(Document the type of incinerator. For example, hazardous or nonhazardous waste. Are there scrubbers in place? What are the procedures for ash disposal ? Are the incinerators dual chambered?)* There is no HW or scrubbers, and ash is disposed of in the landfill.

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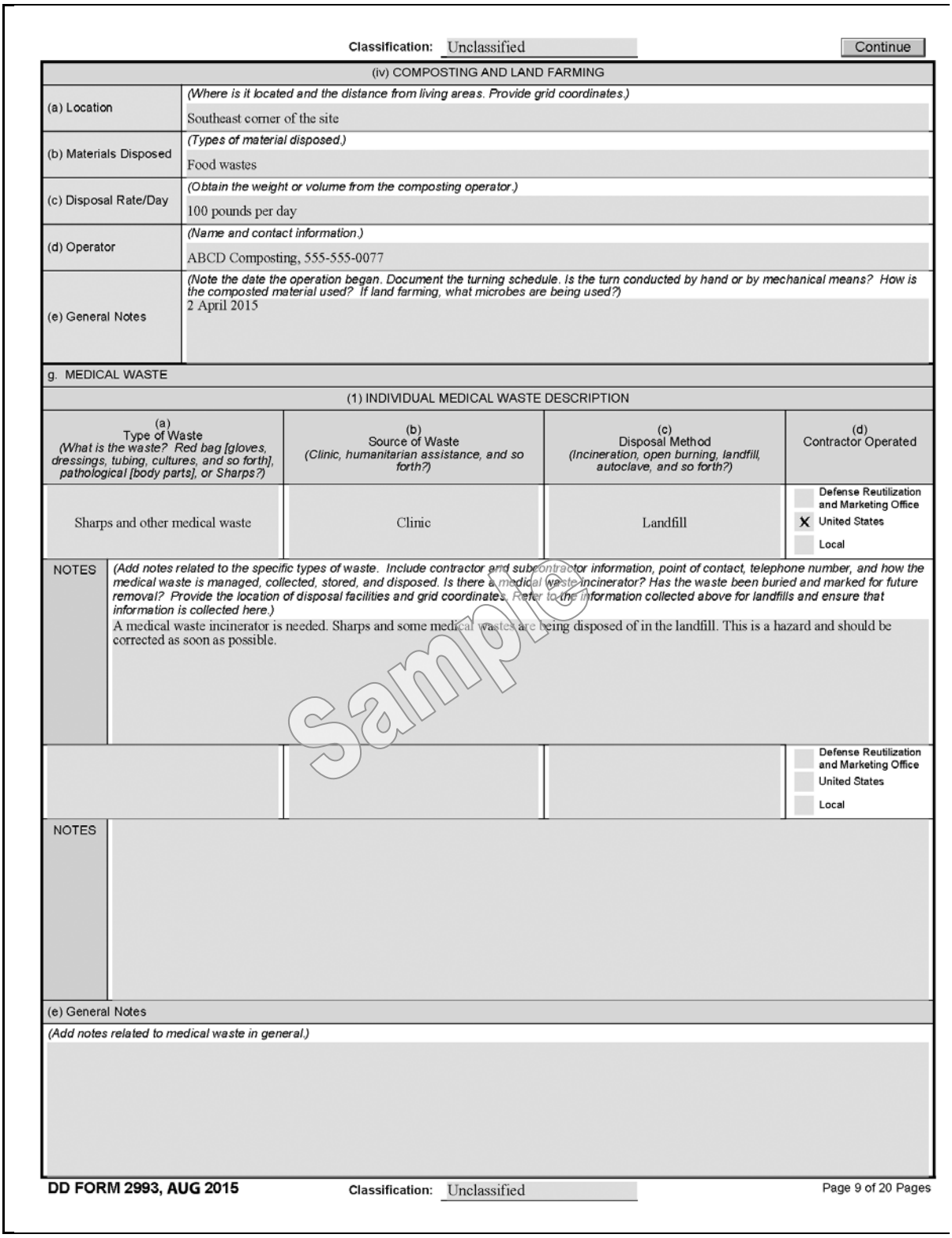
Figure K-1. Sample DD Form 2993 (continued)



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Continue

(iv) COMPOSTING AND LAND FARMING	
(a) Location	*(Where is it located and the distance from living areas. Provide grid coordinates.)* Southeast corner of the site
(b) Materials Disposed	*(Types of material disposed.)* Food wastes
(c) Disposal Rate/Day	*(Obtain the weight or volume from the composting operator.)* 100 pounds per day
(d) Operator	*(Name and contact information.)* ABCD Composting, 555-555-0077
(e) General Notes	*(Note the date the operation began. Document the turning schedule. Is the turn conducted by hand or by mechanical means? How is the composted material used? If land farming, what microbes are being used?)* 2 April 2015

g. MEDICAL WASTE

(1) INDIVIDUAL MEDICAL WASTE DESCRIPTION

(a) Type of Waste *(What is the waste? Red bag [gloves, dressings, tubing, cultures, and so forth], pathological [body parts], or Sharps?)*	(b) Source of Waste *(Clinic, humanitarian assistance, and so forth?)*	(c) Disposal Method *(Incineration, open burning, landfill, autoclave, and so forth?)*	(d) Contractor Operated
Sharps and other medical waste	Clinic	Landfill	Defense Reutilization and Marketing Office X United States Local

NOTES *(Add notes related to the specific types of waste. Include contractor and subcontractor information, point of contact, telephone number, and how the medical waste is managed, collected, stored, and disposed. Is there a medical waste incinerator? Has the waste been buried and marked for future removal? Provide the location of disposal facilities and grid coordinates. Refer to the information collected above for landfills and ensure that information is collected here.)*

A medical waste incinerator is needed. Sharps and some medical wastes are being disposed of in the landfill. This is a hazard and should be corrected as soon as possible.

			Defense Reutilization and Marketing Office United States Local

NOTES

(e) General Notes

(Add notes related to medical waste in general.)

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Figure K-1. Sample DD Form 2993 (continued)

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(2) MEDICAL WASTE INCINERATORS	
(a) Identification	NA, sharps are currently disposed of in the landfill. This is hazardous to personnel and local contractors. A medical incinerator is needed.
(b) Location	*(Where in the camp is it located and the distance from living areas. Provide grid coordinates.)* NA
(c) Material Disposed	*(Types of material disposed.)* NA
(d) Disposal Rate Per Day	*(In weight or volume, obtain from the incinerator or burn pit operator. For incinerators, note unit's capacity from specification plate on unit.)* NA
(e) Operator	*(Name and contact information.)* NA
(f) Manufacturer	*(Obtain from the specification plate on the unit.)* NA
(g) Hours of Operation Per Day	*(Obtain from the operator.)* NA
(h) Supplemental Fuel	*(Diesel, propane, waste oil, and so forth.)* NA
(i) General Notes	*(Add notes related to medical waste incineration in general. Document the type of incinerator such as hazardous or nonhazardous waste. Are scrubbers in place? How is ash disposed of? Are there dual chambers?)* NA

h. WASTEWATER *(What are the sources and types? How is it collected, treated, discharged, or disposed?)*	
INDIVIDUAL WASTEWATER DESCRIPTIONS	
(1) Source and Type of Wastewater	*(Black water such as latrines, urinals, kitchen, or other and explain; grey water: hand washing, laundry, brine from reverse osmosis concentration, or other and explain; industrial wastewater such as wash racks, oil water separators, or other and explain. The volume of wastewater.)* There is black water from latrines, urinals, and kitchens and gray water from lavatories and laundry facilities. The volume of wastewater produced is unknown.
(2) Collection Method	*(Black water such as turn-out latrines and portable or chemical toilets; tank trailers and holding tanks or ponds (capacity); and pipes and pump stations. Grey water such as water not collected, tank trailers, and holding ponds (capacity); pipes; and pump stations. Include collection system design or sketch.)* The sewage piping is functional and feeds into the sewage plant. The system backs up into the wadis during rainy season or when power outages occur.
(3) Disposal Method	*(How is it being disposed of? Discharge methods: subsurface such as septic drain field, dry wells, seepage pits; land applied such as ground discharge, infiltration, evaporation ponds, beds, fields, spray irrigation; stream discharge, trucked off-site to known or unknown location and explain; piped off-site to known or unknown location and explain.)* A treatment facility is functional and operating. The sewage plant is located at XXXX XXXX. When the plant is not operating, processed sewage or overflow empties into the Al Asad Wadi. Two sumps, three catch basins, and four dry wells are in use.
(4) Contractor Operated	☐ Defense Reutilization and Marketing Office ☐ United States ☒ Local
(5) General Notes	*(Enter general notes regarding wastewater activities.)* NSTR

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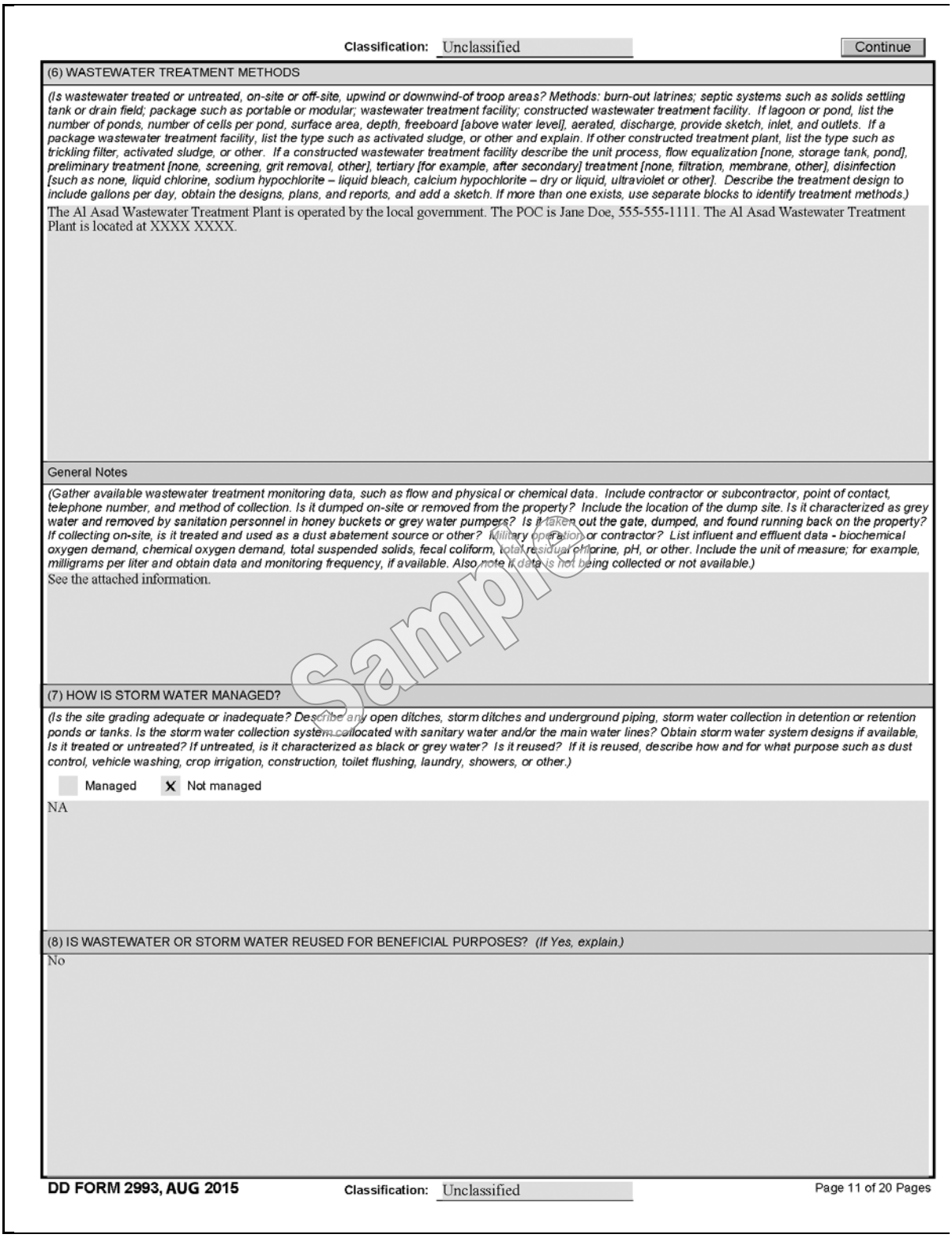
Figure K-1. Sample DD Form 2993 (continued)



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Continue

(6) WASTEWATER TREATMENT METHODS

(Is wastewater treated or untreated, on-site or off-site, upwind or downwind-of troop areas? Methods: burn-out latrines; septic systems such as solids settling tank or drain field; package such as portable or modular; wastewater treatment facility; constructed wastewater treatment facility. If lagoon or pond, list the number of ponds, number of cells per pond, surface area, depth, freeboard [above water level], aerated, discharge, provide sketch, inlet, and outlets. If a package wastewater treatment facility, list the type such as activated sludge, or other and explain. If other constructed treatment plant, list the type such as trickling filter, activated sludge, or other. If a constructed wastewater treatment facility describe the unit process, flow equalization [none, storage tank, pond], preliminary treatment [none, screening, grit removal, other], tertiary [for example, after secondary] treatment [none, filtration, membrane, other], disinfection [such as none, liquid chlorine, sodium hypochlorite – liquid bleach, calcium hypochlorite – dry or liquid, ultraviolet or other]. Describe the treatment design to include gallons per day, obtain the designs, plans, and reports, and add a sketch. If more than one exists, use separate blocks to identify treatment methods.)

The Al Asad Wastewater Treatment Plant is operated by the local government. The POC is Jane Doe, 555-555-1111. The Al Asad Wastewater Treatment Plant is located at XXXX XXXX.

General Notes

(Gather available wastewater treatment monitoring data, such as flow and physical or chemical data. Include contractor or subcontractor, point of contact, telephone number, and method of collection. Is it dumped on-site or removed from the property? Include the location of the dump site. Is it characterized as grey water and removed by sanitation personnel in honey buckets or grey water pumpers? Is it taken out the gate, dumped, and found running back on the property? If collecting on-site, is it treated and used as a dust abatement source or other? Military operation or contractor? List influent and effluent data - biochemical oxygen demand, chemical oxygen demand, total suspended solids, fecal coliform, total residual chlorine, pH, or other. Include the unit of measure; for example, milligrams per liter and obtain data and monitoring frequency, if available. Also note if data is not being collected or not available.)

See the attached information.

(7) HOW IS STORM WATER MANAGED?

(Is the site grading adequate or inadequate? Describe any open ditches, storm ditches and underground piping, storm water collection in detention or retention ponds or tanks. Is the storm water collection system collocated with sanitary water and/or the main water lines? Obtain storm water system designs if available, Is it treated or untreated? If untreated, is it characterized as black or grey water? Is it reused? If it is reused, describe how and for what purpose such as dust control, vehicle washing, crop irrigation, construction, toilet flushing, laundry, showers, or other.)

☐ Managed ☒ Not managed

NA

(8) IS WASTEWATER OR STORM WATER REUSED FOR BENEFICIAL PURPOSES? *(If Yes, explain.)*

No

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Figure K-1. Sample DD Form 2993 (continued)

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I. HISTORICAL AND CULTURAL RESOURCES

(Take photographs and note the location using grid coordinates or global positioning system. Note the areas of significance on the site sketch or map overlay. Describe the general surface appearance and disturbances such as irregular holes and trenches from vandalism and looting or regular emplacements from recent military or other use.)

Note: If it is determined that the historical or cultural resource must be protected to prevent damage or looting by pot-hunters or black market antiquities dealers, it is likely that documentation of the site should be annotated in Section 14 as classified information.

(1) HISTORICAL RESOURCES

(Document historical buildings, monuments and artifacts on display in buildings or museums. Look for clues in the landscape regarding undocumented artifacts, ancient features, ruins, rock art, and ancient writing or pictographs. Note the presence of artifacts in the ground or undisturbed as part of an archeological site, such as ancient pottery, stone tools or jewelry, decorative art or beads, carved bone, or wood. Note earthen mounds that are not part of the natural topography, caves, or rock shelters often containing archeological remains. Note ancient storage and trash pits. Note remnants of walls, floors, and collapsed ceilings which will typically be constructed of mud-brick or stone as wood disintegrates in a few years in most environments. Note rock surfaces that are decorated with paint, pecked renderings, or inscriptions.)

The old bridge located at XXXX XXXX.

(2) CULTURAL RESOURCES

(Anything that is significant to the local population is a cultural resource. Document individual burials, burial grounds, and cemeteries which may be marked or unmarked. Document areas of religious significance. List and describe all known parks, forests and/or animal preserves, and recreational areas in or around the site. Interviews with the local nationals are imperative to this documentation.)

The mosque is located 1 mile north of the site.

(3) ASSESS IMPACT LEVEL

Level 1: No impact. There are no resources present or the proposed mission would avoid them if present.
Level 2: Less than significant impact. Resources are present but proposed mission would only have minor effects without the need for mitigating actions.
Level 3: Less than significant impact with mitigation incorporation. Resources are present but with the implementation of mitigating actions effects can be minimized to an acceptable level, such as power lines to be installed can be routed around sensitive resource concentrations.
Level 4: Potentially significant impact. The proposed action would likely cause a substantial adverse change in the significance of a historical or archeological resource, disturb a known religious, traditional, or cultural resource or disturb any human remains, including those interred outside of formal cemeteries.

(a) Cultural Resource *(Describe resource.)*	(b) Assess Impact Level *(Enter level and explain.)*
Mosque	Level 3; traffic should be routed away from the mosque.

(4) General Notes

(Enter general notes regarding historical and cultural resources. List any host nation or local subject matter expert and point of contact information for cultural properties or resources from academia, museums, government agencies, local citizens, and so forth.)

The old bridge has structural elements significant to the local culture. Engineers should ensure that military traffic does not negatively impact the structural integrity of the old bridge. The old bridge is also important during the rainy season as some areas would be cut off if it were inoperable. This would negatively impact the economy and trade operations.

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Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

j. ENDANGERED AND THREATENED SPECIES AND HABITATS

(Identify all endangered and threatened species or sensitive habitats that could be in or around the site. This may be done through an internet search. Make note of any significant habits or species sensitivities that could be directly affected by the mission. During the site reconnaissance make note of and document the presence of habitation and species sightings. Document the presence of endangered species in the area that could be affected by the mission or occupation. Identify habitat areas using grid coordinates or global positioning system. Note the areas of significance on the site sketch or map overlay. Document the existence of any environmental controls or restrictions already in place. Make note of manmade damage or disturbance of the area and any signs of previous occupation by military or civilian entities.)

Fancy scrub grass is located at XXXX XXXX.

(1) ASSESS IMPACT LEVEL

Level 1: No impact. There are no endangered and threatened species present or the proposed mission would avoid them if present.
Level 2: Less than significant impact. Resources are present but proposed mission would only have minor effects without the need for mitigating actions.
Level 3: Less than significant impact with mitigation incorporation. Resources are present but with the implementation of mitigating actions effects can be minimized to an acceptable level.
Level 4: Potentially significant impact. The proposed action would likely cause a substantial adverse impact to an endangered and threatened species or their habitat.

(a) Endangered and Threatened Species *(Describe resource.)*	(b) Assess Impact Level *(Enter level and explain.)*
Fancy scrub grass	Level 2; there is a small patch of fancy scrub grass in the northeast corner of the site. The area is marked "No traffic, keep out."

(2) GENERAL NOTES

(Enter general notes regarding endangered species or habitat. List any host nation or local subject matter expert and point of contact information for natural resource management, from academia, government agencies, local citizens, and so forth.)

NA

k. LOCAL DISEASES AND HEALTH FACTORS

(1) DISEASE THREATS	*(List diseases prevalent.)* NA
(2) CAUSES AND VECTORS OF DISEASE	*(Enter known causes and/or vectors such as insects, animals, or organisms that carry the diseases known to be present in the area of operation.)* There are rodents in DFAC 2.
(3) VECTORS PRESENT	*(Is surveillance for the vectors of these diseases being conducted? If yes, describe what is being done and what has been found. Are conditions favorable for vectors or pests? If yes, describe. Are Soldiers being bitten by vectors or pests? If yes, list and describe what is being done about it. Do Soldiers report seeing other pests? If yes, list. Are disease vectors present? If yes, complete specifics below if possible. Are conditions favorable for breeding vectors and pests? Is standing water present? Describe location and condition. Are habitats of disease vectors and carriers present? Specify and explain. Are potential vectors and pests such as filth flies, rodents, stray dogs or cats, snakes, or scorpions present? Specify and explain. Are seasonality or weather conditions favorable for breeding pests? Are there locations where wastes have been disposed of incorrectly and which may attract pests? Is the deployment site drainage adequate? Have personnel seen other pests, such as rodents, spiders, or snakes?)* Rodents, feral dogs and cats, pit vipers (poisonous), camel spiders, unidentified large lizards, and bats are present at the site.
(4) ENVIRONMENTAL HEALTH ASSESSMENT	*(Are living and work facilities pest proof? If no, describe. Is waste being handled in environmentally sound manner that protects human health and does not provide breeding for pests? If no, describe. Are uniforms properly worn? Are individuals practicing good personal and unit area sanitation? Is education on avoidance of pests and pest habitats provided? Is personal information distributed to Soldiers, such as tick and rodent cards and staying healthy guides?)* Personnel are briefed on recognizing poisonous spiders and snakes and the necessity of shaking clothing, boots, and bedding before use.

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Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

(5) FIELD SANITATION ASSESSMENT	*(Is human waste disposed of in an environmentally sound manner and in a manner that protects human health? Are laundry services provided or planned? Are adequate food storage facilities provided? Is liquid kitchen waste disposed of in an environmentally sound manner that protects human health?)* Sanitary procedures are in place, and DFAC 2 is being evaluated for pest control methods.
(6) COUNTERMEASURES AND PEST MANAGEMENT CONTROL	*(Are personal protective countermeasures appropriate to the threats? Describe. Have action thresholds been established to guide initiation of pest control measures? Is there a control program for disease vectors? Are integrated pest management procedures being used? Does the integrated pest management include reduction to food sources and breeding habitats? Are pest management operations being conducted? If yes, describe. Include who [contractor, medical personnel] and what [vector, pest]. Are mechanical or chemical controls being used? If so, list. Are they properly handled and stored? How are pests [such as carcasses] being disposed?)* Personnel are briefed on recognizing poisonous spiders and snakes and shaking clothing, boots, and bedding before use. Pest control (insecticide spraying) has been requested near food and bed-down areas.
(7) PESTICIDE USE	*(Attach copies of DD Form 1532-1 (or equivalent). What chemical is being used, how much is in inventory, and how much is being applied at what intervals? Are records being kept? When is application conducted? Are safety data sheets and appropriate personal protective equipment available to personnel applying chemicals?)* When insecticide is applied, appropriate information will be noted. Pest control personnel are evaluating pest control methods.

l. RADIOLOGICAL HAZARDS

(Radiological sources will only be identified for the environmental baseline survey if the source is a waste material or there is a significant impact to the environment. If radiological sources are suspected, contact chemical, biological, radiological, and nuclear resources for assistance.)

Radon is suspected in Building 00 (XXXX XXXX). The building is closed to personnel using off-limits signs and barrier tape. Analysis by specially trained personnel is pending. Will recommend increased ventilation until CBRN resources evaluate the building. No other concerns were found.

m. NOISE

(1) NOISE SOURCES PRESENT *(Are noise sources present? If so, describe sources. Take photographs.)*

X PRESENT ABSENT

(2) INDIVIDUAL NOISE SOURCES

(a) Location Description *(Where is it?)*	(b) Source *(Generator, industrial operations, air field, and so forth.)*	(c) Noise Level *(Ambient noise level obtained from a noise meter measured in decibels.)*
Housing areas	Generators	40 decibels
NOTES *(Add notes related to the specific noise source.)*		
Airfields	Aircraft operations	TBD
NOTES		
NOTES		

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Figure K-1. Sample DD Form 2993 (continued)

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Continue

(3) NOISE SENSITIVE AREAS OR ACTIVITIES AND NOISE CONTROLS
(Are there noise sensitive activities present that may be negatively impacted by military operational noise?)

(a) Location Description *(Where is it?)*	(b) Noise Sensitive Area or Activity *(Describe the noise-sensitive areas or activities such as hospitals, nursing homes, tourism areas or sites, animal habitat, agricultural, or animal husbandry operations.)*	(c) Noise Control *(Are noise controls present? If noise controls are present, describe the type such as avoidance, engineering controls such as barriers or keeping a specified distance from the noise sensitive area or activity. If noise controls are not present, describe recommended or potential noise solutions.)*
1 mile northeast of the site	Mosque	X Present Absent Avoidance
NOTES		
Within the site	Medical clinic	X Present Absent Avoidance; the effectiveness of noise barriers will be evaluated.
NOTES		

(4) GENERAL NOTES

(Add notes related to noises in general.)

n. AIR QUALITY

(1) AMBIENT (OUTSIDE) AIR QUALITY *(Describe sources that impact ambient air and/or introduce potential hazards. Provide locations. Survey landscape and note presence of storage tanks. Identify contents. Note all combustion sources that create exhaust, fumes, or smoke; for example, flares, incinerators, generators, burn pits or boxes, welding operations, idling vehicles, or aircraft. Note sources of dust, such as concrete plants, mining operations, tank or convoy trails, roads or highways, helipads or runways, and agricultural fields or operations. Describe sources that produce odors such as a landfill, military painting and/or solvent use, or refueling points. Note any terrain and elevation differences between the camp and air sources. Is the source affected by the season or weather? Is it weather dependent?)*

There is dust from roads, parking lots, and agricultural operations. Sandstorms often generate hazardous dust conditions.

(2) INDOOR AIR QUALITY *(Do occupants complain about dust, odors, stale air, or have symptoms of eye, throat, and nose irritation? Are generators placed near building openings? Is the presence of visible mold noted? Take photographs. Do personnel occupy newly built structures? Does the ventilation system allow fresh, filtered, and conditioned air into the building or shelter? Take photographs.)*
Note: Carbon monoxide and other combustion by-products should be controlled to as low as reasonably achievable.

Building 00 has a radon concern. Increased ventilation is recommended at Building 00 until CBRN resources can evaluate and mitigate if needed.

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Figure K-1. Sample DD Form 2993 (continued)

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o. WATER

(1) WATER TREATMENT

(Describe the water treatment systems currently in place and their effectiveness. Contractor or military operated? Is it a host nation water source, taps, faucets in buildings? Is the source water being tested for surface infiltration of pollutants?)
Bottled water is being used for potable water. The HN water treatment plant is located outside the perimeter of the site. Water supply lines were repaired after an insurgent attack. The piping is 10-inch ductile steel pipes without lead joints. No significant rust was noted. Water samples have been taken, and the results are attached to this report. Until water from the facility is approved by PVNTMED, bottled water will be used as potable water.

(2) MUNICIPAL WATER

(a) Identification *(Usually obtained from engineers.)*	(b) Municipality *(Name of municipality supplying water.)*	(c) Treatment Methods *(Method used to treat water.)*	(d) Distribution Point Description *(Describe the distribution points; for example, water trailer, water blivet, and preexisting plumbing.)*
XXXX XXXX	Al Asad	Chlorine	The preexisting piping is 10-inch ductile steel pipes.

NOTES *(How is the water from this source used?)*
Until water from the facility is approved by PVNTMED, bottled water will be used as potable water.

NOTES

(3) SUBSURFACE WATER

(a) Identification	(b) Access to Subsurface Water *(Describe access to subsurface water such as wells. Note any evidence of ancient infrastructure used to access groundwater (for example, karez, foggaras, or qanat)).*	(c) Pump Specifications *(From specification plate on pump or from the engineers.)*	(d) Potential Sources of Contamination *(Evaluation of potential source of contamination, such as storm water runoff or vector access. Provide examples.)*
NA			

NOTES *(How is water from this source treated and used?)*

NOTES

(4) SURFACE WATER

(a) Identification	(b) River or Lake Name	(c) Treatment Method *(Is the surface water treated, such as filtration or chlorination?)*	(d) Potential Sources of Contamination *(Evaluation of potential source of contamination, such as agricultural wastewater discharge, dead animals, or industrial operations.)*
NA	Al Asad River	Not used as a water source	Wastewater backups and agricultural operations

NOTES *(How is water from this source used?)*

NOTES

(5) REVERSE OSMOSIS WATER PURIFICATION UNIT, ULTRAVIOLET TACTICAL WATER PURIFICATION SYSTEM, AND LIGHTWEIGHT WATER PURIFIER

(a) Identification *(From the engineers, quartermaster, or operator.)*	(b) Water Source Name	(c) Size *(Daily or hourly production capacity.)*	(d) Operating Unit or Contractor *(Name and contact information of unit or contractor operating the system.)*
NA			

NOTES

NOTES

DD FORM 2993, AUG 2015 Classification: Unclassified Page 16 of 20 Pages

Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

(6) WATER DISTRIBUTION SYSTEM

(Describe the water distribution system. How is water transported around the camp: tactical water distribution system, water trucks, trailers, existing distribution system, or constructed distribution system? Are the sanitary system pipes together with the water distribution pipes? Is there possible cross contamination? Is the water tested for possible infiltration of sanitary water? How is water stored?)

The piping is 10-inch ductile steel pipes without lead joints and step down with 2-inch PVC piping into buildings. Awaiting PVNTMED certification before the water can be used as potable.

(7) WATER STORAGE TANKS

(Describe the water storage areas on the property, materials of tanks and containers, amount of storage tanks, and general condition of these tanks.)

(a) Identification	(b) Tank Type *(Metal, fiberglass, fabric, and so forth.)*	(c) Size	(d) Type of Water Stored *(Potable, nonpotable, raw water, disinfected, fresh or brine, grey water, and so forth.)*
NA			

(8) BOTTLED WATER *(Describe the sources of bottled water and whether it is used as the primary source for drinking water and are the brands Veterinary Command approved? Note if bottles are recycled.)*

(a) Identification	(b) Brand *(Dasani®, Ice Mountain®, and so forth.)*	(c) Bottle Size	(d) Notes
Primary source	Dasani	20 ounces	

(9) NONPOTABLE WATER

(Complete this section if nonpotable water is used for dust abatement, construction, or other operations.)

NA

p. GENERAL SANITATION

(1) GENERAL FACILITIES *(Describe the type, location, status of facility, and so forth. Take photographs.)*

(a) Type *(Gymnasium, barber shops, laundry, detainee facility, and so forth.)*	(b) Building Number	(c) Notes *(Describe contractor or military operated; point of contact, how long they have been at this location.)*
NA		

(d) General Notes

(Add notes related to sanitation in general.)

(2) DINING FACILITIES *(Describe the location and general condition of the facility, status of facility, and so forth. Take photographs.)*

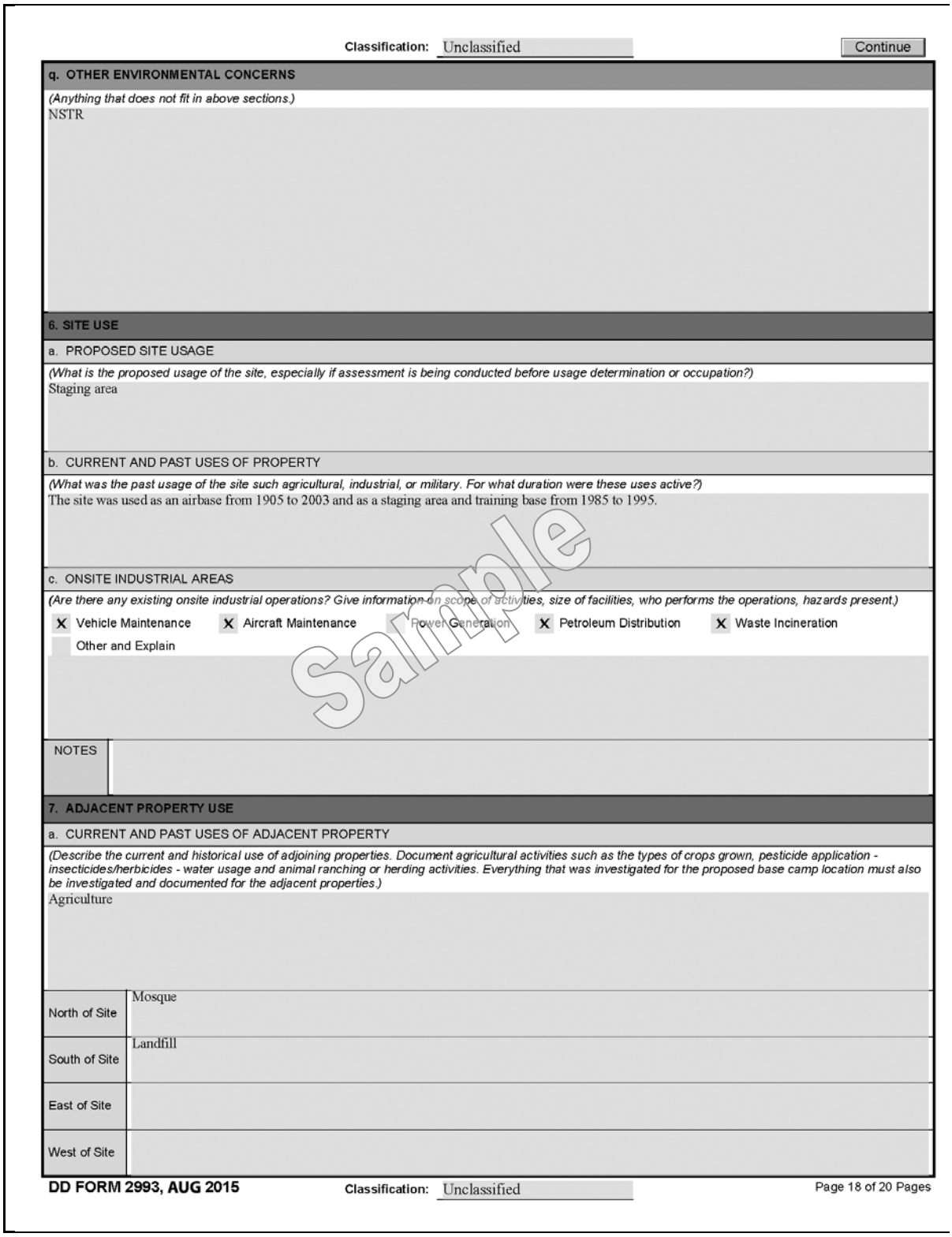
(a) Building Number	(b) Contractor Operated?	(c) Notes *(Add notes specific to the dining facility; for example, contractor, population served, meals served.)*
240	Yes	1,000 people served daily, 2 meals a day
105	Yes	1,000 people served daily, 2 meals a day
76	Yes	1,000 people served daily, 2 meals a day

(d) General Notes

(Add notes related to sanitation in general. Who inspects the dining facility? What is the inspection interval and frequency? Are there any current food vulnerability concerns? Does review of the dining facility inspections reports reveal any continuing concerns or food vulnerabilities?

DD FORM 2993, AUG 2015 Classification: Unclassified Page 17 of 20 Pages

Figure K-1. Sample DD Form 2993 (continued)



Classification: Unclassified

Continue

q. OTHER ENVIRONMENTAL CONCERNS

(Anything that does not fit in above sections.)

NSTR

6. SITE USE

a. PROPOSED SITE USAGE

(What is the proposed usage of the site, especially if assessment is being conducted before usage determination or occupation?)

Staging area

b. CURRENT AND PAST USES OF PROPERTY

(What was the past usage of the site such agricultural, industrial, or military. For what duration were these uses active?)

The site was used as an airbase from 1905 to 2003 and as a staging area and training base from 1985 to 1995.

c. ONSITE INDUSTRIAL AREAS

(Are there any existing onsite industrial operations? Give information on scope of activities, size of facilities, who performs the operations, hazards present.)

X Vehicle Maintenance X Aircraft Maintenance Power Generation X Petroleum Distribution X Waste Incineration

Other and Explain

Sample

NOTES	

7. ADJACENT PROPERTY USE

a. CURRENT AND PAST USES OF ADJACENT PROPERTY

(Describe the current and historical use of adjoining properties. Document agricultural activities such as the types of crops grown, pesticide application - insecticides/herbicides - water usage and animal ranching or herding activities. Everything that was investigated for the proposed base camp location must also be investigated and documented for the adjacent properties.)

Agriculture

North of Site	Mosque
South of Site	Landfill
East of Site	
West of Site	

DD FORM 2993, AUG 2015 Classification: Unclassified Page 18 of 20 Pages

Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

b. INDUSTRIAL OPERATIONS IN SURROUNDING AREA

(Describe nearby industrial operations [for example, power plant or factories]. What is approximate distance from camp boundary? What can be observed from camp: smoke, odors, and so forth? Include 8-digit grid coordinates of each facility, name of industry, type of industry, and active or inactive. Provide a description of the facility - if processes are present, material used and stored, operating schedule, and environmental impacts. Take photographs.)

Grid coordinates and descriptions

North of Site	Agricultural
South of Site	Quarry
East of Site	
West of Site	Quarry

c. SPECIFIC NEARBY INDUSTRIAL FACILITIES

(1) Location *(8-digit grid coordinates.)*	(2) Name	(3) Type of Industry *(For example, power production, petrochemical, or agricultural.)*	(4) Active?	(5) Description *(Describe facility, processes present, material used and stored there, operating schedule, environmental impacts, and so forth.)*
XXXXXXXX	Quarry 1	Quarry	No	Quarry; not currently in use.
XXXXXXXX	Quarry 2	Quarry	No	Quarry; not currently in use.

8. INFORMATION SOURCES AND SUPPORTING DOCUMENTS

(Document sources of information gathered. Provide summaries of environmental sampling and studies, aerial photographs, topographic maps, previous environmental baseline survey or Occupational and Environmental Health Site Assessment referenced, base camp master plans, and other documents reviewed. Document personnel interviewed by providing their name and contact information for verification, if necessary, as well as the name of the interpreter if one was used.)

a. SOURCES OF INFORMATION *(Who did you talk to or interview? How can they be contacted again? Attach interview notes.)*

PERSONNEL CONTACTED

(1) Name	(2) Contact Information *(Address, telephone number, e-mail, and so forth.)*	(3) Title	(4) Location
Jane Doe	555-555-1111	Wastewater engineer	Al Asad Wastewater Treatment Plant
John Public	555-555-2222	Water treatment foreman	Al Asad Wastewater Treatment Plant
Jane Public	555-555-3333	Tribal elder	Al Asad market area
Jane John	555-555-4444	Quarry technician (former)	West Quarry
Jake John	555-555-5555	Local farmer	South of the site

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Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Continue

b. OTHER SOURCES OF INFORMATION

(Document all source of information received. Provide enough information that the sources may be used by other to verify the information if necessary.)

NSTR

9. SITE RECONNAISSANCE INFORMATION*

(Completed as part of the analysis of the information gathered during the site reconnaissance.)

10. ENVIRONMENTAL AND HEALTH SAMPLING DATA

(Identify sampling requirements; why, where, and what needs to be sampled. Provide 8-digit grid coordinates, a description and a photograph, if possible, for all areas to be sampled.)

The following need to be performed:
-Radon testing needs to be conducted in Building 00 (XXXX XXXX).
-Maintenance areas (XXXX XXXX) and the area surrounding the aircraft hangar need to be sampled to determine the size of contamination from past POL and solvent spills.
-Soil from the old trash dump (XXXX XXXX) should be sampled to determine waste types and if contaminants are leaking from the site.
-Ammunition bunkers (XXXX XXXX, XXXX XXXX, and XXXX XXXX) should be rechecked for spills and contamination once they are cleared of UXO.
-Wadi sediments should be sampled for sewage contamination (coordinate with PVNTMED).

Sample

11. FINDINGS AND CONCLUSIONS*

(Completed after information gathered is analyzed.)

12. JUSTIFICATION AND DISCUSSION*

(Completed after findings and conclusions have been developed.)

13. RECOMMENDATIONS*

(Completed after findings and conclusions have been developed.)

14. CLASSIFIED DATA

(Enter all classified information that is significant to the report. The classification must be added as a header and footer for each page. All classified information will be added in this section as a separate addendum to the report with a reference to its appropriate section number. Classified data must be sent via SECRET Internet Protocol Router Network.)

NA

DD FORM 2993, AUG 2015 Classification: Unclassified Page 20 of 20 Pages

Figure K-1. Sample DD Form 2993 (continued)

Classification: Unclassified Delete

CONTINUATION SHEET Page 21 of 21 Pages

Use this area to continue each item as necessary. Specify item number.

5.a. The following structures are present:
-Aircraft hangar. An aircraft hangar with metal frame construction and a few hardened-concrete shelters is present. The hangar is generally in good condition and includes some internal maintenance facilities. Most of the supporting lighting, water, and HVAC systems are intact and require minimal repairs. There is no evidence of asbestos. The hangar does have POL and solvent spills. There are also some POL storage areas. One hardened shelter was destroyed, and there is explosive and aircraft fuel residue remaining on the site. PCBs may be a hazard in the electrical systems.
-Ammunition supply points. There are multiple ammunition storage bunkers. Several of these bunkers were damaged or destroyed, and there is a large quantity of UXO in the area. This area should be secured and access limited to prevent injury. The bunkers were not closely inspected due to the UXO presence.
-Maintenance areas. There are maintenance facilities present for aircraft and vehicle services. Most of the facilities are in good structural condition; however, they were heavily looted. Lighting, water, and HVAC equipment needs to be replaced. There is evidence of POL spills. POL and cleaning solvents are stored on-site. In some buildings, the electrical wires are frayed and exposed, and this creates an electrical shock hazard. One washrack was discovered and is still operational; however, there is not an oil-water separator.
-Industrial sites. The industrial sites that service the air base are in generally good condition. The wastewater treatment plant appears to be operational, but backup power should be implemented as the sewage spills into the wadis if power is off. The electrical transmission systems are largely intact, and the base power station is still in good condition. Electrical distribution systems have been looted, and many power lines have been left hanging. There are power transformers lying on the ground. The physical integrity of the buildings is generally good, and there were few environmental hazards noted.
-Administrative buildings and housing areas. Administrative buildings and housing areas were heavily looted. The water and electrical systems in these areas are questionable. Some housing areas still have functioning shower and toilet facilities. The buildings do not appear to have hazmat present. One dining facility shows rodent infestation, and there is a large quantity of spoiled food in the freezers. Nonfunctioning ventilation systems may present a health hazard in some structures. Possible cleaning solvents were located in some storage rooms. Most of the structures did not appear to be damaged. The damage noted was limited to some hangars and ammunition storage bunkers. There was extensive looting to many structures, in particular to the administrative buildings and housing areas. This damage presents some safety hazards but is generally manageable and does not present any significant environmental hazards. The fuel storage and distribution facilities appear to be in good condition with little evidence of leakage. The heating systems use hot water (not steam), and the power source is fuel oil.

DD FORM 2993, AUG 2015 Classification: Unclassified New Page

Figure K-1. Sample DD Form 2993 (continued)

Legend:	
Apr	April
ASP	ammunition supply point
AST	aboveground storage tank
ATP	Army techniques publication
AVN	aviation
bn	battalion
CBRN	chemical, biological, radiological, and nuclear
CSB	combat support battalion
DD	Department of Defense form
DFAC	dining facility
EBS	environmental baseline survey
HN	host nation
HVAC	heating, ventilation, and air conditioning
HW	hazardous waste
JP-5	jet propellant fuel
MAW	military airlift wing
MCICOM	Marine Corps Installations Command
MCRP	Marine Corps reference publication
MGRS	military grid reference system
MWSS	Marine wing support squadron
NA	not applicable
NSTR	nothing significant to report
PCB	polychlorinated biphenyl
POC	point of contact
POL	petroleum, oils, and lubricants
PVC	polyvinyl chloride
PVNTMED	preventive medicine
S-4	logistics staff officer
SDS	safety data sheet
SPCC	ship parts control center
SSGT	staff sergeant
SU	sustainment unit
TBD	to be determined
TRADOC	United States Army Training and Doctrine Command
U.S.	United States
USAF	United States Air Force
UST	underground storage tank
UXO	unexploded ordnance

Figure K-1. Sample DD Form 2993 (continued)

DD FORM 2993 AND DD FORM 2994

K-2. Once a proposed base camp location is identified, the DD Form 2993 and DD Form 2994 are initiated. These forms document the environmental conditions of a site before base camp establishment or occupation. DD Forms 2993 and DD Form 2994 are completed for any base camp or similar site that will be in existence for more than 30 days. If it is not possible to complete DD Form 2993 and DD Form 2994 before the base camp is established, they should be completed within 30 days of occupation. DD Form 2993 and DD Form 2994 allow commanders and planners to—

- Maintain situational understanding.
- Maximize combat power.
- Improve force health protection.
- Reduce and eliminate the negative impacts of environmental obstacles on mission accomplishment.
- Minimize the negative impacts on the environment.
- Integrate environmental considerations into mission planning and execution and reduce U.S. liability during base camp closure or transfer.

Classification: Unclassified

ENVIRONMENTAL BASELINE SURVEY (EBS) REPORT

For use of this form, see ATP 3-34.5/MCRP 4-11B; the proponent agency is TRADOC.

Note: Do not leave any blanks empty. If they do not apply to the current site, enter not applicable (NA) or nothing significant to report (NSTR) to show the section has been investigated. Continue Click this button to add a continuation page if more space is needed for any item.

1. ADMINISTRATIVE DATA

(Classified information, such as military grid coordinates or details about the mission to be conducted, will be reflected in the body of the EBS report. The battalion or brigade intelligence staff officer (S-2) or assistant chief of staff, intelligence (G-2) will determine the overall security classification of the operation . However , at a minimum, the addition of grid coordinates make the report Confidential. The header and footer of each page of the EBS report will reflect the overall classification of the document If the information is classified, enter it in Section 14.)

a. LOCATION NAME	*(Official name of the area being surveyed. Name of country, city, township, or area of operation for the site location.* Desert Air Base 1		
b. LOCATION ALIASES	*(Other names the area is currently or was previously known as.)* Desert Town		
c. START DATE AND TIME	*(Applicable to survey completion.)* 07000402015	d. END DATE	04022015
e. ORGANIZATION CONDUCTING SURVEY	MCICOM		
f. SURVEYOR'S NAME, RANK, GRADE	SSGT John Doe		
g. SURVEYOR'S TITLE	Environmental Compliance Officer		
h. SURVEYOR'S TELEPHONE	555-555-0000		
i. SURVEYOR'S E-MAIL	john.doe@mail		
j. GEOGRAPHIC LOCATION **Note:** The 8-digit grid coordinates will always include the 3 character zone designator and the 2 character grid square identifier. If this information is classified, enter it in Section 14.	*(The 8 digit military grid coordinates are mandatory, using the center of the site for reference. Coordinates may also be taken from outside corners to provide site boundaries. A global position system (GPS) may be used in addition to the grid coordinates.)*		
Coordinate 1	XXXX XXXX	Coordinate 2	XXXX XXXX
Coordinate 3	XXXX XXXX	Coordinate 4	XXXX XXXX
NOTES	*(Enter notes associated with the geographic location, for example, the datum associated with the location, map type, map number, and GPS used.)* MGRS; 1:50,000; map number L145 K123		

2. EXECUTIVE SUMMARY

(Provide a broad overview of the findings regarding the location where the survey was conducted. Make recommendations to be considered regarding controls or actions that should be addressed. Support these recommendations with survey findings. Highlight key findings, areas that are off limits and areas that require further testing. Include general comments regarding sampling, additional testing conducted, and related items considered as recommendations were developed. This is a synopsis of significant findings, conclusions, and recommendations based on the data analysis with the ultimate recommendation being to use or not use the site.)

This site was previously used as an air base. The buildings and infrastructure are in good shape and can be used safely by personnel. Past waste disposal and storage areas are not heavily contaminated. POL and solvent spill areas need to be addressed. UXO removal is a priority. Building 00 may contain radon and is off-limits and guarded. The amount of LBP and ACM in existing buildings is unknown. Sharps are currently being disposed of in landfills. A medical waste incinerator is needed. The wastewater sewage treatment plant is online, but wastewater will flood a nearby wadi if a power outage occurs. Alternative plans should be in place if a power outage occurs. Overall, the site is suitable for use by personnel. Continued monitoring and cleanup will be required.

3 INTRODUCTION

(Provide the scope of the mission, the purpose of the survey, references used to prepare the survey and report, describe any limitations that were experienced during the execution of the EBS and any assumptions used.)

The mission was to complete an EBS on the air base buildings and facilities. USAF personnel conducted an airfield assessment of the runways and associated areas (including EBS). This site will be a major base for the 3d Armored Cavalry Regiment and attached units. Forward elements of the 142 CSB are staged at this site. This site will be used for aviation, maintenance, medical, supply, and engineering operations. Access to ammunition storage bunkers (XXXX XXXX) is limited due to UXO. Seasonal rains prevented river crossing by using a low-water crossing.

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Adobe Designer 9.0

Figure K-2. Sample DD Form 2994

Classification: Unclassified Continue

4. SITE CHARACTERISTICS	
a. LOCATION	*(Provide a general description of the site that includes a description of the site location, organization designated to occupy the site, population and rotation information if not classified, and the location's 8-digit military grid coordinates. Include any supporting information.)* This site was used as an air base before hostilities began in January 2003. The site includes over 200 buildings. This site is centered on XXXX XXXX. More than 80% of the site has power and water. (See the continuation sheet.)
b. SITE AND VICINITY CHARACTER-ISTICS	*(Provide a description of the physical setting, topography, geology, weather and climate, soil types, vegetation, groundwater, surface water, hydrology, wetlands, flood zones, coastal zones, and raw materials.)* This site is located in the desert. The surrounding area is mostly desert with many deeply cut wadis running from west to east. The soils are sandy, and two former sand quarries are located to the west and south. Sedimentary rock is found in the area. (A topographic map is attached to this form.) There is sparse vegetation that is used for grazing in the basin of the Al Asad Wadi. The land is rugged and barren for the most part. Grazing areas to the east are in good shape, and they are not subject to overgrazing in the near future. (See the continuation sheet.)
5. DETAILED SITE DESCRIPTION ***(Make a detailed sketch or map overlay of the site, noting the areas of significance including the date, the surveyor's name and unit, a north arrow, scale and legend. Take photographs and include the grid coordinates and description of both the area and reason for taking the photograph.)*** **Note: Everything examined in this section for the site must also be examined for all adjacent property and documented in Section 7 below.**	
a. INFRASTRUCTURE	*(Describe the structures: the structure use (current and past); heating, ventilation, and air conditioning; building materials; condition or damage and electrical, water, and sewer capability. Note any chemical-type or strange odors, evidence of hazardous materials or spills, and evidence of pest infestation. Describe the roads and parking areas: paved, gravel, or dirt. Describe power generation and electrical hazards. Note transformers, substations, and power lines present. Document leaking transformers. Provide 8-digit military grid coordinates for documented structures or features. Attach a map, sketch, or photographs.)* Various types of structures are present on-site. These include aircraft hangars, ASPs, maintenance facilities, industrial facilities, and administrative buildings and housing areas. Due to to the age and building materials used in these structures, ACM and LBP may be present. Before renovations or modifications can occur, structures must be tested for ACM and LBP. Some power distribution lines are down and need to be evaluated for electrical hazards. (See the continuation sheet.)
b. CONTRACTOR SERVICES	*(What services are currently available? Evidence of past services?)* Contractors provide food services, water treatment services, wastewater treatment services, utilities, solid waste disposal, and HW disposal. There are no HW disposal records.
c. DRINKING WATER SOURCES	*(Describe water sources on site: municipal, wells, or surface water. Describe water treatment and distribution systems.)* A water treatment facility is located outside the perimeter of the site. The water supply lines were repaired after an insurgent attack. The piping is 10-inch ductile steel pipes without lead joints, and no significant rust was noted. Water samples have been taken, and the results are attached to this form. (See the continuation sheet.)
d. HAZARDOUS MATERIALS	*(Describe storage areas and containers (number, size, volume, condition, contents, and secondary containment), petroleum, oils, and lubricants distribution points, and areas where spills may have occurred.)* Several storage sites were found on site. A gas plant (compressor and separator for compressed air) is located at XXXX XXXX and has 200 to 300 bottles, an empty storage tower for oxygen, a nitrogen tank, and five tanks for aviation fuel storage and processing that are estimated to hold 10,000 gallons. (See the continuation sheet.)
e. SOLID WASTE	*(General description of solid waste disposal practices. Describe whether burn pits, recycling, composting, landfills, or incinerators are used. Note any signs of dumping and determine what might have been dumped. Take photographs and annotate grid coordinates.)* A dump was identified at XXXX XXXX. The dump was covered, and the types of solid waste contained could not be determined. Currently, most solid waste is disposed of in a local landfill that is 10 miles north of the site. Some paper (usually classified documents) are incinerated on-site. Compost and food waste are located in the southeast corner of the site.
f. HAZARDOUS WASTE	*(General description of hazardous waste disposal practices. Note any signs of dumping and determine what might have been dumped. Take photographs and provide grid or GPS coordinates.)* There were no HW dumping areas noted; however, there was limited evidence of POL and solvent spills.
g. MEDICAL WASTE	*(Document the type and source of medical waste and disposal methods used. Provide contractor information if available.)* Sharps have been identified and are disposed of in landfills. A medical incinerator is needed as soon as possible. In the interim, it is recommended that sharps be disposed of in sharp containers and stored until proper medical waste procedures are implemented. Other medical wastes in landfills may impact personnel and the local population.
h. WASTEWATER	*(What are the sources or types? How is it collected, treated, discharged, or disposed?)* There is a functional water treatment facility on-site. The sewage plant is located at XXXX XXXX. Processed sewage or overflow (when the facility is not operating) empties into the Al Asad Wadi. Two sumps, three catch basins, and four dry wells are in use. The facility can back up if power is off or during the rainy season (March and April).
i. RADIOLOGICAL WASTE	*(Document suspected radiological waste sources.)* A potential radon hazard was noted at XXXX XXXX. CBRN evaluation is needed. This will be an off-limits facility, and ventilation will be increased until the CBRN evaluation occurs and the needed mitigation is put in place.
j. HISTORIC AND CULTURAL RESOURCES	*(Take photographs and note the location using grid or GPS coordinates. Note the areas of significance on the site sketch or map overlay. Describe the general surface appearance and disturbances such as irregular holes and trenches from vandalism or looting or regular emplacements from recent military or other use. Provide impact assessment from checklist criteria. Also identify parks, forest or animal preserves and recreational areas on or near the site.)* **Note:** If it is determined that the historical or cultural resource must be protected to prevent damage or looting by pot hunters or black market antiquities dealers, it is likely that documentation of the site should be annotated in Section 14 as classified information. The old bridge at XXXX XXXX and a mosque located 1 mile north of the site (see the attached map overlay)

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Figure K-2. Sample DD Form 2994 (continued)

Classification: Unclassified Continue

k. ENDANGERED SPECIES AND HABITATS	*(Identify all endangered species or sensitive habitats that could be in or around the site. Document the presence of endangered species in the area that could be affected by the mission or occupation. Identify habitat areas using grid or GPS coordinates. Note the areas of significance on the site sketch or map overlay. Document the existence of any environmental controls or restrictions already in place. Provide impact assessment from checklist criteria.)* There is a small patch of endangered fancy scrub grass in the northeast corner of the site at XXXX XXXX. The area is marked "No traffic, keep out."
l. NOISE	*(Document sources of noise that has an environmental impact.)* No environmental noise was identified other than a generator. Shielding with sandbags is recommended for generators located near sleeping areas. The impact of aircraft noise on the local population will need to be monitored.
m. AIR QUALITY	*(Document sources that impact either ambient or indoor air quality.)* Sandstorms and dust problems were noted during site reconnaissance. The indoor air quality is determined by PVNTMED personnel who were conducting the OEHSA.
n. LOCAL DISEASE AND HEALTH FACTORS	*(List diseases prevalent in the are a with known causes and/or vectors. Describe pest management and field sanitation measures.)* There are rodents, feral dogs and cats, pit vipers (poisonous), camel spiders, unidentified large lizards, and bats in the area.
o. OTHER ENVIRONMENTAL CONCERNS	*(Anything that does not fit in the above sections.)* Personnel must consider that transformers may contain PCBs when performing maintenance and repair or disposing of transformers.

6. SITE USE

(Describe the current and historical use of the site.)

This site has been used as an air base since 2003. All structures were constructed for this purpose, and the buildings appear to have been used for their original purposes. The only noted exception was one hangar that appeared to be used for POL and waste material storage.

7. ADJACENT PROPERTY USE

(Describe the current and historical use of adjoining properties. Document agricultural (types of crops grown, pesticide application, water usage), animal ranching or herding and industrial activities. Everything that was investigated for the proposed base camp location must also be investigated and documented for the adjacent properties.)

Two quarries are located to the west and south of the site. These quarries were probably used in support of construction of the base. The roads between the base and the quarries are in good condition and appear to be able to support heavy equipment during wet weather. Neither of the quarries is currently in use. The land to the east-northeast is grazing land for sheep. The remaining land is desert terrain.

8. INFORMATION SOURCES AND SUPPORTING DOCUMENTS

(Document all sources of information used even if they reveal no findings. Include reference material generated through the records review, interviews and satellite imagery or aerial photographs, and so forth. Note the source used, the date the information was last updated, names of persons interviewed, the interpreter if one was used and any other information needed to validate sources.)

Several locals were employed or provided information or assistance in establishing and maintaining power facilities, water sources, and water treatment facilities. These individuals were interviewed for information about the air base and past operations. Their information is as follows:

- Doe, Jake, 555-555-1111, Wastewater engineer at the Al Asad Wastewater Treatment Plant.
- Public, John, 555-555-2222, Water treatment foreman at the Al Asad Water Treatment Plant.
- Public, Jane, 555-555-3333, tribal elder who can be found in the Al Asad market area.
- Doe, Jane, 555-555-4444, Quarry technician (former) at the West Quarry.
- Jane, John, 555-555-5555, local farmer who lives south of the site.

9. SITE RECONNAISSANCE INFORMATION

a. BACKGROUND	*(Provide background information of location selected for occupation, the mission to be conducted and why the site was selected.)* This site was selected based on its location and prior use as an air base. Currently, coalition forces are using the site for the staging of forces and aviation operations and maintenance. Future use may include desert training.
b. DETAILED SITE ANALYSIS	*(Provide detailed analysis of information gathered which includes but is not limited to: the presence of animals and insects; potential radioactive sources both past and present; hazards and health risks identified on-site and off-site; environmental hazards identified on-site and off-site; waste disposal activities both current and historical with any plans for improvements or changes; agricultural implications specific to the site and adjacent property; identified environmental and health hazards, current, historical and the potential future; site assessment to include a detailed walk through with building and infrastructure assessments.)* The following information gives details from the site analysis: - Animal presence. The animals present on-site include rodents, feral dogs and cats, pit vipers (poisonous), camel spiders, unidentified large lizards, and bats. - Radon sources. Radon is suspected in Building 00. The building is closed to personnel using off-limits signs and barrier tape. Analysis by specially trained personnel is pending. No other areas of concern were found. (See the continuation sheet.)

DD FORM 2994, AUG 2015 Classification: Unclassified Page 3 of 4 Pages

Figure K-2. Sample DD Form 2994 (continued)

Classification: Unclassified Continue

c. DIGITAL PHOTOGRAPHS TAKEN	*(List photographs taken during the site reconnaissance; include dates, locations, a description of the contents of the photographs, and the appropriate section of the report in which they are cited.)* See the attached list.

10. ENVIRONMENTAL AND HEALTH SAMPLING DATA

a. SAMPLING AND ANALYSIS	*(Identify sampling requirements why, where, and what needs to be sampled. Provide grid coordinates and a description of the area and photographs for all areas to be sampled.)* Careful coordination with USAPHC medical personnel was conducted before occupation. Water, air, and soil samples were taken for analysis, and a copy of the laboratory results are attached to this form. Drinking water is currently certified and will be monitored. No areas where spills were evident indicated high levels of contamination. (See the continuation sheet.)
b. SAMPLING RESULTS AND TABLES	*(The EBS report will remain in DRAFT format until sampling results have been received as they may affect the findings, conclusions, and recommendations. Attach the sampling results analysis report with a summary table of sampling results to finalize the EBS.)* The USAPHC report is attached.

11. FINDINGS AND CONCLUSIONS

(Findings are the facts uncovered during the course of the assessment. Identify environmental conditions that have the potential for significant impact to health or the mission. Identify risks and contamination, the existence of any natural resources, historical or cultural resources, endangered species or sensitive habitat that will be adversely affected by personnel, the mission or occupancy of the area, and the extent of the impact.) (The report must include conclusions developed based on the findings with the logic and reasoning used to evaluate the information gathered.)

Overall, this site is in good condition. It was a staging area and training base from 1985 to 1995, and it was established as an air base in 2003. The existing infrastructure is in good shape, and past waste disposal and storage areas do not indicate excessive contamination. Addressing the potential radon source in Building 00 is a priority. POL spill areas must be addressed. The buildings are currently suitable for use by personnel, although care should be taken if construction and remodeling occur due to unknown hazards. Alternative plans should be developed for waste removal if the wastewater treatment plant is off-line for any length of time. A medical waste incinerator or autoclave system must be implemented. The fancy scrub grass located in the northeast corner of the site is off-limits. There is a mosque located 1 mile north of the site. An old bridge of historical significance is located at XXXX XXXX.

12. DISCUSSION/JUSTIFICATION *(OPTIONAL)*

(The report may include a discussion section to describe or justify the impact of conclusions based on data collected during the survey.)

None

13. RECOMMENDATIONS

(Recommend using or not using the site in question. Recommend courses of action for reducing, mitigating, and/or eliminating the potential for environmental threat or health risks. Recommend further investigation and additional assessments required to fully address identified concerns. Identify and recommend controls that can be instituted to address identified concerns where applicable. List and describe any assumptions used with supporting rationale.)

This site is currently being used for staging and aviation operations. This site is a former desert air base and is suitable for personnel. Further investigation is needed to identify and properly mitigate the radon source in Building 00. Additional work may be required to maintain the wastewater treatment plant and repair an oil-water separator at the washrack. Continuous monitoring of the water supply is also required as the plant is outside the perimeter of the site. Testing for ACM and LBP should be conducted before any construction or building modification. Electrical transformers should be tested for PCBs before maintenance or repairs are completed. Air monitoring at the power bunker and incinerator should be conducted regularly to ensure that there is a safe environment for personnel working in these areas and to determine the need for PPE or engineering controls. Medical waste disposal must be upgraded with a medical incinerator or autoclave system. Potential future risks can be minimized by the proper cleanup and disposal of past spills and waste and continued control and maintenance of current hazmat and HW. Risks from animals and pests will need to be addressed. Endangered species areas will be marked as off-limits, and personnel will be briefed to avoid these areas. Personnel will also be briefed on the cultural significance and protection measures for the old bridge and the mosque.

14. CLASSIFIED INFORMATION

(All classified information will be added in this section as a separate addendum to the report with a reference to its appropriate section number. The classification will be entered as a header and footer to EACH PAGE. This section will be handled with appropriate confidentiality according to its classification.)

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Figure K-2. Sample DD Form 2994 (continued)

Classification: Unclassified Delete

CONTINUATION SHEET Page 5 of 6 Pages

Use this area to continue each item as necessary. Specify item number.

4.a. The buildings require some maintenance, but they are structurally sound. There was wide-scale vandalism and petty theft after seizure by coalition forces. There are currently no designated training areas. The adjacent property is almost entirely vacant desert. To the north of the fence line, there appears to be the remains of a battalion infantry fighting position. To the west and south, there are two rock quarries, but neither is in use. To the east-northeast, lies the basin of the desert wadi, which has sparse vegetation and is used as grazing land for sheep. The 3d Armored Cavalry Regiment and attached units will be housed on site. Currently, the 4th Squadron (AVN) and the support squadron plus elements of the 122st Engineer Battalion are on-site. The forward elements of the 142 CSB are staged at the base.

4.b. The river and wadis fill during the rainy season (March and April), but no other surface water is located near the site. The flood plain for the river extends 500 feet on both sides of the river.

5.a. The infrastructure is further described below:
- Aircraft hangars. Aircraft hangars have a metal frame with a few hardened concrete shelters. These hangars are in generally good condition and include some internal maintenance areas. Most of the supporting light, water, and HVAC systems are intact and require minimal repairs. There is no evidence of ACM, but there is evidence of POL and solvent spills. There are some POL storage containers. One hardened shelter was destroyed, and there is explosive and aircraft fuel residue remaining onsite. PCBs may be a hazard in the electrical systems.
- ASPs. There were multiple aboveground ammunition storage bunkers located at the southeast corner of the site. Several of these were damaged or destroyed and there is a large quantity of UXO in the area. This area should be secured, and access should be limited to prevent injury. The bunkers were not closely inspected due to the UXO presence.
- Maintenance facilities. Aircraft and vehicle maintenance facilities are present. Most of the facilities are in good structural condition, but they were heavily looted. Lighting, water, and HVAC equipment will need to be replaced. There is evidence of POL spills. POL and cleaning solvents are stored on-site. Electrical wires are frayed and exposed, and this presents a shock hazard. Only one washrack was discovered. It is in operational condition, but the associated oil-water separator is not.
- Industrial sites. The industrial sites servicing the air base are in generally good condition. The wastewater treatment plant appears to be operational, but it needs a backup power system. Electrical transmission systems are largely intact, and the base power station is still in good condition. Electrical distribution systems have been looted, and many power lines have been left hanging. There are power transformers lying on the ground. The physical condition of the buildings is generally good and there are few environmental hazards.
- Administrative buildings and housing areas. Administrative buildings and housing areas were heavily looted. The water and electrical systems are questionable. Some housing areas still have functioning shower and toilet facilities. These areas do not appear to contain hazmat. One dining facility shows rodent infestation, and there is a large quantity of spoiled food in some freezers. Nonfunctioning ventilation systems may present a health hazard in some structures. Cleaning solvents were located in some storage rooms. Most of the structures do not appear to be damaged, but there was extensive looting to many of these structures. The damage presents some safety hazards, but it is generally manageable and does not present any significant environmental hazards. The fuel storage and distribution facilities appear to be in good condition with little evidence of leakage. The heating system uses hot water (not steam), and the power source is fuel oil.
-Roads. The roads throughout the base are paved and in generally good condition. There are traffic circles to control some intersections; but most other intersections are not marked, so traffic control measures will need to be established. Roads are narrow and may not support heavy or tracked vehicles for an extended time. The external perimeter roads are largely gravel, and there is some evidence of POL being used for dust suppression.

5c. Bottled water is being used until PVNTMED certifies the water on-site as potable. The water distribution system has security issues that need to be addressed.

5d. There are six ASTs (200 gallons each) at XXXX XXXX and nine USTs (300 gallons each) at XXXX XXXX holding diesel fuel.

5h. Storm water runoff should be considered when planning for operations during the rainy season (March and April).

9.b. (continued)
- Hazards and health risks. The locations of proposed bed-down areas have been chosen to ensure that personnel are not in contact with any areas of environmental hazard areas. Most areas where past spills occurred contained minimal material and does not pose an immediate hazard to personnel or equipment. The building containing the unidentified radioactive source has been secured. Water sources have been, and will continue to be tested. Hazmat storage areas have been secured. A trash dump was located on-site and is posted. No indications of hazmat storage were found on-site. PCBs are assumed to be present, but no leaks have been detected. There appears to be no ACM on-site, but care will be taken with any removal of floor tiles and roofing materials and insulating pipes. There are air quality concerns at the power bunker that uses diesel generators and at the dump site due to trash burning. There are no other industrial sites nearby that impact air quality.
- Environmental hazards. The main environmental hazards are past POL spill areas, the trash dump, past sewage plant spillage in the wadi, gas plant storage, UXO, and earthen revetments containing armored vehicles. Some areas indicate that POL has been used as a dust suppressant.
-Waste disposal. A covered solid waste trash dump is located on-site. Currently, paper is being incinerated at this site. There was no evidence of hazmat storage on-site, and records indicate that hazmat was removed by a contractor for reuse or proper disposal. Current occupation has benefited the environment since many dangers have been eliminated and forces have repaired critical waste-handling infrastructures.
- Agricultural implications. The only agricultural activities that occur on-site or nearby are livestock grazing in the wadi areas. No evidence of pesticides or herbicides were found.
- Environmental and health hazards. Historical hazards identified include spilled POL in maintenance areas, sewage overflow in the wadis area, waste and debris throughout the site, and unknown material disposed of in the trash dump. Past use of POL as a dust suppressant is also indicated in some areas. Current risks include the historical risks plus the potential radon in Building 00, UXO, PCBs, ACMs, animals, and air quality in and around the power bunker and trash dump. The water plant is located outside the base perimeter and is a potential target for chemical or biological contamination.

DD FORM 2994, AUG 2015 Classification: Unclassified New Page

Figure K-2. Sample DD Form 2994 (continued)

Classification: Unclassified Delete

CONTINUATION SHEET Page 6 of 6 Pages

Use this area to continue each item as necessary. Specify item number.

9b. (continued)
The following were noted during the site assessment walk-through (see the attached map for building locations):
- Building 00 contains a potential radon source. This building has a guard in place.
- Ammunition Storage Bunkers 1, 2, and 3 have limited access and are secured to prevent injury.
- Barracks 5 was damaged from looting. The building appears to be approximately 20 years old. ACM is assumed to be present, but this has not been analytically verified.
- Maintenance Area 10 has evidence of POL spills and hazmat storage on-site. The electrical wires are frayed and exposed. Structural integrity appears sound. The age of the building is unknown.
- A road in the northwest quadrant will need repairs. Most roads will not handle the weight of heavy equipment or tracked vehicles. Roads are very narrow with no traffic control.

10.a. There is no surface water on-site (when it rains, the wadis will have water flowing through). Air monitoring indicated that workers near the power bunker or incinerator will require respiratory protection immediately. No sampling analysis plan was required due to coordination with USAPHC. A copy of the USAPHC sampling plan is included in this report (see the attached documents).

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Figure K-2. Sample DD Form 2994 (continued)

Legend:	
ACM	asbestos-containing material
ASP	ammunition supply point
AST	aboveground storage tank
ATP	Army techniques publication
AVN	aviation
CBRN	chemical, biological, radiological, and nuclear
CSB	combat support battalion
DD	Department of Defense form
EBS	environmental baseline survey
Feb	February
G-2	Army Deputy Chief of Staff for Intelligence
GPS	global positioning system
HVAC	heating, ventilation, and air conditioning
HW	hazardous waste
LBP	lead-based paint
MCICOM	Marine Corps Installations Command
MCRP	Marine Corps reference publication
MGRS	military grid reference system
NA	not applicable
NSTR	nothing significant to report
OESHA	occupational environmental health site assessment
PCB	polychlorinated biphenyl
POL	petroleum, oils, and lubricants
PVNTMED	preventive-medicine
S-2	battalion or brigade intelligence staff officer
SSGT	staff sergeant
TRADOC	United States Army Training and Doctrine Command
USAF	United States Air Force
USAPHC	United States Army Public Health Command
UST	underground storage tank
UXO	unexploded ordnance

Figure K-2. Sample DD Form 2994 (continued)

K-3. Guidance for completing DD Form 2993 and DD Form 2994 should be provided in Annex L of the joint and Army OPORDs and OPLANs. (See *Environmental Surveys Handbook: Contingency Operations [Overseas]* for more information.)

K-4. The primary purposes of DD Form 2993 and DD Form 2994 are to—

- Determine the viability and sustainability of a designated location.
- Identify natural, cultural, or historical resources.
- Minimize the potential for U.S. liability during base camp transfer or closure.
- Protect personnel.

K-5. DD Form 2993 and DD Form 2994 are completed with support from general engineering elements or environmental subject matter experts, but they can also be completed by other personnel under the direction of environmental subject matter experts. Preventive-medicine personnel can provide assistance or support when and where environmental sampling is needed. While containing some considerations of FHP, these forms are not a complete medical assessment (occupational and environmental health site assessments provide assistance as needed). Personnel completing DD Form 2993 and DD Form 2994 should coordinate with real estate teams to ensure that the proper authorization is received from the HN or local landowners for surveying property.

K-6. The process for completing DD Form 2993 and DD Form 2994 includes a records review, site visit, data analysis, and site selection recommendations. DD Form 2993 documents the information gathered, and DD Form 2994 includes an analysis of the information and recommendations for commanders and planners. The process begins with a careful review of the history records associated with the site. Historical information and records sources include—

- IPB information.

- Reconnaissance reports.
- Intelligence reports.
- Site records and history (deeds, property descriptions, previous environmental studies or reports).
- Government records and documents.
- Digital information sources (National Geospatial-Intelligence Agency, Armed Forces Medical Intelligence Center, Defense Intelligence Agency).
- Geospatial information and products.
- Interviews with previous occupants and people in the area (military, civilian, and local nationals).

K-7. ***Note.*** See *Environmental Surveys Handbook: Contingency Operations [Overseas]* for specific information that may be gleaned from reports, records, and interviews.

K-8. A detailed site reconnaissance and recording of site characteristics for the area and all adjacent properties should be completed. The site reconnaissance includes taking digital photos and making sketches and maps that include enough information so that other personnel are able to identify the location during subsequent surveys. Photographs must be labeled with the date, the location, a description, and the reason that the photograph was taken. Interviews with on-site personnel can yield information about the location and adjacent property that is not documented elsewhere. The site reconnaissance should document topography; the soil condition; existing flora and fauna (including known endangered species); natural, historical, and cultural resources; and information on the existing infrastructure and utilities, industrial activity, environmental contamination, aboveground and underground storage tanks, areas avoided by the local nationals, existing and historical waste management activities, and evidence of hazmat management. The site reconnaissance should also document areas that require environmental sampling. DD Form 2993 includes guidance on information to be gathered during site reconnaissance.

K-9. DD Form 2994 cannot be finalized until the sampling results have been received. A draft version of the form may be issued or briefed with preliminary results. DD Form 2994 must contain enough specific information to allow commanders to make decisions to use or not use the site for a base camp. DD Form 2994 is meant to stand alone as a record of the environmental conditions before occupation. The final version of DD Form 2994 is kept on-site, and a copy is forwarded to the next higher headquarters for informational purposes and to be archived in the environmental repository as specified by the major command. If the current occupants of a base camp are redeploying, it is imperative that copies of DD Form 2993 and DD Form 2994 be maintained with the unit and copies provided to the follow-on force replacing them.Environmental Conditions Report

K-10. The ECR is used to update DD Form 2993 and DD Form 2994 with any incident or occurrence that changes the environmental conditions of a base camp during occupation. At the very least, this report is completed when the environmental conditions of an AO are altered (a hazmat spill, the discovery of a previously unidentified cultural or historical resource, the establishment or movement of a waste management area, a new mission, the cleaning of an area previously identified as contaminated). There may be a requirement, based on major command guidance, to conduct periodic environmental inspections of specific operations or activities to ensure that environmental considerations are actively incorporated. These inspections may engender an ECR, but they are not an ECR. These inspections should be documented. The ECR is provided in electronic message formats (see FM 6-99); however, check major command regulations or contact the major command for additional guidance on format requirements.

K-11. The ECRs will be maintained with the DD Form 2993 and DD Form 2994 for the base camp, submitted to the next higher headquarters for information, and archived using the same procedures as those for DD Form 2993 and DD Form 2994. Copies of ECRs must be maintained by a redeploying force and handed off to the follow-on force during the exchange of control for a base camp.

DD FORM 2995

K-12. When a base transfer or closure notification is received, DD Form 2995 (figure K-3) is used for each of the three surveys. The surveys are described below:

- **Initial survey.** The initial survey is conducted by the base camp or unit environmental staff and/or the theater support group or major subordinate command staff. The information from the initial survey is used to identify the environmental concerns that need to be addressed before the base camp can be transferred to another entity or returned to HN control.
- **Preliminary survey.** The preliminary survey is conducted by the theater support group or major subordinate command staff approximately 30 days before site closure or transfer to determine if the actions required for addressing the environmental concerns have been completed or can be completed in the remaining time.
- **Final survey.** The final survey is conducted by or the theater support group or major subordinate command staff and is used to ensure and document that the environmental closure or transfer actions have been completed as required.

K-13. All three surveys using and the associated DD Form 2993, DD Form 2994, and ECRs, will be archived by using the procedure established by the theater support group or major subordinate command.

K-14. Once the initial survey using the DD Form 2995 is conducted, the base camp or unit environmental staff will use the information collected from the initial survey to identify the actions required to address environmental concerns and determine if they can be completed with local resources (personnel, equipment, and funding) or need theater support group or major subordinate command environmental staff support, resources, or contracting support. The initial survey on DD Form 2995—

- Documents the changes in conditions from DD Form 2993 and DD Form 2994.
- Provides the information necessary to determine the closure actions required to meet the negotiated standards for transfer or closure.
- Facilitates the development of an environmental closure action plan and a request for resources (the environmental closure action plan tracks the completion of the environmental tasks necessary for proper base camp transfer or closure).

K-15. The base camp or unit environmental staff should coordinate with the theater support group or major subordinate command staff to develop the environmental closure action plan and return the site to preoccupancy conditions or to the standards negotiated with the receiving agency or the HN. The environmental closure action plan should identify the standards that must be met; preaction and postaction sampling requirements; the closure actions required to meet the negotiated transfer or closure standards; the resources needed for each action; roles and responsibilities for local staff, higher staff, supporting activities, and contractors; a schedule with milestones; quality assurance; evaluation measures; and monitoring. Unit environmental staff must communicate and coordinate with the theater support group or major subordinate command to obtain the resources needed for closure actions and ensure that milestones and standards are met. The staff responsible for completing DD Form 2995 should begin working on it in conjunction with the environmental closure action plan to ensure that it will be completed when final transfer or closure is granted.

K-16. The preliminary survey using DD Form 2995 is completed by the theater support group or major subordinate command environmental staff no later than 30 days before site closure or transfer. This preliminary survey identifies any remaining actions that must be completed or additional resources required to expedite the actions before the transfer or closure is granted final clearance.

K-17. The final survey using DD Form 2995 is also completed by the theater support group or major subordinate command environmental staff to ensure that findings from the preliminary DD Form 2995 are corrected. DD Form 2995 must be completed and signed before final clearance can be granted. DD Form 2995 documents the final environmental condition of the base camp before closure or transfer. Archive DD Form 2995 with DD Form 2993, DD Form 2994, and the ECRs using the theater support group or major subordinate command established procedure and data repository.

Classification: Unclassified

ENVIRONMENTAL SITE CLOSURE SURVEY

For use of this form, see ATP 3-34.5/MCRP 4-11B; the proponent agency is TRADOC.

SURVEY TYPE DEFINITIONS	
Initial Survey (I)	Any survey conducted by the closing base camp or unit's environmental officer and/or the theater support group or major subordinate command environmental staff to determine actions needed for transfer or closures. This survey needs to be completed sufficiently in advance of transfer or closure to allow the identified environmental follow-up items to be completed prior to the actual closure or transfer of the base.
Preliminary Survey (P)	A survey conducted by the theater support group or major subordinate command environmental staff to identify all environmental closure actions that must be completed prior to the base camp or unit being granted final clearance. A preliminary survey is normally scheduled 30 days prior to site closure or transfer.
Final Survey (F)	Final clearance survey conducted by theater support group or major subordinate command environmental staff as part of the overall site clearance process.

REFERENCES

FM 21- 10, *Field Hygiene and Sanitation*.
Environmental Final Governing Standards (as applicable).
Applicable negotiated standards with transfer entity or receiving host nation.
Overseas Environmental Baseline Guidance Document.
Annex L: Environmental to the governing operation plan (as applicable).

DISPOSITION

(Fill in the number of years and the number of days in the spaces provided.)

Completed surveys will be maintained at the theater support group or major subordinate command environmental staff for 10 years.

Copies will be forwarded to the theater command environmental section no later than 15 days after site transfer or closure.

1. SITE INFORMATION Continue — Click this button to add a continuation page if more space is needed for any item.

a. SITE NAME AND DESIGNATION	FOB Walnut
b. SITE LOCATION	*(Full military grid reference system or latitude and longitude coordinates of site outline or boundary. Not the center of mass.)* XXXX XXXX, XXXX XXXX; XXXX XXXX, XXXX XXXX
c. SITE USE	The site is being used as a FOB for the 33d BCT, 3d Infantry Division. The site was established as a FOB on 26 February 2007. The unit currently located at the FOB is the first unit to occupy it. The population at the time of this survey was 2,500 (military and civilian), but the population can peak to 3,000. This site has six PBs with 50 to 250 personnel.
d. PREVIOUS UNITS ASSIGNED TO THE BASE	NA
e. MAP SHEET, SERIES, EDITION, AND SCALE	See the attachments.
f. TYPE OF SURVEY	*(Select one.)* I
g. CLEARING BASE CAMP AND UNIT	(1) 557 Red Horse, (2) 33d BCT, 1st ID, and (3) 3-1 Cavalry
h. BASE CAMP AND UNIT ENVIRONMENTAL OFFICER	*(Full name, rank, and duty position.)* There is not an EO on-site. The unit needs to assign and train an EO.
i. TELEPHONE NUMBER	555-555-0001
j. DATE-TIME GROUP OF SURVEY	021300ZAPR15
k. NAME, RANK, AND DUTY POSITION OF SURVEYORS	LTC Jane John, Environmental Chief, MACOM Environmental; CPT John Doe, Environmental Security Officer, MACOM Environmental; Mr. John Public, Real Estate Specialist, MACOM Real Estate Office; and MAJ Jane Doe, Engineer Staff Officer, FOB Jane Public S-4.
l. UNIT AND ORGANIZATION OF SURVEYORS	MACOM Environmental (G-4)
m. FINAL ENVIRONMENTAL CLEARANCE GRANTED	YES X NO
n. DATE-TIME GROUP WHEN FINAL CLEARANCE WAS GRANTED	NA, this is the initial inspection.
o. SIGNATURE OF SURVEYOR GRANTING FINAL CLEARANCE	

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Adobe Designer 9.0

Figure K-3. Sample DD Form 2995

Classification: Unclassified Continue

2. SURVEY ITEM CHECKLIST

(The checklist items for each level of the survey are indicated with an I for initial, P for preliminary, and F for final. Personnel conducting the survey should select the appropriate letter for the level of survey they are completing. Surveyors should be as descriptive as possible to ensure that the information is complete.)

	(Select one.)	
a. UNIT OPERATIONS		
(1) List the name of the assigned unit or organization of the environmental officer.	I	The unit needs to assign an EO. MACOM Environmental will conduct the training if requested to do so.
(2) Has the unit or organization prepared environmental records and documentation, to include the environmental baseline survey, environmental conditions reports, turn-in documentation, and spill reports for archiving by the theater level command?	I	The unit has an incomplete EBS and three ECRs and is missing some turn-in documents. The unit has all spill reports. Copies will be submitted to the theater level command.
(3) Has the unit or organization worked with contracting officers to close out any environmental-related contracts or have plans in place to close out contracts?	I	No, the unit will work with MACOM Environmental to develop closeout procedures for environmental contracts. Closeout contracts for waste management and site closure on a waste management area will also be developed.
(4) Has the unit or organization provided training materials and manuals for any environmental-related equipment that will be left for the receiving organization or host nation?	I	Once the equipment to be left on-site is determined, training materials and manuals will be handed over to the receiving organization.
(5) Does the unit know the environmental points of contact at the theater support group or major subordinate command level?	I	Yes, but they did not know before the MACOM site visit.
b. MEDICAL WASTE		
(1) Does the unit or activity operate a medical treatment facility that generates or requires storage of medical waste? (If no, a medical waste survey is not required.)	I	Yes, the unit has a BAS; and it generates approximately 5 gallons of medical waste per week. (See the continuation sheet.)
(2) Do medical personnel know the procedures for turn-in of medical waste and major subordinate command or theater support group turn-in points of contact ?	I	No, the unit needs to develop procedures for medical waste disposal. No records are generated or maintained to indicate what happens to medical waste once it leaves the BAS.
(3) Has medical waste been red-bagged and prepared for turn-in?	I	No, there are no records or knowledge of what happens to the medical waste once it leaves the BAS.
(4) Has all medical waste been removed from the site?		NA
(5) What are the grid coordinates for the field aid stations or combat support hospital?		NA
(6) Provide and attach post-clearance digital photographs of the site.		NA
c. HAZARDOUS WASTE		
(1) Does the unit or activity conduct any activity that generates or requires storage of hazardous waste? (If no, a hazardous waste survey is not required.)	I	Yes, most of the HW (fuel, oil, and oil filters) comes from maintenance activities performed on generators. (See the continuation sheet.)
(2) Does the unit or activity have any hazardous waste tanks or drums? Are they in secondary containment?	I	Yes, some have proper containers with labeling. Secondary containment is not always used.
(3) Does the unit or activity have a working spill response plan?	I	No
(4) Are United Nations approved containers being used for hazardous waste storage?	I	Yes and no. Since no HWSA exists, the unit is using what is available.
(5) Are enough United Nations approved containers on hand to meet actual and anticipated need? If no, has the unit ordered sufficient containers?	I	No, containers and other HW storage materials (spill kits, overpacks, labels) have been ordered several times but are back-ordered by as much as 6 months.
(6) Are containers being properly labeled and prepared for turn-in?	I	Yes and no. Since no HWSA exists, the unit is using what is available. (See the continuation sheet.)
(7) Are placards on hand for marking vehicles during transportation of waste?	I	Yes and no. Since no HWSA exists, the unit is using what is available. (See the continuation sheet.)
(8) Has used (contaminated) spill response equipment been collected and containerized?	I	No, everything is done at the HWAP.
(9) Does the unit know where bulk turn-in points are for used antifreeze and petroleum, oils, and lubricants?	I	No, a turn-in point does not yet exist.
(10) Has a turn-in date and time been established? If yes, note the date and time.	I	Date: No turn-in date set Time: NA
(11) Have all spills in the hazardous waste storage area been cleaned up?	I	
(12) Are the hazardous waste accumulation point locations clean and clear of all materials?		NA
(13) Is the hazardous waste storage area location clean and clear of all materials?		NA
(14) What are the grid coordinates for the hazardous waste accumulation points ?		XXXX XXXX, XXXX XXXX, XXXX XXXX, XXXX XXXX, and XXXX XXXX

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Figure K-3. Sample DD Form 2995 (continued)

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(15) What are the grid coordinates for the hazardous waste storage area?	(Select one.) I	XXXX XXXX
(16) Provide and attach post-clearance digital photographs of each hazardous waste accumulation point and hazardous waste storage area site.		NA
d. HAZARDOUS MATERIALS		
(1) Does the unit or activity conduct any activity that requires storage or handling of hazardous materials? (If no, a hazardous materials survey is not required.)	I	Yes, hazmat is used mostly at unit maintenance locations. Since no HWSA exists, no hazmat can be turned in. (See the continuation sheet.)
(2) Does the unit or activity have hazardous material tanks or drums? Are they in secondary containment?	I	Yes and no. Not all hazmat drums have secondary containment.
(3) Do personnel know the procedures for storage, handling, and turn-in of hazardous materials?	I	No, procedures do not exist.
(4) Are serviceable and originally packaged hazardous materials being prepared for turn-in to the supply system?	I	No, since no HWSA exists.
(5) Are hazardous materials being identified for turn-in as hazardous waste? (For example, expired shelf-life items or materials that are opened and contaminated.)	I	No, since no HWSA exists.
(6) What are the grid coordinates for the hazardous materials storage areas?	I	XXXX XXXX, XXXX XXXX, XXXX XXXX, and XXXX XXXX
(7) Provide and attach post-clearance digital photographs of each hazardous materials storage area.		NA
e. BURN PITS		
(1) Did the unit or activity operate any burn pits on-site ? (If no, a burn pit survey is not required.)	I	Yes, the site has two burn pits. Burn Pit 1 is 100 acres, and Burn Pit 2 is 150 acres. (See the continuation sheet.)
(2) Has all metal been removed from the burn pits and segregated for recycling?	I	No, site personnel need to develop and implement a burn pit management plan that includes waste segregation.
(3) Does the unit have a plan for closing the burn pits?	I	No, a plan needs to be developed with MACOM Environmental. The plan needs to include soil sampling for hazmat.
(4) Have burn pits been covered with a 6-inch layer of soil?		No, the plan needs to be developed with MACOM Environmental.
(5) Have burn pits been marked with a permanent sign? (Placard must say, "Burn Pit" and list the date closed and unit that closed it.)		NA
(6) What are the grid coordinates (taken from map center of mass) for all burn pits?	I	XXXX XXXX, XXXX XXXX
(7) Provide and attach post-clearance digital photographs of each burn pit.		NA
f. INCINERATORS		
(1) Did the unit or activity operate any incinerators on-site? (If no, an incinerator survey is not required.)	I	No, no incinerators are used on-site. (See burn pits [e.] above.)
(2) Has all metal been removed from the incinerators and segregated for recycling?		NA
(3) Has all ash been removed, tested, and disposed of according to the standing operating procedures or theater-level regulations?		NA
(4) Does the unit have a plan for transfer, closing, and disposition of the incinerators?		NA
(5) Have incinerator sites been marked with a permanent sign? (Placard must say, "Incinerator Site" and list the date closed and unit that closed it.)		NA
(6) What are the grid coordinates (taken from map center of mass) for all incinerators?		NA
(7) Provide and attach post - clearance digital photographs of each incinerator.		NA
g. SOLID WASTE LANDFILLS		
(1) Does the unit or activity operate a solid waste landfill on-site? (If no, a solid waste landfill survey is not required.)	I	Yes, the trash dump and scrap metal yard are comingled. This is not a major concern, but it could be better managed if separated.
(2) Has any blowing debris or litter been removed from the site?		No, but this needs to be included in closure planning.
(3) Does the unit have a plan for closing the landfill?	I	No, the plan needs to be developed with assistance from MACOM Environmental.
(4) Have solid waste land fills been covered or capped according to theater-level guidance?		NA

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Figure K-3. Sample DD Form 2995 (continued)

Classification: Unclassified — Continue

(5) Have landfills been marked with a permanent sign? (Placard must say, "Landfill" and list the date closed and unit that closed it.)	(Select one.) NA
(6) What are the grid coordinates for the solid waste landfill?	XXXX XXXX
(7) Provide and attach post-clearance digital photographs of the landfill.	NA
h. LATRINES	
(1) Does the unit or activity operate latrines on-site? (If no, a latrine survey is not required.)	I Yes, numerous portable latrines are located throughout the site.
(2) Does the unit have a plan for closing and removal of urine tubes and burn out latrines?	I No
(3) Does the unit have a plan for cleaning human waste that has been spilled on the ground?	I No
(4) Does the unit have a plan for removing trash from the latrine facility?	I No, the latrines are still being used.
(5) Has all trash and waste been removed from latrine facilities?	No, trash cleanup will need to be part of the final closure and inspection.
(6) Have the latrines been marked with a permanent sign? (Placard must say, "Latrine" and list the date closed and unit that closed it.)	No, trash cleanup will need to be part of the final closure and inspection.
(7) What are the grid coordinates for the latrines and urine tubes?	XXXX XXXX, XXXX XXXX, XXXX XXXX, XXXX XXXX XXXX XXXX, XXXX XXXX, and XXXX XXXX
(8) Provide and attach post-clearance digital photographs of the latrine sites.	NA
i. MAINTENANCE SITES	
(1) Does the unit or activity have maintenance activities on-site? (If no, a maintenance site survey is not required.)	I Yes, maintenance units include the 3-1 Cavalry Division, 115th Maintenance Unit.
(2) Does the unit or activity have maintenance tanks or drums? Do they have secondary containment?	I Yes and no. There are drums, but not all have secondary containment.
(3) Has all hazardous waste been turned in?	I No, HW is kept in the accumulation areas since there is no HWSA. (See the continuation sheet.)
(4) Have all accumulation points been cleaned and closed?	I No
(5) Has all contaminated soil been collected for disposal?	I NA
(6) What are the grid coordinates for the maintenance sites?	XXXX XXXX
(7) Provide and attach post-clearance digital photographs of the maintenance sites.	NA
j. GENERATORS	
(1) Does the unit/activity operate generators on-site? (If no, a generator survey is not required.)	I Yes
(2) Does the generator site tanks or drums have secondary containment?	I Yes
(3) Has contaminated soil (fuel spills, oil spills, and so forth) around the generators been collected for disposal?	I No, spillage and/or contaminated soil was observed.
(4) What are the grid coordinates for all generator sites?	I XXXX XXXX, XXXX XXXX, XXXX XXXX, XXXX XXXX, XXXX XXXX, XXXX XXXX, and XXXX XXXX
(5) Provide and attach post-clearance digital photographs of the locations of all generators 10 kilowatts and up.	NA
k. FUEL STORAGE AREAS	
(1) Does the unit or activity conduct bulk refueling or transfer operations (bladder or tanker) on-site? (If no, a fuel storage survey is not required.)	Yes, the unit has bulk fuel bladders (50,000 gallons) and bulk fuel trucks (5,000 gallons). (See the continuation sheet.)
(2) Do the fuel storage area tanks or drums have secondary containment?	Yes and no. Most drums have secondary containment.
(3) Has contaminated soil around fuel tankers or bladders been collected and properly disposed of?	No, the site has a small pile of contaminated soil from a hydraulic oil spill.
(4) What are the grid coordinates for all bulk fuel storage sites?	XXXX XXXX and XXXX XXXX
(5) Provide and attach post-clearance digital photographs of the locations of all bulk fuel storage sites.	NA

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Figure K-3. Sample DD Form 2995 (continued)

Classification: Unclassified Continue

I. RECYCLING AND REUSE AREAS (Examples: metal, plastic, glass, paper, cardboard, tires, wood, used oil, and so forth.)		
(1) Does the unit or activity operate a recycling or reuse area on-site? (If no, a recycling or reuse survey is not required.)	(Select one.) I	Yes, there is a scrap metal yard (comingled with the trash dump), tires (segregated), and other recyclables (not segregated).
(2) List all the materials that are recycled or reused at the site.	I	Scrap metal
(3) Have all recycled or reused materials been policed up from the site?	I	No, a plan needs to be developed with MACOM Environmental.
(4) Does the unit or activity have a plan for closing the recycling or reuse area?	I	No, a plan needs to be developed with MACOM Environmental.
(5) What are the grid coordinates for the recycling or reuse area?	I	XXXX XXXX and XXXX XXXX
(6) Provide and attach post-clearance digital photographs of the recycling or reuse area .		NA
m. WATER, WASTEWATER, AND LAUNDRIES		
(1) Does the unit or activity operate a water generation area on-site? If yes, describe.	I	Yes, the unit has three wells (100 to 120 feet deep) and one ROWPU. Approximately 80,000 gallons of potable water is generated per day.
(2) Does the unit or activity operate a wastewater system on-site? If yes, describe.	I	Yes, a wastewater lagoon
(3) Does the unit or activity operate any wash racks and/or oil water separators? If yes, describe .	I	No
(4) Does the unit or activity operate a laundry system on-site? If yes, describe.	I	Yes, a contracted laundry system. Gray water is sent to the soakage pit.
(5) Does the unit or activity have a plan for closing the water generation area ?	I	No, a plan needs to be developed with MACOM Environmental.
(6) Does the unit or activity have a plan for closing the wastewater system?	I	No, a plan needs to be developed with MACOM Environmental.
(7) Does the unit or activity have a plan for closing the wash racks and/or oil water separators?	I	No, a plan needs to be developed with MACOM Environmental.
(8) Does the unit or activity have a plan for closing the laundry system?	I	No, a plan needs to be developed with MACOM Environmental.
(9) What are the grid coordinates for the water generation area?	I	No, a plan needs to be developed with MACOM Environmental.
(10) What are the grid coordinates for the wastewater system?	I	XXXX XXXX
(11) What are the grid coordinates for wash racks and/or water separators?	I	NA
(12) What are the grid coordinates for the laundry system?	I	XXXX XXXX
(13) Provide and attach post-clearance digital photographs of the water, wastewater, laundry areas, and wash racks and/or oil water separators.		NA
n. PESTICIDE MIXING AND STORAGE		
(1) Does the unit or activity operate any pesticide mixing or storage areas on-site? (If no, a pesticide survey is not required.)	I	No
(2) Do personnel know the procedures for storage, handling, and turn-in of pesticides?		NA
(3) Are serviceable and originally packaged pesticide containers being prepared for turn-in to the supply system?		NA
(4) Are pesticides being identified as being waste prepared for turn-in? (For example, expired shelf-life items or materials that are opened and contaminated.)		NA
(5) Does the unit or activity have a plan for closing the pesticide mixing or storage area?		NA
(6) What are the grid coordinates for the pesticide mixing or storage areas?		NA
(7) Provide and attach post-clearance digital photographs of the pesticide mixing or storage areas.		NA
o. DINING FACILITY FOOD WASTE MANAGEMENT		
(1) Does the unit or activity operate any food waste management areas on-site? (If no, a food waste management area survey is not required.)	I	Yes, there are three DFACs.
(2) Does the unit or activity operate any grease traps on-site?	I	Yes, each DFAC has a grease trap.

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Figure K-3. Sample DD Form 2995 (continued)

Classification: Unclassified Continue

	(Select one.)	
(3) Does the unit or activity operate any soakage pits on-site?	I	Yes, there is one pit for gray water only.
(4) Do personnel know the procedures for separation, storage, handling, and disposal of food wastes (to include grease)?	I	Yes, PVNTMED helped the unit develop an SOP.
(5) Does the unit or activity have a plan for closing the food waste management areas?	I	No, a plan needs to be developed with MACOM Environmental.
(6) Does the unit or activity have a plan for closing the grease traps?	I	No, a plan needs to be developed with MACOM Environmental.
(7) Does the unit or activity have a plan for closing the soakage pits?	I	No, a plan needs to be developed with MACOM Environmental.
(8) What are the grid coordinates for the food waste management areas?	I	XXXX XXXX, XXXX XXXX, and XXXX XXXX
(9) What are the grid coordinates for the grease traps?	I	XXXX XXXX, XXXX XXXX, and XXXX XXXX
(10) What are the grid coordinates for the soakage pits?	I	XXXX XXXX, XXXX XXXX, and XXXX XXXX
(11) Provide and attach post-clearance digital photographs of the food waste management mixing or storage areas.		NA
(12) Provide and attach post-clearance digital photographs of the grease traps.		NA
(13) Provide and attach post-clearance digital photographs of the soakage pits.		NA
p. GENERAL		
(1) Has the unit or activity scheduled its preliminary and final inspections?	I	No, plans need to be developed and executed before scheduling occurs.
(2) Does the unit or activity need help to remediate any environmental spills? If so, describe.	I	Yes, small piles of contaminated soil from a hydraulic oil spill and other spill areas (see spill reports) need to be tested to determine if appropriate actions were taken at the time of the spills.
(3) Does the unit or activity need help coordinating hazardous waste turn-in?	I	Yes
(4) Does the unit or activity need help in solving any environmental problems? If so, describe.	I	Yes, help is needed with HW and medical waste disposal and burn pit operation.
(5) Are there any hazardous materials or waste on-site that are not covered by the survey categories above? If yes, describe type, location, and disposition.	I	No

3. COMMENTS AND RECOMMENDATIONS

Plans are needed for HW and medical waste disposal and for the operation of burn pits.

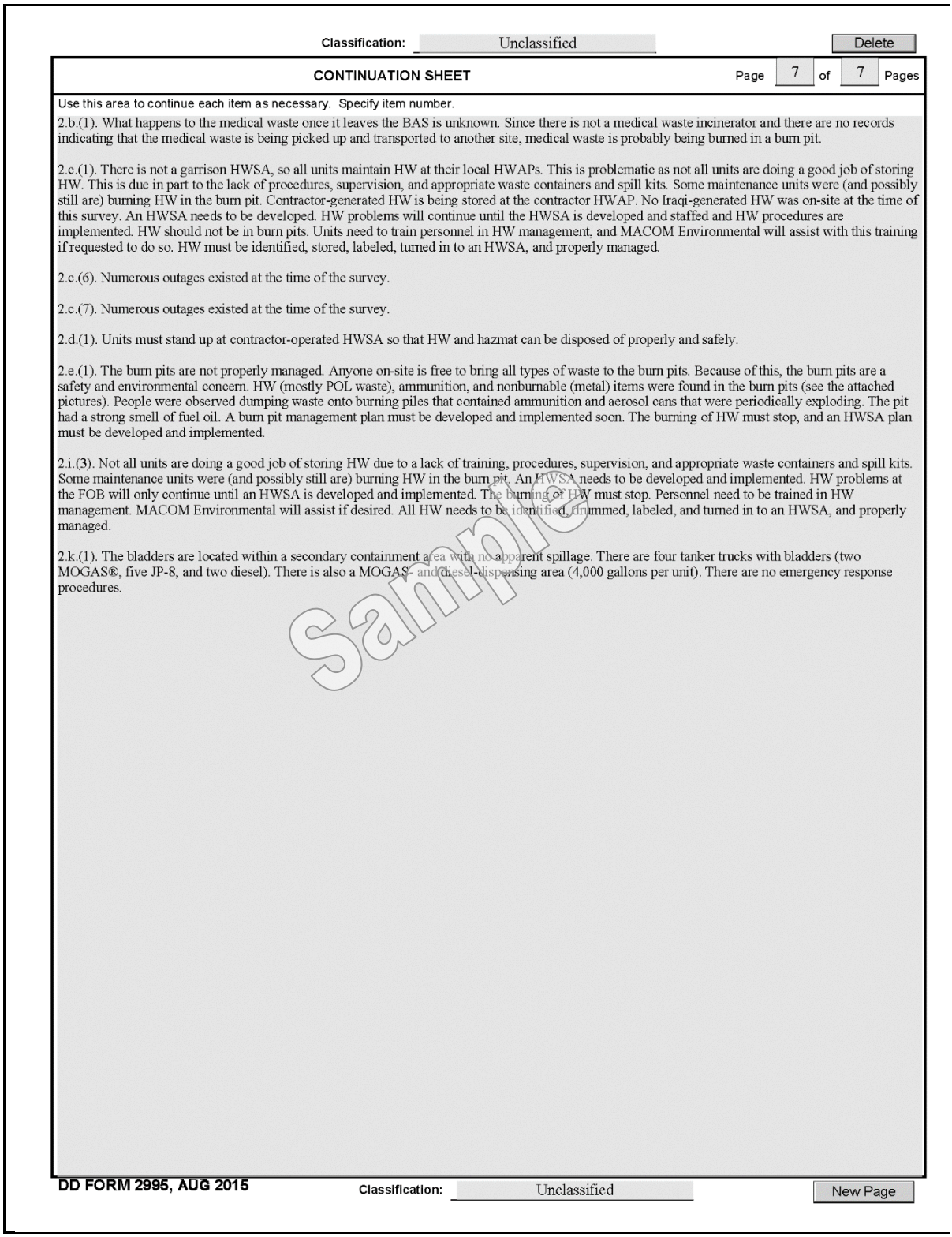
4. LIST OF ATTACHMENTS *(Such as maps, pictures, reports, or diagrams.)*

A. A map of the site.
B. Photos of the site:
- Photo 1, the recycling center.
- Photo 2, Burn Pit 1.
- Photo 3, Burn Pit 2.
- Photo 4, the POL farm.
- Photo 5, the fuel-dispensing area.
- Photo 6, the medical waste dump.
- Photo 7, the trash dump and the scrap metal yard.
- Photo 8, the water well.
- Photo 9, the drinking water system (including the reservoir and ROWPU).
- Photo 10, the contractor-operated HW area.
- Photo 11, the military-operated HW area.
- Photo 12, the wastewater system (black water/gray water).

5. FINAL SURVEY RESULTS *(Check one)*

Base Camp or Unit is: [ ] CLEARED [X] NOT CLEARED

Figure K-3. Sample DD Form 2995 (continued)



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Delete

CONTINUATION SHEET Page 7 of 7 Pages

Use this area to continue each item as necessary. Specify item number.

2.b.(1). What happens to the medical waste once it leaves the BAS is unknown. Since there is not a medical waste incinerator and there are no records indicating that the medical waste is being picked up and transported to another site, medical waste is probably being burned in a burn pit.

2.c.(1). There is not a garrison HWSA, so all units maintain HW at their local HWAPs. This is problematic as not all units are doing a good job of storing HW. This is due in part to the lack of procedures, supervision, and appropriate waste containers and spill kits. Some maintenance units were (and possibly still are) burning HW in the burn pit. Contractor-generated HW is being stored at the contractor HWAP. No Iraqi-generated HW was on-site at the time of this survey. An HWSA needs to be developed. HW problems will continue until the HWSA is developed and staffed and HW procedures are implemented. HW should not be in burn pits. Units need to train personnel in HW management, and MACOM Environmental will assist with this training if requested to do so. HW must be identified, stored, labeled, turned in to an HWSA, and properly managed.

2.c.(6). Numerous outages existed at the time of the survey.

2.c.(7). Numerous outages existed at the time of the survey.

2.d.(1). Units must stand up at contractor-operated HWSA so that HW and hazmat can be disposed of properly and safely.

2.e.(1). The burn pits are not properly managed. Anyone on-site is free to bring all types of waste to the burn pits. Because of this, the burn pits are a safety and environmental concern. HW (mostly POL waste), ammunition, and nonburnable (metal) items were found in the burn pits (see the attached pictures). People were observed dumping waste onto burning piles that contained ammunition and aerosol cans that were periodically exploding. The pit had a strong smell of fuel oil. A burn pit management plan must be developed and implemented soon. The burning of HW must stop, and an HWSA plan must be developed and implemented.

2.i.(3). Not all units are doing a good job of storing HW due to a lack of training, procedures, supervision, and appropriate waste containers and spill kits. Some maintenance units were (and possibly still are) burning HW in the burn pit. An HWSA needs to be developed and implemented. HW problems at the FOB will only continue until an HWSA is developed and implemented. The burning of HW must stop. Personnel need to be trained in HW management. MACOM Environmental will assist if desired. All HW needs to be identified, drummed, labeled, and turned in to an HWSA, and properly managed.

2.k.(1). The bladders are located within a secondary containment area with no apparent spillage. There are four tanker trucks with bladders (two MOGAS®, five JP-8, and two diesel). There is also a MOGAS- and diesel-dispensing area (4,000 gallons per unit). There are no emergency response procedures.

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Figure K-3. Sample DD Form 2995 (continued)

Legend:	
ATP	Army techniques publication
BAS	battalion aid station
BCT	brigade combat team
CPT	captain
DD	Department of Defense form
DFAC	dining facility
EBS	environmental baseline survey
ECR	environmental conditions report
EO	environmental officer
F	final
Feb	February
FM	field manual
FOB	forward operating base
G-4	logistics staff officer
HW	hazardous waste
HWAP	hazardous waste accumulation point
HWSA	hazardous waste storage area
ID	infantry division
LTC	lieutenant colonel
MACOM	major command
MAJ	major
MCRP	Marine Corps reference publication
NA	not applicable
P	preliminary
PB	patrol bases
POL	petroleum, oils, and lubricants
PVNTMED	preventive medicine
ROWPU	reverse osmosis water purification unit
S-4	logistics staff officer
SOP	standard operating procedure
TRADOC	United States Army Training and Doctrine Command

Figure K-3. Sample DD Form 2995 (continued)

Glossary

SECTION I – ACRONYMS AND ABBREVIATIONS

ADP	Army doctrine publication
ADRP	Army doctrine reference publication
AEC	Army Environmental Command
AFJMAN	Air Force joint manual
AFM	Air Force manual
AFR	Air Force regulation
AFTTP	Air Force tactics and techniques publication
AJEEP	allied joint environmental protection publication
AO	area of operations
AR	Army regulation
ATP	Army techniques publication
ATTN	attention
BCT	brigade combat team
CBRN	chemical, biological, radiological, and nuclear
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CJCSM	Chairman of the Joint Chiefs of Staff manual
COA	course of action
COCOM	combatant command (command authority)
CONUS	continental United States
CWA	Clean Water Act
DA	Department of the Army
DC	District of Columbia
DD	Department of Defense
DLAI	Defense Logistics Agency instruction
DOD	Department of Defense
DODD	Department of Defense directive
DODI	Department of Defense instruction
EBS	environmental baseline survey
ECR	environmental conditions report
EN	engineer
EO	executive order
ESOH	environment, safety, and occupational health
fed	federal
FGS	final governing standard
FHP	force health protection
FM	field manual
FY	fiscal year

G-2	assistant chief of staff, intelligence
G-3	assistant chief of staff, operations
G-4	assistant chief of staff, logistics
GTA	graphic training aid
HN	host nation
HW	hazardous waste
IPB	intelligence preparation of the battlefield/battlespace
IS	information system
JOPES	Joint Operation Planning and Execution System
JP	joint publication
JR	junior
MARPOL	marine pollution
MCDP	Marine Corps doctrine publication
MCIP	Marine Corps interim publication
MCO	Marine Corps order
MCPP	Marine Corps planning process
MCRP	Marine Corps reference publication
MCWP	Marine Corps warfighter publication
MDMP	military decisionmaking process
MED	medical
METT-T	mission, enemy, terrain and weather, troops and support available, and time available
METT-TC	mission, enemy, terrain and weather, troops and support available, time available, and civil considerations
MMPA	Marine Mammal Protection Act
MO	Missouri
MSCoE	United States Army Maneuver Support Center of Excellence
NATO	North Atlantic Treaty Organization
NAVFAC	Naval Facilities Engineering Command
NAVSUP	Naval Supply Systems Command
NAVSUPINST	Naval support instruction
NEPA	National Environmental Policy Act
No.	number
NTTP	Navy tactics, techniques, and procedures
OCONUS	outside the continental United States
OPLAN	operation plan
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Chief of Naval Operations instruction
OPORD	operation order
ORM	operational risk management
OSHA	Occupational Safety and Health Administration
pam	pamphlet

PCB	polychlorinated biphenyl
PCN	publication control number
PIN	publication identification number
PL	public law
POL	petroleum, oils, and lubricants
PPE	personal protective equipment
pub	publication
RCRA	Resource Conservation and Recovery Act
RM	risk management
S-1	personnel staff officer
S-2	intelligence staff officer
S-3	operations staff officer
S-4	logistics staff officer
S-9	civil affairs operations staff officer
SDS	safety data sheet
SDWA	Safe Drinking Water Act
SJA	staff judge advocate
SOFA	status-of-forces agreement
SOP	standard operating procedures
std	standard
TB	technical bulletin
TIC	toxic industrial chemical
TIM	toxic industrial materials
TM	technical manual
U.S.	United States
UFC	United Facilities Criteria
USA	United States Army
USACE	United States Army Corps of Engineers
USAES	United States Army Engineer School
USC	United States Code
USMC	United States Marine Corps
VA	Virginia
WMD	weapons of mass destruction

SECTION II – TERMS

***environmental assessment**

A study to determine if significant environmental impacts are expected from a proposed action.

***environmental compliance**

The unconditional obeying of international, foreign nation, federal, state, and local environmental rules, regulations, and guidelines that affect current operations.

***environmental conditions report**

A concise summary of events or situations that created a negative or positive change in environmental conditions at a base camp site.

***environmental protection level**

The varying level of environmental protection that can reasonably be afforded at any particular time during military operations, given the absolute requirement that such a diversion of resources away from the mission at hand does not adversely affect that mission, any friendly personnel, or indigenous or refugee populations.

***environmental reconnaissance**

The systematic observation and recording of site or area data collected by visual or physical means, dealing specifically with environmental conditions as they exist, and identifying areas that are environmentally sensitive or of relative environmental concern, for information and decisionmaking purposes.

***environmental restoration**

The systematic removal of pollution or contaminants from the environment, especially from the soil or groundwater, by physical, chemical, or biological means; also known as remediation or environmental cleanup.

***environmental services**

Environmental services are the various combinations of scientific, technical, and advisory activities (including modification processes and the influence of man-made and natural factors) required to acquire, produce, and supply information on the past, present, and future states of space, atmospheric, oceanographic, and terrestrial surroundings for use in military planning and decisionmaking processes or to modify those surroundings to enhance military operations.

***environmental stewardship**

The integration and application of environmental values into the military mission to sustain readiness, improve the quality of life, strengthen civil relations, and preserve valuable natural resources.

***hazardous waste**

A solid waste that is listed as such in federal law or exhibits any of the hazardous characteristics of ignitability, corrosiveness, reactivity, or toxicity.

***hazardous waste accumulation site**

A specially designated site for the temporary collection of hazardous wastes where no container may remain on site without permit for more than a specified duration, of which is correlative to the amount of refuse stored.

***waste discharge**

The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of a hazardous waste into or onto any land or water.

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REQUIRED PUBLICATIONS

These documents must be available to the intended users of this publication. Most Army publications are available online at <www.apd.army.mil>. Most joint publications are available online at <www.dtic.mil/doctrine/new_pubs/jointpub.htm>.

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10 August 2015

By Order of the Secretary of the Army

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