Evaluation Report

OFFICE OF THE INSPECTOR GENERAL

STRATEGIES FOR IMPROVING ENVIRONMENTAL MANAGEMENT SYSTEMS IN THE DOD

Report No. 97-068

January 13, 1997

DEPARTMENT OF DEFENSE

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Acronyms

DOE	Department of Energy
EMSS	Environmental Management System Standard
EPA	Environmental Protection Agency
ISO	International Organization for Standardization
TQEM	Total Quality Environmental Management

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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January 13, 1997

MEMORANDUM FOR DEPUTY UNDER SECRETARY OF DEFENSE
(ENVIRONMENTAL SECURITY)

SUBJECT: Evaluation Report on Strategies for Improving Environmental Management Systems in the DoD (Report No. 97-068)

We are providing this evaluation report for information and use. This report is the second of two evaluation reports on the subject. Management comments on a draft of this report were considered in preparing the final report.

Comments on the draft of this report conformed to the requirements of DoD Directive 7650.3 and left no unresolved issues. Therefore, no additional comments are required.

We appreciate the courtesies extended to the evaluation staff. Questions on the evaluation should be directed to Mr. William C. Gallagher, Environmental Evaluation Program Director, at (703) 604-9270 (DSN 664-9270) or Mr. Michael R. Herbaugh, Environmental Evaluation Project Manager, at (703) 604-9294 (DSN 664-9294). If management requests, we will provide a formal briefing on the evaluation results. See Appendix I for the report distribution. The evaluation team members are listed inside the back cover.

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Report No. 97-068 **January 13, 1997**
(Project No. 6CB-5006.01)

Strategies for Improving Environmental Management Systems in the DoD

Executive Summary

Introduction. This report is a follow-on to Inspector General, DoD, Report No. 97-009, "Strategies for Improving DoD Environmental Compliance Assessment Programs," which was issued on October 28, 1996. The results presented in that report and other recent studies indicate that weaknesses (in the execution of policies and procedures) and gaps (missing policies and procedures) in DoD environmental management systems are the most common causes of compliance violations, especially recurring violations. As a result of that initial finding and opportunities for improving environmental performance and for lowering costs through proactive management techniques, we performed an evaluation of DoD environmental management systems.

Evaluation Objectives. Our objectives were to evaluate DoD environmental management systems; to examine innovative approaches used by other Federal agencies, the private sector, and the international environmental community; and to recommend improvements in DoD environmental managements systems with the potential to increase environmental performance and reduce compliance costs.

Evaluation Results. The compliance-based environmental management systems the DoD Components and the Services use can be improved to help achieve continuous improvement in environmental performance. Although compliance-based systems have improved levels of compliance, they have not evolved into sophisticated systems that provide the tools, mechanisms, and technologies necessary to meet the environmental goals and objectives of a proactive, externally recognizable systems approach. An environmental management system standard supports all environmental programs and provides the capabilities for achieving those goals and objectives. The DoD Components and the Services needed more mature, quality-based, environmental management systems in order to improve performance, reduce costs, and benefit from regulatory and nonregulatory incentives.

Summary of Recommendations. We recommend that the Deputy Under Secretary of Defense (Environmental Security) establish a standard DoD environmental management system for all environmental programs DoD-wide.

Management Comments. The Assistant Deputy Under Secretary of Defense (Environmental Quality) concurred with the recommendations for achieving new environmental management responsibilities, goals, and system improvements. The Assistant Deputy Under Secretary stated that the "report does not present an accurate assessment of DoD's EMSs [Environmental Management Systems]. . . does not mention recent improvements. . . does not present senior DoD leadership, Congress, or the public with an accurate portrayal of DoD's commitment to environmental quality and [the report] should be rewritten." See Part I for a discussion of management comments and Part III for the complete text of those comments.

Evaluation Response. We discussed management concerns during a meeting on November 20, 1996, and management provided a second memorandum commenting on this draft report that includes other recent initiatives. Our draft report did not include all of the ongoing initiatives improving environmental management systems in DoD. There are many actions that DoD recently initiated to improve environmental management systems and we included them in this final report. For example, the DoD established a committee to review existing environmental management systems and to review the adequacy of existing environmental management systems. Also, the Navy and the Air Force are staffing draft policy concerning environmental management systems. We have updated this report to include management areas of concern and recent initiatives.

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Part I - Evaluation Results

Evaluation Introduction

This report is a follow-on to "Strategies for Improving DoD Environmental Compliance Assessment Programs" (Report No. 97-009), October 28, 1996. The results discussed in that report as well as other recent studies (see Appendix B) indicate that weaknesses in DoD environmental management systems were the most common causes of compliance violations, especially recurring problems. As a result of that finding and opportunities to improve environmental performance at lower costs, we performed an evaluation of DoD environmental management systems to identify practices of environmental management that could improve DoD systems. We began our evaluation by defining and evaluating current systems and the influences that affect their design.

Evaluation Background

An environmental management system is that aspect of an organization's overall management function that determines and implements the organization's environmental policy. Such a system can be described or characterized in terms of the organizational structure, assigned responsibilities, practices, procedures, processes, and resources used to achieve the organization's environmental policy goals and objectives. Although an environmental management system can be designed to achieve a range of goals and objectives, environmental systems in the DoD and the Services (the Army, the Navy, the Air Force, and the Marine Corps) are designed primarily to meet the requirements of and respond to laws enacted by Congress and to Federal and DoD regulations.

Environmental Policy. For the last 25 years, environmental policy in the United States has been achieved through the environmental regulatory structure of laws, regulations, oversight authorities, and enforcement mechanisms. The character of the regulatory structure has been shaped by the basic assumption that the surest and best way to remediate, minimize, or eliminate the negative environmental effects of human behavior and production is by enforcing a body of laws and regulations and by applying coercive measures to assure compliance. In other words, the United States uses a system of laws and sanctions to determine and implement its environmental policy.

Historically, the United States responds to each new environmental problem with a subsequent law, which usually requires a new set of regulations and programs (for example, air quality, water quality, and hazardous material handling and storage). Consequently, the U.S. environmental management system is a regulatory-driven, compliance-based, programmatic approach to environmental protection. The system is also characterized by its command and control structure of complex laws, oversight and enforcement authorities, and penalties.

United States Environmental Program. The Environmental Protection Agency (EPA), with enforcement support from the Department of Justice and the Federal courts, administers and oversees the environmental management system in the United States. In some cases, jurisdiction and authority for administration, oversight, and enforcement of environmental regulations is delegated to the States. The EPA and the States regularly conduct compliance audits or inspections to measure how well regulated entities are complying with environmental laws and regulations and to levy penalties or seek legal action for compliance violations. Regulated entities in both the public and private sector structure their environmental management systems and internal oversight mechanisms in response to regulatory requirements.

DoD Environmental Program. The U.S. environmental management system is the primary determinant of the design and character of DoD environmental management systems. DoD environmental policy, guidance, and oversight of environmental program execution is the responsibility of the Office of the Secretary of Defense. Pursuant to DoD Directive 4715.1, "Environmental Security," February 24, 1996, the Under Secretary of Defense for Acquisition and Technology provides policy and guidance and oversight for environmental security programs. The Deputy Under Secretary of Defense (Environmental Security) acts on behalf of the Under Secretary of Defense for Acquisition and Technology, develops implementing instructions for DoD environmental policy, and reports environmental achievements to Congress.

DoD Program Execution. Senior DoD staff, the commanders of the various DoD installations, and the heads of other Components implement and oversee guidance and determine environmental budget requirements. Commanders of military installations are responsible for managing environmental programs and military operations and for executing environmental guidance. Although compliance assessments are the primary tool, it is just one of several tools the Services use. Various in progress reviews and other audit programs help ensure compliance as well.

Each of the Services has a system for managing environmental programs and the environmental aspects of military operations. Service systems are designed to achieve, demonstrate, and sustain regulatory compliance. Environmental compliance assessment is a key component of the Services' environmental management systems. All the Services rely on the results of environmental compliance assessments to determine whether environmental compliance policy goals and objectives are being met. For that reason, the Services' compliance assessments focus on ensuring that military equipment and military operations meet the regulatory requirements of the EPA and the States.

Compliance-based Systems. The Services' environmental compliance assessments include routine checks of every effluent, emission, and waste stream and all potentially hazardous materials and safety devices to ensure that they conform with the requirements of environmental laws and regulations. When deficiencies are identified, corrective action is taken to protect health, safety, and the environment and to limit liability. Corrective actions can include such things as installing pollution control equipment or cleaning up contaminated sites. These efforts can be costly and labor-intensive. Often, these efforts fail to correct the causes of pollution and subsequently result in violations of environmental regulations.

Furthermore, the EPA has the right to recommend criminal prosecutions and to levy penalties when officials are willfully blind to compliance violations. Organizations, such as the DoD Components, with repeat compliance violations or compliance violations that represent a pattern of violation or trend, risk civil, criminal, and monetary penalties. However, the EPA encourages the use of voluntary standards for environmental management that, when adopted by regulated entities, can reduce regulatory oversight and result in the waiver of penalties and criminal prosecutions.

Evaluation Objectives

The evaluation objectives were to review existing DoD environmental management systems; to examine innovative approaches used by other Federal agencies, the private sector, and the international environmental community; and to recommend improvements to the DoD systems. See Appendix A for the evaluation scope and methodology.

Environmental Management Systems

Compliance-based environmental management systems that the DoD Components use are not effective for assuring continuous improvements in environmental performance and for demonstrating environmental achievements. As now structured, DoD systems are reactive, regulatory-driven, compliance-based, and programmatic.

Although DoD has upgraded and improved its compliance-based environmental management systems, DoD has not established a sophisticated environmental management system standard (EMSS) that provides the tools, mechanisms, and technologies necessary to meet changing environmental goals and objectives.

As a result, the DoD Components need more mature, quality-based environmental management systems in order to improve compliance performance, minimize compliance costs, decrease regulatory oversight, reduce or eliminate penalties, and to demonstrate environmental achievements.

DoD Compliance-Based Management Systems

Over the last 25 years, DoD environmental policy and the systems designed to achieve that policy have become increasingly important to the effective and efficient functioning of the DoD Components and military operations. As an essential part of the DoD environmental security mission, environmental programs directly support mission readiness. Environmental programs allow the DoD to protect its personnel and resources from environmental hazards. The programs also ensure that DoD has the ability to operate and maintain installations and weapon systems in an era of increasing environmental regulation and declining resources.

In the past, DoD environmental policy and programs have focused primarily on compliance with Federal, State, and local regulations. Regulations define standards for complying with environmental legislation. Environmental regulations and environmental quality standards cover a range of media and activities common to DoD Components. Compliance-based environmental management systems evolved in response to the immediate need for DoD to be compliant with regulatory requirements. While compliance-based environmental management systems have resulted in substantial improvements in environmental quality and human health and safety, those systems have not matured into more progressive environmental management system standards.

DoD Systems Focus on Compliance. As shown in the table below, compliance-based environmental management systems are reactive, regulatory-driven systems designed to deal with programmatic and operational regulatory requirements.

Compliance-based Environmental Management Systems Model

Process	Characteristics
Driver:	Laws and Regulations.
Perceived responsibility:	Compliance.
Policy:	Compliance.
Approach:	Programmatic (for example, air quality, water quality, hazardous waste management, etc.).
Management structure:	Command and control (for example, laws and penalties).
Goals:	Full compliance.
Measurements:	Environmental systems results (for example, chemical releases, permit violations); operating systems results (for example, waste by-product per unit of production).
Measurement tool:	Environmental Compliance Audits.

The design and focus of DoD compliance-based environmental management systems have been determined by DoD environmental policy goals. Because the emphasis of Federal, State, and local regulations is compliance, DoD environmental policy goals have focused on compliance. Performance relative to compliance goals is determined by internal assessments and by audits or inspections by Federal and State regulators.

Compliance assessments are primarily "checklist" assessments that include only the systems associated with environmental programs and military operations and practices. The assessments do not routinely or systematically include assessments of environmental management systems. Compliance assessments provide information on the status of an organization's compliance with regulations and organizational requirements and good business practices. Compliance assessment programs include thorough checks of all environmental and operating systems and practices based on established regulatory standards of performance. Assessment standards, or baselines, are derived from environmental regulations.

DoD Compliance-based Systems. The compliance-based environmental management system model used by the DoD Components to manage environmental programs was designed in the 1970s. Today, many of the environmental experts ("Reinventing the Vehicle for Environmental Management," summer 1995, First Phase Report, National Environmental Policy Institute) believe that compliance-based, command-and-control systems have reached the point of diminishing marginal returns. Compliance-based systems are not flexible, consistent, or efficient enough to achieve goals that go beyond compliance and to lower environmental protection costs. However, DoD has developed a pollution prevention program with a goal of complying to all legal environmental requirements by promoting pollution prevention as the preferred means of achieving that environmental compliance. Most environmental experts agree that unless Government organizations refocus resources on pollution prevention, there is no viable strategy for reducing environmental costs and for improving environmental performance.

Consistency of DoD Compliance-based Systems. There are differences in the systems used by each of the Services and variations in the systems used to manage each environmental media (water, air, etc.) Because the DoD has not established minimum standards for environmental management systems, there is no formal baseline for assessing system performance and for judging the effectiveness and efficiency of systems across the Services and across environmental media. Flexibility and consistency also allow for more flexible and consistent treatment from regulators; faster and easier issuance of permits; a multi-media, DoD-wide approach to addressing environmental issues; and consolidated reporting for greater efficiency. More flexible and consistent management systems allow for cost benefits though innovative, performance-driven environmental management.

Efficiency of DoD Compliance-based Systems. DoD has made improvements in the overall quality of the environment on DoD controlled properties and of the health and safety of DoD employees, and many of the most obvious and controllable sources of pollution have already been identified and corrected. Expenditures of DoD environmental compliance-based programs for FY 1995 exceeded $5 billion. Today, the prospect of budget reductions and demands for greater economic and environmental efficiency require changes and improvements in the systems used to achieve DoD environmental policy. These changes cannot be accomplished through a compliance-based system.

Environmental Management System Weaknesses. While violations of program and operating standards are routinely noted and corrected, fundamental causes of systemic and recurring compliance violations were not routinely identified and corrected. However, recent analyses by the Army and the Inspector General, DoD, show that compliance violations are most commonly caused by weaknesses and gaps in environmental management systems.

Army Analysis. In FY 1994, regulators and the Army conducted root cause analyses of compliance violations, showing that environmental management system weaknesses are a common cause of noncompliance,

especially recurring violations. The Army identified causal factors for compliance violations by analyzing deficiencies reported through its Environmental Compliance Assessment System program. A summary of the Army findings showed that 36 percent of the Army compliance problems stemmed from the lack of training and that 21 percent stemmed from the lack or inadequacy of procedures. However, the Army analysis did not identify true root causes. Because training and procedures are components of environmental management systems, the data really showed that 57 percent of the violations were caused by inadequacies in the environmental management systems.

Inspector General, DoD, Analysis. A root cause analysis by the Inspector General, DoD, of compliance violations at 26 DoD installations (during the EPA FY 1994 Federal Facilities Multi-media Enforcement/Compliance Initiative) shows a direct relationship between recurring violations and environmental management system weaknesses. About 44 percent of the recurrent violations in three programs were caused by management problems. Detailed discussions of the methodology and the results of the analysis are in Inspector General, DoD, Report No. 97-009, "Strategies for Improving DoD Environmental Compliance Assessment Programs," October 28, 1996.

No Standards For Environmental Management Systems

The DoD Components and other Government agencies are beginning to recognize environmental management system weaknesses. DoD Components have a complex environmental compliance auditing program that includes some criteria to identify management weaknesses. However, the DoD Components need an environmental management system standard that includes processes for periodically reviewing and improving environmental management systems. To evaluate systems and recommend improvements, DoD Components need a baseline, or uniform standard, for assessment. Just as important, DoD Components need an environmental management system that includes a top-level management review to identify any need for system changes.

In meeting quality-based standards, an environmental management system would include processes for identifying and evaluating existing environmental management systems, determining missing or weak elements, and developing an action plan to correct deficiencies. The state-of-the-art environmental management systems in industry now include compliance assessments, environmental management system assessments, and management reviews by top-level officials. Management reviews ensure that the results of assessments are considered in determining the need for system changes.

DoD Policy. Standards for implementing and improving environmental management systems have not been established by Federal regulation or by formal DoD policy. Consequently, there is no formal, uniform criteria for assessing environmental management system results or for judging system quality. Management system inefficiencies continue in the DoD without correction because they are not routinely and systematically identified, analyzed, and corrected.

The Services' Policies. Although not required by DoD policy, each of the Services recommends a review of environmental management systems at program offices, facilities, or installations that are undergoing a regular environmental compliance assessment. However, the Services' environmental compliance assessment programs are not structured to effectively resolve environmental management system weaknesses. The Services' assessments of environmental management systems are programmatic rather than systematic. Assessment guides provide only generic descriptions of system elements and do not provide formal standards and assessment criteria. To be effective, the DoD Components need a formal, structured, uniform environmental management system that meets recognized standards of a quality-based system.

Army Policy. Army Environmental Compliance Assessment System protocols and assessment guides describe the components of an effective management system as an aid in performing assessments of management systems at installations. The Army's guidelines are based on excerpts from the EPA Phase 3 Protocol for Conducting Environmental Management Assessments of Federal Facilities/Organizations. Including a detailed review of environmental management systems would reduce or eliminate any management inefficiencies.

Navy and Marine Corps Policies. While the Navy policy for compliance assessments does not specifically include environmental management system reviews, some commands, including the Naval Sea Systems Command, conduct reviews of program management as part of their regular Environmental Compliance Evaluation programs. The Navy and the Marine Corps use Environmental Compliance Evaluation checklists for baseline environmental assessments. Those checklists include reviews of general policies, responsibilities, management, and organization as elements of basic assessments. Including a detailed review of environmental management systems would reduce or eliminate any management inefficiencies.

Air Force Policy. Air Force guidance does not require environmental management system assessments, but does allow for a discussion of management practice issues as part of a regular compliance assessment. Including a detailed review of environmental management systems would reduce or eliminate any management inefficiencies.

Compliance-Based Management Systems Were The First Step

Compliance-based environmental management systems are a logical first step toward protecting the environment and reducing pollution and its harmful effects. The obvious benefit is that compliance-based systems focus on meeting regulatory standards and requirements. Compliance-based systems are also useful for establishing a compliance baseline for facilities with little environmental program information. However, as an organization gains experience, its environmental management system needs to mature.

Factors Influencing Compliance-based System Changes. In the past decade, as public awareness and concern for the environment increased, the complexities and costs of complying with environmental regulations have grown dramatically. Growth and changes in regulations caused corresponding growth and changes in DoD environmental responsibilities and environmental policy. Many factors, both regulatory and nonregulatory, are creating the need for more flexible, consistent, and efficient environmental management systems. The following factors influence changes in compliance-based systems.

o Public concern for the environment is growing.

o Perception of environmental responsibility has shifted from compliance to environmental stewardship.

o Environmental goals now aim at environmental protection through pollution prevention.

o Environment management principles based on stewardship require proactive management approaches.

o Sound environmental performance in addition to compliance demonstrates responsible behavior.

o Quality standards and performance require new management technologies.

o Budget reductions require better performance at lower cost.

o Alternatives to costly and complex regulations demand regulatory reform.

o New international standards for quality environmental management eliminate non-tariff barriers.

Management initiatives that go beyond compliance can also result in greater regulatory flexibility, civil and criminal leniency, and public goodwill at a time of increasing environmental awareness among the general public. In the United States, there is a growing trend to improve or restructure environmental management programs by implementing a systems-approach based on continuous improvement and environmental stewardship processes. Appendix B

discusses reports that advocate support for an environmental management systems approach that focuses on establishing a uniform environmental management system.

Environmental Management System Standard Model

A new model for environmental management systems has emerged internationally and is being widely supported and adopted by environmental advocates. Trade and professional associations, U.S. and foreign governments, and consulting services have drawn from the "best practices" of leaders in the environmental management field to develop guidelines and standards for a quality-based system. Although there are variations in different sets of standards, for the purposes of this report, quality-based management systems are referred to generically as Environmental Management System Standard (EMSS).

The concept of EMSS is relatively new to environmental professionals. The EMSS concept is based on the belief that the adoption and implementation of a range of environmental management techniques, in a systematic manner, can contribute to optimal environmental performance.

A Better Environmental Management System

DoD Efforts. The DoD Components are just beginning to analyze compliance violations and to identify and correct causal factors. However, we believe that effective analysis will result in the conclusion that the DoD Components need improved environmental management systems. The DoD Components have initiated improvement efforts, including a pilot program called the Environmental Investment approach, or ENVVEST for short, and the EPA Environmental Leadership Program. DoD has also recently initiated efforts to review and improve the DoD environmental management system. A DoD joint committee was established to review ISO 14000 and conduct gap analysis on environmental management systems within the DoD. Appendix C discusses several of those improvement efforts.

Many leading corporations and a few Federal agencies have already implemented EMSS models or quality-based improvements and are acting to incorporate EMSS systems with overall operations management systems. Integration of the EMSS system with other systems is vital to gaining acceptance of the EMSS as a strategic operations function. See Appendix D for a detailed discussion of EMSS and EMSS models.

Environmental Protection Agency. For a number of years, the EPA has worked to provide programs that would encourage private corporations to implement state-of-the-art environmental management systems. The

Department of Justice punitative guidelines for environmental noncompliance support reduced punishments for programs with environmental management system standards. See Appendix E for a discussion of Federal Government Initiatives to encourage EMSS.

Department of Energy. The Department of Energy (DOE) began a comprehensive assessment of its systems in the 1980's. Lessons learned from the DOE effort have resulted in efforts to develop and implement a DOE-wide policy formally adopting uniform, quality standards for DOE environmental management systems. See Appendix F for the history of DOE EMSS initiatives and policy.

International Organization for Standardization. An EMSS model may be based on regional, national, or international standards developed by either a private corporation, professional or trade association, or Government organization. The most prominent model is the International Organization for Standardization (ISO) 14000 series of standards for environmental management. The ISO 14000 is the EMSS model described in this report because the model has been developed and adopted through a consensus of the international community. See Appendixes G through J for information on ISO 14000.

In addition to those efforts, many private corporations have demonstrated leadership in designing standards for improving or implementing effective, quality-based systems for environmental management. For example, the Global Environmental Management Initiative is a group of 27 leading companies that are working together to promote a worldwide business ethic for environmental management and sustainable development.

Quality Standard Management Approach. Responsible behavior can be demonstrated by adopting practices that eliminate or reduce negative environmental effects and that measurably reduce the costs of compliance. One way of being responsible is to use an environmental management system based on performance and risk management that would cut across DoD programs, facilities and installations and the Services. Such a system would establish core elements and criteria that could be verified by assessment and would be comparable across DoD Components with environmental responsibilities.

Senior-Level Commitment. The DoD does not have policy directing the DoD Components to implement a systematic, quality standard management (environmental management systems standard) approach to environmental protection. In 1996, a DoD senior level workshop was jointly sponsored by the DoD Inspector General and the Deputy Under Secretary of Defense (Environmental Security) to review and discuss environmental management systems standards associated with ISO 14000. Senior-level commitment to the standards of an environmental management system will ensure for the success of EMSS within the DoD.

Potential Benefits of DoD EMSS

Benefits Outweigh Potential Costs. Although the costs associated with improving the way DoD achieves environmental policy are unknown at this time, the risks of recurrent compliance violations and the loss of potential benefits outweigh potential costs. The level of effort needed and the costs of implementing a state-of-the-art environmental management system depends, in large part, on the state of existing management systems. If the DoD decides that the best approach would be to use the model described in Draft ISO 14000 standards, DoD would first need to perform a complete self-assessment to identify gaps and weaknesses in existing systems. Because existing DoD systems are primarily compliance-based and not quality-based systems, the initial investment and effort may be extensive.

While most organizations can complete the transition in 6 to 18 months, the length of the process may increase for the DoD because of the size, scope, and complexity of DoD organizations and operations. Recent case studies have shown that even in a worst-case scenario, initial investments to implement quality-based environmental management systems can be recovered in about 3 years. The size and extent of the DoD environmental management structure would probably require sophisticated documentation, training, and communications systems. Adopting a quality-based environmental management system involves a time-consuming process of making and executing decisions that change current practices or implement new systems. However, those issues are associated with any significant change in DoD management. DoD would benefit from an examination of whether risks associated with recurring regulation compliance violations and missed opportunities for regulatory benefits represent even greater problems and costs.

DoD Not Realizing Benefits With Current Systems. Real benefits can be realized through a DoD commitment to an EMSS model like the one described in the Draft ISO 14000 EMSS documents. The incentives for DoD to voluntarily establish a quality-based standard for environmental management systems are well established. Implementation of standards for state-of-the-art systems like the ISO 14000 can result in improved compliance, better pollution prevention, better use of resources, and better and faster use of innovative technologies.

Provide a Good Management System. An EMSS model provides real benefits because it is designed to provide a good management system. According to the EPA Generic Protocol for Federal Facilities, published in March 1995, an environmental management system based on quality standards can help an organization provide confidence to interested parties such as the public, Congress, environmental groups, and Federal regulators that it has:

o a strong management effort to achieve environmental policy objectives and goals,

o an organizational emphasis on prevention rather than corrective action, and

o an EMSS model that assures continuous improvements and continuing compliance.

Those factors are critical to strategic environmental protection. For example, an organization that does not emphasize pollution prevention cannot be said to have a strategic vision for environmental protection. Furthermore, organizations that have proactive and strategic environmental management systems can expect reasonable and sometimes favorable treatment from regulators.

Waiver or Reduce Penalties. The EPA has a number of pilot projects that provide regulatory incentives to encourage management system improvements. In certain cases, the EPA will waive or significantly reduce penalties and decline criminal prosecutions when an organization demonstrates due diligence in systematically preventing, detecting, and correcting violations and in evaluating environmental management systems. However, the EPA retains the right to recommend criminal prosecutions when officials are willfully blind to violations. Organizations with repeat violations or violations that represent a pattern of violation, or trend, are not eligible for any of those regulatory and legal incentives.

Benefits Realized by Other Organizations. Non-EPA regulatory factors also offer major incentives for quality environmental management. The Securities and Exchange Commission's environmental disclosure requirements and the Department of Justice draft Federal punishment awarding guidelines allow reductions in sanctions to encourage state-of-the-art environmental management systems. The benefits of an EMSS that are available to the DoD Components and that are already being realized by other organizations include:

o reductions or elimination of penalties,

o reductions in regulatory burdens,

o reductions in incidents that result in risks and liability,

o demonstrated commitment to sound environmental performance,

o demonstrated performance improvements,

o enhanced access to funding,

o facilitated permits and authorizations,

o improved cost controls,

o reductions in cost of current compliance assessment program,

o reductions in cost and staffing,

o demonstrated reasonable care,

- o enhanced public and community relations, and
- o enhanced community image.

Summary

DoD compliance-based environmental management systems are reactive, regulatory-driven, compliance-based, and programmatic. The DoD compliance-based management systems need to be improved to meet the increased DoD environmental responsibilities. Environmental management system standards support and improve all environmental program elements (for example, pollution prevention, conservation, clean up, and compliance.) Implementing an EMSS model shifts the regulation oriented management system approach from a reactive stance to a proactive, externally recognizable systems approach. That approach is progressive, making the infrastructure at DoD installations more predictable which, in turn, will result in potential monetary benefits by avoiding redundant capabilities and by reducing the likelihood of unplanned releases, accidents, or noncompliance due to gaps in environmental protection. The EMSS will also improve compliance performance, minimize compliance costs, reduce regulatory oversight, reduce or eliminate penalties, and demonstrate environmental achievement.

Private industry, Federal agencies, and international organizations advocate and support the adoption of an EMSS. An EMSS model is intended to provide organizations with the elements of an effective environmental management system that can be integrated with other management requirements and to assist organizations to achieve environmental and economic goals.

Recommendations, Management Comments and Evaluation Response

We recommend that the Deputy Under Secretary of Defense (Environmental Security):

1. Establish a task force to select a uniform, DoD-wide environmental management system standard model that incorporates continuous improvement and environmental stewardship processes.

2. Direct the task force to perform an environmental management systems assessment and policy gap analysis to evaluate the adequacy of current environmental management systems and procedures.

3. Develop environmental policy, objectives, goals, and an implementation plan for achieving new environmental management responsibilities, goals, and system improvements.

4. Incorporate the selected environmental management system standard model into DoD guidance.

Assistant Deputy Under Secretary of Defense (Environmental Quality) Comments. The Assistant Deputy Under Secretary of Defense (Environmental Quality) concurred with all the recommendations. However, management expressed concern that the "report does not present an accurate assessment of DoD's EMSs. . . does not mention recent improvement. . . does not present senior DoD leadership, Congress, or the public with an accurate portrayal of DoD's commitment to environmental quality and [the report] should be rewritten." See Part I for a complete discussion of management comments and Part III for the complete text of those comments.

Evaluation Response. The comments were responsive. We agree that some areas of the draft report did not include recent improvements that reflect management's commitment to environmental quality and we have included that information throughout the final report. For example, DoD established an Environmental Management Systems Committee to examine ways to improve environmental management systems in DoD. Also, the Navy and the Air Force are staffing draft interim policy guidance on environmental management systems and ISO 14000. Further, some installations are establishing a more sophisticated environmental management system similar to ISO 14000. We do not agree with management comment that this report should be rewritten.

Part II - Additional Information

Appendix A. Evaluation Process

Scope. To achieve the evaluation objectives, we extensively relied on published research and literature. To learn about the international trends and developments in environmental management systems, we reviewed literature and interviewed representatives from the Environmental Protection Agency (EPA), the Department of Energy (DOE), and private corporations and associations with progressive environmental management systems in place. We interviewed environment, safety, and health officials at private corporations and other organizations (see table A-1). Also, we studied and analyzed information from various organizations working in the United States and internationally to develop guidelines for environmental management, including those listed in Table A-2.

Table A-1. Private Corporations and Other Organizations

Private Corporations

3M Corporation, St. Paul, MN
Allied Signal, Inc., Morristown, NJ
ARCO Chemical Company, Newtown Square, PA
The Boeing Company, Seattle, WA
Coors Brewing Company, Golden, CO
Digital Equipment Corporation, Maynard, MA
E.I. duPont de Nemours and Company, Wilmington, DE
General Motors Corporation, Detroit, MI
Hewlett-Packard Company, Palo Alto, CA
GM Hughes Electronics, Los Angeles, CA
International Business Machines Corporation, Rochester, MN
Massachusetts Water Resources Authority, Boston, MA
Northern Telecom, Mississauga, Ontario
Northrop Grumman Corporation, Los Angeles, CA
Olin Corporation, Stamford, CT
Polaroid Corporation, Cambridge, MA
The Proctor and Gamble Company, Cincinnati, OH
Raytheon, Lexington, MA
United Technologies, Hartford, CT

Other Organizations

Canadian Standards Organization, Toronto, Ontario
Chemical Manufacturers' Association, Washington, DC
Coalition for Environmentally Responsible Economies, Boston, MA
Global Environmental Management Initiative, Washington, DC

Table A-2. Resources for Information on Environmental Management Systems

United States

American Society for Testing and Materials
American Petroleum Institute's Strategies for Today's Environmental Partnership Program
American Society for Testing and Materials' EMSS Model
Chemical Manufacturers Association's Responsible Care Program
Coalition for Environmentally Responsible Economies Principles
Environmental and Commercial Insurance
Environmental Investment Program
EPA Draft Code of Environmental Management Principles for Federal Facilities
EPA Common Sense Initiative
EPA Environmental Leadership Program
EPA Project XL
Global Environmental Management Initiative
Malcolm Baldridge National Quality Award administered by the Department of Commerce
National Round Table on Environment and the Economy's Objectives of Environmental Stewardship
National Sanitation Foundation 110, Guiding Principles, and General Requirements for Environmental Management Systems
North American Commission for Environmental Cooperation created by the North American Free Trade Agreement
Total Quality Environmental Management

Other Countries

British Standards Institute's Specification for Environmental Management Systems (BS 7750)
Canadian Standards Association's CSA-2750, Draft Guidelines for a Voluntary Environmental Management System
European Union's Eco-Management and Audit Scheme
Keidanren-Japan Federation of Economic Organizations' Keidanren Global Environment Charter

International

General Agreement on Tariffs and Trade negotiations, 1986,
International Chamber of Commerce's Business Charter for Sustainable Development: "Principles for Environmental Management"
International Organization for Standardization (ISO) 9000 series of Quality Systems Management standards
ISO 14000 series of Environmental Management Standards under development by ISO Technical Committee 207
United Nations' "Rio Declaration on Environment and Development," 1992

Methodology. To understand environmental management systems in the DoD, we examined the history of DoD environmental policy and guidance, which had been designed to implement actions needed to comply with laws enacted by Congress and EPA environmental regulations. We considered current policy and guidance and new and ongoing efforts undertaken by the Deputy Under Secretary of Defense (Environmental Security) and the Services to include environmental compliance assessment programs, Environmental Investment, and Project XL. To gain insight into issues the DoD faces with the International Organization for Standardization (ISO) 14000 series of environmental management standards, we examined DoD experience with a similar international consensus standard, the ISO 9000 series of Quality Systems Management Standards. Appendix G compares ISO 9000 with ISO 14000.

Evaluation Period, Standards, and Locations. This program evaluation was made from December 1995 through May 1996 in accordance with standards implemented by the Inspector General, DoD. The evaluation did not rely on computer-processed data or statistical sampling procedures.

Organizations and Individuals Visited or Contacted

Contacts During the Evaluation. We visited or contacted individuals and organizations within the DoD and other Federal agencies and private industry. Further details are available on request.

Summary of Prior Audits and Other Reviews

During the last 5 years, the General Accounting Office issued one report that discusses environmental management systems. In General Accounting Office Report No. 95-37 (OSD case no. 9835), "Environmental Auditing: A Useful Tool That Can Improve Environmental Performance and Reduce Costs," April 3, 1995, the GAO examined various Federal Agencies' environmental compliance auditing programs. The report states that many organizations have expanded their programs to include an evaluation of their environmental management systems because they have found that weaknesses in environmental management systems most commonly explain compliance problems. The principal findings were that environmental auditing among Federal Agencies is limited and that those Agencies face obstacles in developing environmental audit programs. Report recommendations were directed to the EPA regarding

enforcement and technical assistance and outreach to civilian Federal Agencies. The DoD and the Air Force generally agreed with the GAO findings and recommendations.

In Inspector General, DoD, Report No. 97-009, "Strategies to Improve DoD Environmental Compliance Assessment Programs," October 28, 1996, we determined that the Services do not adequately determine the root causes of deficiencies identified in their environmental compliance assessment programs. The report presents the root cause analysis of the results of the FY 1994 Federal Facilities Multi-Media Enforcement/Compliance Initiative conducted by the EPA at 26 DoD installations. The analysis showed that compliance problems often derived from management weaknesses. DoD agreed with the recommendation to incorporate in-depth root cause analysis of environmental compliance deficiencies.

Appendix B. Recommendations for Environmental Management Systems

Private corporations respond quickly to economic and market changes and have emerged as the leaders in improving environmental management systems. In addition, many regional, national, and international government organizations are encouraging environmental management system reforms. In the United States, the President's Council on Sustainable Development and the General Accounting Office have recommended improvements in environmental management systems. In Canada, the Canadian Department of National Defence recognizes the need to adopt a systemic approach. Those organizations advocate support for an environmental management systems approach that focuses on establishing a uniform environmental management system. Each organization has made recommendations to improve environmental management.

President's Council on Sustainable Development. In 1993, President Clinton appointed a panel, the President's Council on Sustainable Development, to conduct a 3-year study to determine a course for the United States to achieve long-term economic growth while preserving the nation's natural resources. The panel issued its 188-page report in February 1996. As a result of its study, the panel recommended that:

> The nation should pursue two paths in reforming environmental regulation. The first is to improve the efficiency and effectiveness of the current environmental management system. The second is to develop and test innovative approaches and create a new alternative environmental management system that achieves more protection at a lower cost.

General Accounting Office The General Accounting Office issued Report No. RCED-95-37 (OSD Case No. 9835), "Environmental Auditing: A Useful Tool That Can Improve Environmental Performance and Reduce Costs," April 3, 1995. The report discusses the environmental compliance auditing programs of various Federal Agencies. Some of those programs included assessments of environmental management systems. The report states:

> As most organizations have gained experience with compliance auditing and have sought to identify the root causes of problems discovered during their audits, they have expanded their programs to include an evaluation of their environmental management systems. . . . These organizations have found that weaknesses in environmental management systems (e.g., inadequate policy guidance, employee training, and accountability) most commonly explain compliance problems, particularly recurrent problems.

Canadian Study In a presentation to the Trilateral Environmental Security Meeting, April 3, 1996, an official of the Canadian Department of National Defence reported:

> . . . recent audit and management consultant reports have referred to deficiencies in some aspects of national Defence's management of [environmental] programs. . . . Achieving sound environmental performance and staying compliant requires the adoption of a systematic approach, a commitment to continuing review of environmental management performance.

Appendix C. DoD Efforts in Improving Environmental Management Systems

Environmental Pilot Programs Within the DoD

Environmental Investment. The DoD and the EPA are proposing to develop pilot projects at a minimum of three to a maximum of five DoD facilities. The purpose of the pilot programs is to test a fundamentally different approach for improving environmental performance and for achieving environmental quality at selected installations. The new approach, called ENVVEST, which is short for environmental investment, focuses on shifting resources away from prescriptive compliance requirements toward more cost-effective pollution prevention measures.

While the ENVVEST program promises to test innovative management techniques, such as shifting to pollution prevention investments and moving away from command and control management to performance-based, risk management, the proposed ENVVEST program pilots are not specifically focused on developing, using, or testing a quality standard for environmental management systems. However, the Services have begun efforts to pilot a quality standards model and to perform environmental management systems assessments.

The EPA Environmental Leadership Program. Both McClellan Air Force Base, Sacramento, California, and Puget Sound Naval Shipyard, Bremerton, Washington, are participating in year-long projects as part of the EPA Environmental Leadership Program. The Environmental Leadership Program is a voluntary program in which participants design and implement their own environmental management system standards that must meet certain EPA guidelines.

Total Quality Environmental Management. The Naval District of Washington is implementing a three-phase program to improve environmental management. The Naval District of Washington has a long history of compliance problems. In cooperation with the EPA, the Naval District of Washington began an initiative to help demonstrate top-management support for improving compliance by improving environmental management systems. The Naval District of Washington is using a quality standard for environmental management systems based on Total Quality Environmental Management (TQEM), an environmental spin on total quality management.

TQEM Self-Assessment Matrix. During the first phase, the Naval District of Washington will perform a baseline assessment of its management system using a TQEM Primer, developed by the Council of Great Lakes Industries, and a TQEM Self-Assessment Matrix, adapted by the Council Of

Great Lakes Industries from a TQM matrix developed by the Eastman Kodak Company. The TQEM model provides a tool for improving management processes and systems. The Navy presented the TQEM Self-Assessment Matrix to the Federal Facilities Roundtable at the EPA. The Marine Corps, Naval Sea Systems Command, National Aeronautics and Space Administration, Army Environmental Center, and the DOE have obtained copies of the TQEM Matrix and are using it in some portion of their environmental management programs.

Elements of the TQEM Model. Basic elements of the TQEM model include a high-level management commitment, a strong customer/stakeholder focus, teamwork and empowerment, continuous improvement, and a prevention approach. The TQEM Primer provides a step-by-step guide for using the TQEM Self-Assessment Matrix to build a TQEM program and to perform internal assessments to identify weaknesses or gaps in the Naval District of Washington management system and processes, and to identify opportunities for improvement. Once the assessment is complete, the Naval District of Washington will initiate improvements in its environmental management system which will incorporate the EPA Draft Code of Environmental Principles for Federal Agencies. In the final stage of the environmental management system initiative, the Naval District of Washington will compare and assess its environmental management system according to the specifications in the international consensus standard model, ISO 14000, "Environmental Management System Specification." By taking those three steps, the Naval District of Washington believes it will develop a state-of-the-art environmental management system that will meet or exceed international standards.

Appendix D. Efforts to Develop the Environmental Management System Standard

Many private and Government organizations of all kinds are increasingly concerned with achieving and demonstrating sound environmental performance by controlling the effects of their activities, products, and services on the environment, taking into account their environmental policies and objectives. The organizations design their environmental programs while considering the increasingly stringent environmental legislation, the development of economic policies and other measures to foster environmental protection, and a general growth of concern from interested parties about environmental matters, including sustainable development. Efforts to develop principles and models for an environmental management system standard by the United States and other countries are described below.

EMSS Values and Principles. EMSS principles represent the broad and basic assumptions, rules, and codes of practice common to many of the EMSS models discussed in this report. EMSS principles help organizations to define their overall scope of commitment to improve environmental management systems and serve as a common set of management values. Once adopted, EMSS principles can be used as a basis for an organization's EMSS commitment and policy.

EMSS Model. The following table shows that the EMSS model is based on principles of environmental protection and environmental stewardship --voluntary practices that eliminate or reduce negative environmental effects. The EMSS principles incorporate a range of contemporary environmental values, such as state-of-the-art environmental management, environmental excellence and leadership, continuous improvement, responsible care, pollution prevention, sustainable development, and compliance.

Environmental Management System Standard Model

Process	Characteristics
Driver:	Environmental and economic efficiency.
Perceived responsibility:	Environmental protection.
Policy:	Compliance, continuous improvement, stewardship, and leadership.
Approach:	Systematic and strategic.
Management structure:	Systematic, integrated, quality-based systems.
Goals:	Compliance, pollution prevention, health and safety, and resource conservation.
Measurements:	Environmental Systems Results (for example, chemical releases); Operating Systems Results (for example, waste by-product per unit of production); Management System Results (for example, organizational structure, staff, training, reporting, planning, and risk management).
Measurement tool:	Environmental Compliance Audits.

The basic principles of EMSS models are fully compatible with the philosophy of total quality management--a concept embraced by many public and private organizations. Under total quality management, management is viewed as a system, subject to continuous review and improvement, and focused on identifying and correcting the causes, rather than the symptoms of problems.

Unlike the regulatory-driven, compliance-based model, the EMSS model is driven by the need for environmental and economic efficiency. An EMSS model is a quality-based management system with defined standards that provide a baseline for assessment and continuous improvement. An EMSS model is not programmatic, it is a systematic, process-oriented business model based on performance and risk management. Although an EMSS model does not contain specific performance criteria, organizations are required to formulate environmental policy and objectives.

Adopting an EMSS model helps an organization establish and assess the effectiveness of procedures used to set environmental policy and objectives, to achieve conformance with policy and objectives, and to demonstrate those achievements to others. In general, EMSS models are designed to provide order and consistency for organizations addressing environmental concerns through resource allocations, assignments of responsibilities, and ongoing evaluation practices, procedures, and processes. The most credible EMSS models, like the ISO 14000, describe core elements and provide guidelines for implementing an EMSS model or for improving an existing system.

Elements of EMSS Process. An EMSS involves a system process for continuous improvement that requires top-level management support in terms of the following.

o **Element 1 - Commitment and Policy.** Senior management establishes and demonstrates commitment to environmental principles and values and to taking the appropriate actions to implement the EMSS.

o **Element 2 - Planning.** Management focuses on what needs to be done by defining environmental policy, establishing objectives and targets, determining legal requirements, assessing risks, and establishing a management plan.

o **Element 3 - Implementation and Operation.** Management ensures capability through access to human, physical, and financial resources. This element facilitates the management process by aligning and integrating the environmental management system with other management systems, by assigning responsibilities, and by motivating and increasing awareness. Components of this element include structure and responsibility; operational control; documentation and records control; training, awareness, and competence; and communication.

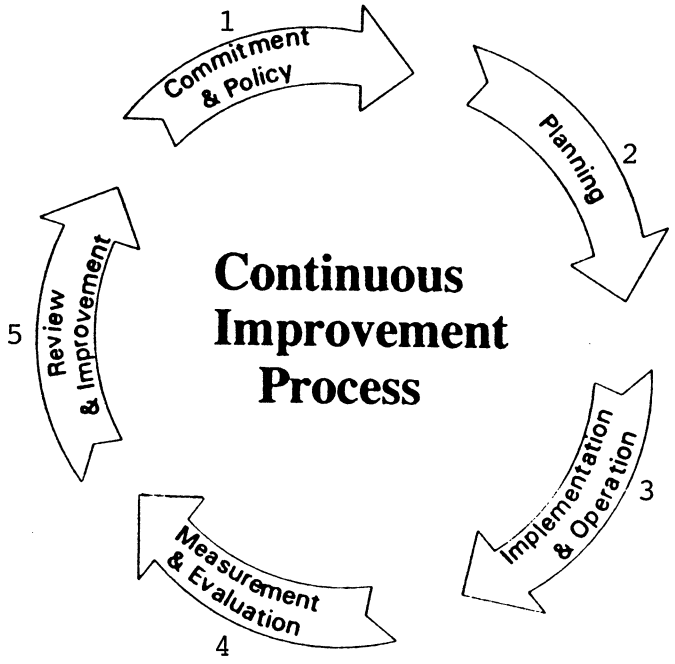
o **Element 4 - Measurement and Evaluation.** Management measures and monitors EMSS operations and outputs on an ongoing basis, tracks key performance indicators, and provides a basis for corrective and preventive action by documenting findings, conclusions, and recommendations from assessments, reviews, and audits of the EMSS model. Management also maintains EMSS records and information and audits EMSS results.

o **Element 5 - Review and Improvement.** Management periodically reviews the EMSS model to ensure continuing suitability and effectiveness and continually improves and evaluates the EMSS model.

The five basic elements in the EMSS process--commit, plan, implement, check and review--form the cornerstone of standardized, systematic environmental management. The EMSS model is generic; it can be used to manage the environmental aspects of all DoD programs, equipment, operations, and practices. The EMSS process includes irreducible components that can be objectively verified or certified by assessment, audit, or inspection, either by the organization or a third party.

Process elements and their components represent the baseline standards that characterize a quality system. Continuous and systematic improvements are assured by elements 4 and 5 (Measurement and Evaluation, Review and Improvement). The EMSS process provides the flexibility and response capability needed for a system to mature over time to become tailored to the unique needs of the organization and to adapt to change. Checking and reviewing are key elements for assuring continuous improvement.

EMSS Process Aims at Continuous Improvement. The following figure illustrates how the EMSS elements form a continuous improvement process. The EMSS process includes comprehensive assessment processes that include compliance assessments, environmental management systems assessments, and top-level management review and responsibility.



The EMSS Process

The Compliance Process. Compliance-based environmental management systems depend on the results of environmental compliance assessments of DoD environmental and operating systems--air quality, water quality, hazardous waste management, etc. As a rule, environmental compliance assessments do not include processes for effectively assessing environmental management systems, and the systems are assessed only relative and incidental to specific programs. Further, compliance-based systems do not provide processes that assure top-level review. Therefore, compliance-based systems are not comprehensive because elements critical to achieving DoD environmental policy are not effectively checked, reviewed, or improved, and accountability is obscured.

The EMSS model, on the other hand, provides a more comprehensive process that includes all factors that affect environmental performance. The process ensures action and improvement because it assigns responsibility and accountability for performance where it belongs--senior management. Along with compliance assessments, environmental management system assessments and management reviews are integral to the EMSS model.

EMSS Validates Through Verification. EMSS standards and assessment criteria provide a valid basis for systematic, objective verification and certification either by the organization or by a third party. In addition to performing assessments, the EMSS model also requires senior management review to determine the status and adequacy of the EMSS in relation to environmental policy and new objectives. Reviews assure the continuing suitability and effectiveness of the EMSS model and require consideration of EMSS assessment results, EMSS performance, and the need for improvements and change. Routine EMSS assessments and periodic senior management review ensure that an organization performs according to its environmental management plan.

EMSS Models Are Readily Available. While the DoD Components can design and adopt a DoD-unique set of standards, time and resources can be saved by using (or adapting) one of the many models, such as the ISO 14000 series of standards, already available.

U.S. Private Sector Environmental Management System Standards, Principles, and Models

In the United States, several industry groups and trade associations have developed management practices, sets of principles, and guidelines for managing environmental responsibilities. Many of those practices, principles, and guidelines are intended to foster improvements in environmental performance by improving environmental management systems. The following represent a few of the programs developed by private entities.

Total Quality Environmental Management Global Environmental Management Institute. The Global Environmental Management Institute is a group of about 27 leading companies whose members collaborate in efforts to promote a worldwide business ethic for environmental management and sustainable development, to improve the environmental performance of business through example and leadership, and to enhance the dialogue between business and its interested public. The Global Environmental Management Institute is generally credited as being the first organization to marry environmental management and the total quality management philosophy: plan-do-check-act. The Global Environmental Management Institute process is identified as total quality environmental management, a systematic approach to continuously improve environmental performance.

Environmental Self-Assessment Program (Global Environmental Management Institute). The Environmental Self-Assessment Program is based on the 16 principles published by the International Chamber of Commerce's Charter for Sustainable Development. The Environmental Self-Assessment Program serves as a tool for improving an organization's environmental management system and environmental performance. The program is designed to measure and analyze corporate environmental management performance over time, so business can pinpoint ways to increase the quality of environmental policy, planning, implementation, and monitoring.

American Society for Testing and Materials Environmental Management Systems Standard Model. This model was designed for the U.S. market based on two standards documents. The first document, "Practice for Environmental Compliance Audits," gives a description of accepted practices, procedures, and policies associated with environmental regulatory compliance audits (assessments). That document is based on the EPA and the Department of Justice guidelines unique to U.S. industry. The goal of that document is to help organizations understand whether they are in compliance with U.S. legal requirements. The second document, "Guide for the Study and Evaluation of an Organization's Environmental Management System," originally developed by the Institute for Environmental Auditing in the early 1980's, was revised by the American Society for Testing and Materials as a national standard. The American Society for Testing and Materials standard is supposed to be used to determine whether an entity has a quality environmental management system.

Coalition for Environmentally Responsible Economies' Principles. The Coalition for Environmentally Responsible Economies is a nonprofit membership organization composed of leading social investors, major environmental groups, public pensions, labor organizations, and public interest groups. The Coalition for Environmentally Responsible Economies promotes the Coalition for Environmentally Responsible Economies Principles (formerly the Valdez Principles), a model corporate code of environmental conduct. A company that endorses the Coalition for Environmentally Responsible Economies Principles pledges to monitor and improve its efforts on:

- o protection of the biosphere,
- o sustainable use of natural resources,
- o reduction and disposal of wastes,
- o energy conservation,
- o risk reduction,
- o safe products and services,
- o environmental restoration,
- o communication with the public,

- o management commitment,
- o audits, and
- o reports.

Endorsing companies must back up those pledges with concrete information, reported annually in the Coalition for Environmentally Responsible Economies Report, which is made available to the public.

European and Asian Environmental Management System Standards, Principles, and Models

Worldwide, 15 countries have produced a draft Environmental Management Systems Standard model at the national level. Many are patterned after the British Standards Institute, "Specification for Environmental Management Systems" (BS 7750), first published in March 1992. A few examples of those models follow.

British Standards Institute, "Specification for Environmental Management Systems" (BS 7750). The Specification for Environmental Management Systems (BS 7750) was first published in March 1992. BS 7750 was the first British major EMSS model and was developed as a national model for the United Kingdom. The model served as the basic blueprint for the ISO 14001 and like the ISO 14001 model, offers a process for certification and registration. A number of countries have already been BS 7750 certified. The first North American company to receive BS 7750 certification, Millar Western Pulp (Whitecourt) Ltd., was certified in March 1995. The company sought certification for internal benefits, but reported in May 1995 that the company had already realized efficiencies in documentation and training. The company also intends to seek ISO 14001 certification.

Canadian Standards Association's CSA-2750, "Draft Guidelines for a Voluntary Environmental Management System." Based on the BS 7750, the CSA-2750 is intended to provide general guidance to business, industry, and other organizations on the environmental management system. The CSA-2750 includes environmental management system definitions, principles, and fundamental procedures for implementing the model. The Canadian Standards Association submitted the CSA Z750-94 standard to the ISO Technical Committee 207 on Environmental Management as the Canadian contribution to the development of an international EMS document. The Canadian Standards Association expects its standard to be superseded by ISO 14000 and expects that Canada will adopt the ISO 14000 standards.

European Union's Eco-Management and Audit Scheme. Approved by the European Union in 1993, the Eco-Management and Audit Scheme is the European plan to help industry by promoting positive environmental management. The Eco-Management and Audit Scheme model also provides for informing the public about the environmental performance of participating companies. The Eco-Management and Audit Scheme model focuses on performance instead of compliance with regulations. However, the model provides for voluntary certification under a recognized Environmental Management Systems Standard such as the ISO 14000, the BS 7750, or some other as yet to be determined national standard related to environmental policy, management systems, and audit systems. European Union member states see standards as a means of facilitating environmental management systems certification and registration as a way of demonstrating performance. While the European Union has yet to accept a national standard for an environmental management system, the BS 7750 and the ISO 14000 are both candidates. Every member state is required to have environmental management systems specification standards in its statutes, although the standards remain voluntary unless the member state makes mandatory. Many member states are hoping they will be able to adopt the ISO 14000 Environmental Management Systems Standard model to satisfy Eco-Management and Audit Scheme requirements.

Appendix E. Federal Government Initiatives for Encouraging Environmental Management System Standard

Executive Order 12856

On August 3, 1993, President Clinton signed Executive Order No. 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements." Section 4-405 of Executive Order 12856 requires the Administrator of the EPA to establish a Federal Government Environmental Challenge Program. The program specified in section 4-405 has three components intended to challenge Federal agencies to:

o agree to a code of environmental principles, emphasizing pollution prevention, sustainable development, and state-of-the-art environmental management programs;

o submit applications to EPA, nominating individual Federal facilities for recognition as "Model Installations"; and

o encourage individual Federal employees to demonstrate outstanding leadership in pollution prevention.

Under Executive Order 12856 and the Pollution Prevention Act of 1990 (United States code, title 42, section 13101), Federal agencies are responsible for:

o exercising leadership in the field of pollution prevention through environmental management and innovative pollution prevention programs; and

o ensuring that environmental management reduces toxic chemical waste streams to the maximum extent possible through reduction, recycling, treatment, and disposal strategies and programs.

The EPA Draft Code of Principles

Along with several pilot program initiatives, the EPA has responded to the Executive Order by developing a "Draft Code of Environmental Management Principles for Federal Agencies." The Code Of Environmental Management Principles mirrors many of the principles that underlie environmental management system standards, such as the ISO 14000 series of standards for environmental management. The draft Code of Environmental Management Principles is a benchmark containing organizational principles, infrastructures, and practices for a state-of-the-art environmental management system. As defined in the draft Code of Environmental Management Principles, a

state-of-the-art environmental management system is one that ensures that environmental performance will be considered as world-class or best-in-class by peers and stakeholders and that will comply with the principles of the National Performance Review.

The EPA Final Audit Policy

On December 18, 1995, in consultation with the Department of Justice, the EPA issued its final policy statement on environmental audits or assessments, "Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention." That document reaffirms the EPA policy of not routinely requesting environmental audit results. The policy statement also encourages greater compliance with environmental laws and regulations by promoting a higher standard of self-policing that can result in major incentives. According to its final audit policy statement, the EPA will completely waive penalties or criminal prosecutions for a regulated entity that uncovers violations through environmental audits or due diligence, promptly discloses and corrects violations, and meets all other conditions listed in section D of the document. To prove due diligence, an organization must demonstrate systematic efforts to prevent, detect, and correct violations through all the measures found in section B of the policy that include

> . . . mechanisms for systematically assuring that compliance policies, standards, and procedures are being carried out, including monitoring and auditing systems reasonably designed to detect and correct violations, periodic evaluation of the overall performance of the environmental compliance management system.

The EPA new audit policy limits the complete waiver of civil penalties to organizations that meet the higher standard of environmental auditing or systematic compliance management. However, the EPA will grant a 75-percent reduction in penalties for violations voluntarily discovered without an environmental audit or without documented due diligence if the organization meets all the other requirements in section D of the policy and works with the EPA to develop an effective compliance management program. However, the EPA retains the right to recommend criminal prosecutions when officials are willfully blind to violations. Organizations with repeat violations or violations that represent a pattern of violation, or trend, are not eligible for any of those regulatory and legal incentives.

The EPA Common Sense Initiative

The EPA Common Sense Initiative was launched in 1994 to move the EPA from the traditional, medium by medium (water, air, etc.) approach to environmental management to a systematic, sector-based approach (for example,

auto manufacturing, computers and electronics, petroleum refining, etc.). The purpose of the Common Sense Initiative is to support the development of sound recommendations for improving environmental regulations, statutes, and programs that will produce better results for entire industries. The Environmental Leadership Program, on the other hand, supports test projects for management innovations, such as third-party assessments or audits, that will improve environmental performance.

The EPA Environmental Leadership Program

Organizations participating in the Environmental Leadership Program use innovative management techniques to enhance regulatory compliance and to reduce the burdens of regulatory paperwork and inspections. The EPA began soliciting for project proposals for the Environmental Leadership Program in June 1994 and plans to establish 50 pilot programs. Each project proposal for the Environmental Leadership must contain specific information. For example, an organization's proposal must provide a description of its existing or proposed environmental management system, including mechanisms for evaluating those systems. Among other factors, the EPA looks for projects that test innovative strategies in terms of processes, technologies, or management practices. The Environmental Leadership Program is a voluntary program in which participants design and implement their own environmental management systems that must meet certain EPA guidelines. The principles of the Environmental Leadership Program include ". . . advancing the design of sophisticated environmental management systems."

Twelve organizations are now participating in year-long Environmental Leadership Program projects. One goal of the Environmental Leadership Program is to test the usefulness of an environmental management system as an enforcement tool. Of the 12 participants, three (Duke Power Riverbend Steam Station, Mt. Holly, North Carolina; Ocean State Power, Burrillville, Rhode Island; and Salt River Project [a series of electric and water utilities in Arizona]) are initiating a comprehensive environmental management system with an eye toward ISO 14000 certification. The utilities also want to get credit for implementing an environmental management system when they are audited by the EPA. The EPA has determined that the ISO 14001 Environmental Management System Standards model would fulfill the requirements of the Environmental Leadership Program for a quality environmental management system. Participants in the Environmental Leadership Program work to achieve improvements in environmental quality while satisfying existing regulatory requirements. Both the Common Sense Initiative and the Environmental Leadership Program complement, but are distinct from, another EPA program called Project XL.

Project XL

On March 16, 1995, the President of the United States, as part of the National Performance Review Regulatory Reinvention Initiative, announced that the EPA would begin pilot projects that would provide organizations with the opportunity and flexibility to step outside the context of the established way of doing things and to develop innovative alternatives to the current regulatory system. In May 1995, the EPA began soliciting proposals for regulatory reinvention pilot projects for Project XL. A total of 50 projects will eventually be selected in four program areas.

Unlike the Environmental Leadership Program, Project XL pilot programs will give regulated entities the flexibility to develop alternative strategies to replace or modify specific regulatory requirements, provided the programs can achieve greater environmental benefits. In exchange for greater flexibility, regulated entities are held to a higher standard of accountability for demonstrating project results. Pilot projects are being established in three general areas: industry-wide projects (XL for Sectors); facility-based projects (XL for Facilities); and Government agency projects (XL for Government). The EPA is also planning to accept proposals for a community-based XL at a later date. Those pilot projects complement other EPA ongoing, regulatory, reinvention programs. The February 1996 report issued by the President's Council on Sustainable Development endorses Project XL as well as the Common Sense Initiative and the Environmental Leadership Program.

Appendix F. Department of Energy Approach to Environmental Management Assessments

The Department of Energy (DOE) started a comprehensive and centralized environmental auditing effort in the mid-1980's. Those efforts started with environmental compliance audits or assessments and evolved into a more programmatic approach that included evaluations of management activities and compliance issues associated with specific programs (for example, air quality programs, and waste management programs). While environmental management was considered, it was not the primary focus of the assessment. Subsequently, lessons learned from previous assessments led to a transformation from auditing directly against regulatory requirements to assessing the management systems needed to assure a successful environmental program.

In recent years, the overall environmental assessment effort has matured to include environmental management assessments that cut across line management in a DOE facility or large DOE organization. The DOE environmental management assessment program now includes assessing all relevant environmental activities to include the effectiveness of the systems by which those activities are managed. Environmental compliance is now only a minimum standard of acceptability.

Audit Focus. Today, the DOE Office of Environmental Audit focuses primarily on conducting environmental management assessments. Comprehensive environmental compliance assessments are still done, particularly at facilities with little environmental program information. However, only a few are done each year. As a routine part of its assessment program, the DOE regularly does root cause analyses to identify the causal factors of environmental problems. The DOE is also active in national and international efforts to develop a quality environmental management system standard.

Environmental Assessment Strategies. The DOE issued two documents to guide environmental assessment teams. The first of those documents is "Performance Objectives and Criteria for Conducting DOE Environmental Audits," as revised in January 1994. Environmental management systems represent 1 of the 11 technical disciplines described in that document. Also, performance objectives and criteria for environmental management assessments serve as guidelines for establishing environmental programs to meet the objectives of DOE policy on environmental protection.

The performance objectives and criteria for environmental management are ". . . based on sound management principles, they focus on specified objectives for achieving effective environmental management." Guidelines for implementing the performance objectives and criteria are provided in the second document, "Protocols for Conducting Environmental Management Assessments of DOE Organizations," June 1993. The protocols are very broad and general.

They serve to provide ". . . guidance and insight on environmental management systems" for conducting self-assessments and ". . . as a guide for establishing and enhancing . . . " the management systems of DOE program and field offices.

The DOE is Changing Policy for Environmental Management Systems. The DOE focus on performing environmental management assessments is noteworthy. While the DOE policy implies support for an environmental management system, the policy does not explicitly establish a commitment to and requirement for a particular type of environmental management system. Neither does the DOE policy endorse any particular environmental management systems standard. The DOE uses performance objectives and criteria for environmental management and protocols simply to determine whether the existing systems provide the discipline and control needed to achieve performance objectives. To be fully effective, environmental management assessments must be performed in the context of a uniform and structured management system. Without policy specifying a DOE-wide system standard, the performance objectives and criteria and protocols serve merely as guidelines, providing generic assistance to an organization implementing an environmental management system. The DOE has recognized that problem and is now working to develop and issue a DOE-wide policy statement to formally adopt an environmental management systems standard.

Appendix G. Development of International Consensus Standards

Internationally, the growth of local and national EMSS guidelines, principles, and standards has caused concern among industry, governments, and the public because of the inherent conflicts and the potential for barriers to commerce and trade. Concerns have grown in the face of other factors, such as the universal high costs of environmental compliance, worldwide trade competition, and the need for economic equity in the world market.

Several international events highlighted the need for an international consensus standard. Negotiations, during the Uruguay Round of the General Agreement on Tariffs and Trade that began in 1986, focused on the need to avoid or remove nontariff barriers to trade and to encourage use of international standards. In 1992, the Rio Conference on the Environment established principles for protecting the global environment. Further, the North American Free Trade Agreement encourages development and use of international consensus standards.

Today, more than 90 countries are participating in the development of an international consensus EMSS, a common standard that will be used among countries and other political jurisdictions. That effort is being coordinated under the auspices of the International Organization for Standardization (ISO) in Geneva, Switzerland, and is known as the ISO 14000 series of standards for Environmental Management.

The ISO 14000 Series of Standards for Environmental Management

The ISO is coordinating development of a family of international environmental management standards called the ISO 14000 series. The ISO 14000 series describes international consensus standards for a quality-based environmental management system and for the environmental aspects of manufactured products (for example, life-cycle assessments, labeling, etc.). A key feature of the ISO EMSS is that it provides criteria that can be verified and certified by a third party.

Draft ISO EMSS documents have been constructed in consideration of local conditions, economic factors, national legal systems, and the various approaches to the enforcement of legislation and the use of the courts, on a worldwide basis. For ISO 14000 certification, an organization's environmental management system must also be consistent with any industry codes of practice (for example, Chemical Manufactures' Association's Responsible Care, and International Chamber Of Commerce's Business Charter for Sustainable Development) to which the organization subscribes. The environmental management system must also be consistent with any agreements with public authorities, such as the Environmental Protection Agency (EPA), and pertinent nonregulatory guidelines and principles.

As of August 1996, the International Organization for Standardization adopted the ISO 14000 EMSS document and implementation guide document. ISO 14000 EMSS should be ready for use by the fall of 1996. Appendix H provides information on the ISO 14000 series documents.

ISO 14000 Similar to ISO 9000. The ISO 14000 series is analogous to the ISO 9000 series of standards for a quality assurance system. ISO 9000 has been widely adopted internationally. In 1994, DoD approved the use of the ISO 9000 by DoD acquisition personnel in lieu of military standards. Both the ISO 9000 and ISO 14000 quality standards have common elements.

Even though ISO 9000 and ISO 14000 are analogous, there are subtle differences. The ISO 9000 Quality Assurance System Standards focus on customer needs. The ISO 14000 Environmental Management System Standard focused on the needs of a broader range of interested parties and the societal need for environmental protection. In addition, the skills and disciplines needed for managing the environment and for conducting environmental management system assessments are distinct enough to warrant a separate set of quality standards.

Both the ISO 9000 and the ISO 14000 series deal with issues common to both a quality assurance system and a quality environmental management system. Standards describing both a quality assurance system and a quality environmental management system standard would include operational controls, audits, communication, training, and corrective action. The subcommittee responsible for ISO 14000 specification-based documents accepted at an early stage that ISO 14000 should build upon the approach of the ISO 9000 series of standards wherever practicable to do so. The following table compares the key elements of ISO 14000 and ISO 9000.

Similar Elements for ISO 14000 and ISO 9000

Key Elements of ISO 14000	ISO 9000 Elements
o Environmental Policy	o Quality Policy
o Planning - Environmental Aspects - Legal and Other Requirements - Objectives and Targets - Environmental Management Programs	o Quality Planning
o Implementation and Operation - Structure and Responsibility - Training/Competence/Awareness - Communications - Documentation Control - Operational Control - Environmental Documentation	o Implementation and Operation - Organization - Training - Quality Systems Procedures - Contract Review - Process Control - Documentation and Data Control
o Checking and Corrective Action - Monitoring and Measurement - Records - Nonconformance --Correction and Prevention - Environmental Management Systems Audit	o Checking and Corrective Action - Inspection and Testing - Control of Quality Records - Control of Nonconforming Products - Internal Quality Audits - Correction and Prevention
o Management Review	o Management Review

ISO 14000 in the U.S. Industry associations in the United States and the EPA are already evaluating the compatibility of the Draft ISO 14000 EMSS with existing environmental management codes, principles, and regulatory programs and goals. For example, the American Petroleum Institute's Strategies for Today's Environmental Partnership (Strategies for Today's Environmental Partnership) program is subscribed to by most of the American Petroleum Institute's 300 members that make up the bulk of the petroleum industry in the United States. According to an official of the American Petroleum Institute, "Companies that are already implementing the Strategies for Today's Environmental Partnership program have most of the elements for ISO 14001 certification in place." The Responsible Care Program, launched by the Chemical Manufacturers Association, is also compatible with the ISO 14000 standards.

Along with encouraging EMSS-type improvements by initiating a number of pilot programs, the EPA has responded to Presidential Executive Order 12856 and the principles of the National Performance Review by developing a "Draft Code of Environmental Management Principles for Federal Agencies." The Code of Environmental Management Principles provides standards for a state-of-the-art system that are similar to the ISO 14000 standards. In addition, the EPA is considering the Draft ISO 14000 EMSS model for adaptation as a national standard.

Importance of ISO 14000. The importance of an international consensus EMSS in a worldwide market is highlighted by the fact that about 10 percent of the $4 trillion in annual international trade may be attributable to environmental, health, and safety products and services. Many experts now regard the ISO 14000 as the most significant development of the 1990's in the field of environmental protection. The ISO 14000 series of standards is expected to be an international benchmark for conducting business in the global marketplace well into the 21st century.

Leading U.S. corporations and major Federal agencies (the EPA, the DOE, etc.) either participate directly in the ISO initiative or monitor its progress. Some 500 international delegates, representing 90 countries in the fields of government, industry, trade, and environmental management and consulting are working on the details of a voluntary international EMSS model. Participants represent 95 percent of the world's industrial capacity.

It is important to realize that the ISO is an international development organization, and in itself has no legal enforcement authority. Enforcement for ISO 14000 standards will be through consensus and voluntary compliance. However, voluntary compliance will be strongly supported or aided by the market forces of free competition and enlightened self-interest.

Even skeptics of an international standard believe it is important to participate; monitor; and, when possible, influence its development. In as few as 4 years, U.S. producers, manufacturers, and service providers may have to be certified to environmental quality standards to do business in the European market. That belief is due to the European Union's interest in adopting ISO 14000 standards for the Eco-Management and Audit Scheme.

Future Issues for ISO 14000. There are a number of issues concerning qualification criteria for accreditation authorities, accreditation criteria for registrars, auditor certification criteria, and auditor training course accreditation criteria. Many other issues surround the integration of Draft ISO 14000 standards with the different regulatory schemes throughout the world, such as the European Union's Eco-Management and Audit Scheme. Also, there are issues concerning the integration of ISO 9000 and ISO 14000. More important, there are a number of specific ISO 14000 standards in five categories that are still in development. Those categories include draft standards for environmental labeling, environmental performance evaluation, life-cycle assessments, terms and definitions, and the environmental aspects in products standards.

As those draft standards move rapidly forward, the proposed ISO 14000 standards will bring benefits and recognition to organizations that adopt them. Since the ISO 9000 series of quality assurance and quality management systems have set a precedent, it is likely that soon after the ISO 14000 standards are adopted, organizations may need to be certified to those standards in order to do business in certain parts of the world.

Appendix H. ISO 14000 Series Documents on Environmental Management System Standard

A draft international standard goes to all ISO member countries for voting and comment. Once draft international standard documents are finalized and adopted, they will be reviewed and revised every 5 years. As of August 1996, two ISO 14000 documents had been voted on and adopted as international standards, and a number of ISO 14000 documents had been elevated to draft international standard status and were nearing final approval. The ISO 14000 documents are discussed in this appendix.

Documents Adopted

ISO 14000 Environmental Management Systems--General Guidelines and Principles, Systems, and Supporting Techniques. ISO 14000 provides principles and general guidelines on systems and supporting techniques for developing a quality environmental management system. ISO 14000 outlines the basic elements of the international Environmental Management System Standard model and provides practical advice on implementing or enhancing such a system. ISO 14000 is based on three principles of an environmental management system:

o identifying regulatory requirements,

o commitment to implementing an environmental management system and to continual improvement, and

o evaluating environmental performance on a regular basis.

ISO 14001 Environmental Management System Specification. The ISO 14001 provides the core requirements for developing and implementing an environmental management system that can be certified or registered by an external third party. The primary objective of the ISO 14001 is ". . . to develop, on an international basis, a consensus standard comprising a specification of verifiable core elements for the establishment of an environmental management system which can be implemented by organizations for continual improvement of the environment."

Documents Under Development

Environmental Auditing. Environmental audits are an essential element of an effective environmental management system and need to be performed on a regular basis by qualified individuals to assess conformance with organizational requirements. The draft ISO standards, listed below, provide requirements for general principles of environmental auditing, guidelines for auditing environmental management systems, and qualification criteria for environmental auditors.

o Draft International Standard ISO 14010, Guidelines for Environmental Auditing--General Principles on Environmental Auditing.

o Draft International Standard ISO 14011/1, Guidelines for Environmental Auditing--Auditing Procedures--Part 1: Auditing of Environmental Management Systems.

o Draft International Standard ISO 14012/2, Guidelines for Environmental Auditing--Qualification Criteria for Environmental Auditors.

Environmental Labeling. The objective of environmental labeling standards is to encourage organizations and businesses to use certain procedures and principles to ensure due process, fairness to all stakeholders, avoidance of trade barriers, and effective communication of environmental preferability to consumers. The following ISO draft standards establish requirements for national environmental labeling programs.

o Committee Draft ISO 14021, Terms and Definitions for Self-Declaration Claims.

o Committee Draft ISO 14024, Environmental Labeling Guiding Principles, Practices and Criteria for Multiple Criteria-Based Practitioner Programs (Type 1) - Guide for Certification Procedures.

o Working Draft ISO 14025, Principles of All Environmental Labeling.

Environmental Performance Evaluation. Environmental Performance Evaluation is a process to measure, analyze, assess, and describe an organization's environmental performance against criteria for appropriate management purposes. This process includes gathering data, sorting and grouping the data, assessing how well targets and objectives were met, and reporting the data to interested parties and stakeholders. One ISO standard is being prepared in draft, and one is still in the conceptual stage.

o Working Draft ISO 14031, Evaluation of the Environmental Performance of the Management System and Its Relationship to the Environment.

o Idea Stage--Evaluation of the Environmental Performance of the Operational System and Its Relationship to the Environment.

Life-Cycle Assessment. The ISO draft standards below offer a tool for evaluating the environmental attributes associated with a product, process, or service. Life-cycle assessment involves the monitoring of a product's life from raw material extraction, through manufacturing, distribution and transportation, use, and recycle to final disposal.

o Committee Draft ISO 14040, Life-Cycle Assessment--Principles and Guidelines.

o Working Draft ISO 14041, Life-Cycle Assessment--Goal and Definition/Scope and Inventory Analysis.

o Idea Stage-ISO 14042, Life-Cycle Assessment--Impact Assessment.

o Idea Stage-ISO 14043, Life-Cycle Assessment--Improvement Assessment.

Terms and Definitions. The ISO standard below delineates and defines the technical terms used throughout the entire 14000 series of environmental standards.

o Idea Stage-Guide on the Principles for ISO/Technical Committee 207/Subcommittee 6 Terminology Work.

Environmental Aspects in Product Standards. The draft ISO standard below will incorporate many of the "design for the environment" methodologies that are being implemented by Fortune 100 companies. Accurate identification and assessment of how provisions in product standards influence the product's environmental effects are complex and need careful consideration and consultation with experts.

o Committee Draft ISO 14060, Guide for the Inclusion of Environmental Aspects in Product Standards.

Appendix I. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Deputy Under Secretary of Defense (Environmental Security)
Assistant to the Secretary of Defense (Public Affairs)
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Department of the Army

Assistant Secretary of the Army (Financial Management and Comptroller)
Assistant Secretary of the Army (Installations, Logistics, and Environment)
Auditor General, Department of the Army

Department of the Navy

Commandant of the Marine Corps
  Deputy Chief of Staff for Installations and Logistics
Assistant Secretary of the Navy (Financial Management and Comptroller)
Assistant Secretary of the Navy (Installation and Environment)
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Deputy Assistant Secretary of the Air Force (Environment, Safety and Occupational Health)
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Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Commerce
House Subcommittee on Health and Environment
House Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
House Committee on National Security
House Committee on Science
House Subcommittee on Energy and Environment

Part III - Management Comments

Assistant Deputy Under Secretary of Defense (Environmental Quality) Comments

OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON DC 20301-3000

ACQUISITION AND TECHNOLOGY

29 OCT 1996

MEMORANDUM FOR OFFICE OF THE INSPECTOR GENERAL (OAIG-AUD)

SUBJECT: Project No. 6CB-5006.01: Strategies for Improving Environmental Management Systems in the DoD August 19, 1996

Thank you for the opportunity to review and comment on the DoD Office of the Inspector General report: "Strategies for Improving Environmental Management Systems in the DoD." We concur with the thrust of recommendations for the Deputy Under Secretary of Defense (Environmental Security). While there is no single DoD instruction that governs the establishment of environmental management systems (EMSs), we do believe there are EMSs in place throughout DoD. This report does not presents an accurate assessment of DoD's EMSs.

The DoD environmental program includes five major areas of emphasis: Conservation, Pollution Prevention, Compliance, Restoration, and Technology. The IG report focuses on the Compliance area, but does not mention recent improvements. It largely ignores the other areas. As a result, the report does not present an accurate picture of existing program nor does it support its conclusion that the benefits of adopting a quality-based EMS outweigh the costs.

As you know, my office established an Environmental Management Systems Committee this past spring that is examining recommendations on improving EMSs within DoD. This effort represents but one, of our many efforts, to continually improve DoD environmental programs that is not acknowledged in the report. One of the first tasks of the Committee is to conduct a policy gap analysis to evaluate the adequacy of current EMSs. After this work is done, the Committee will recommend what policy changes (including goals and implementation plans) may be needed to improve environmental management within DoD. If significant improvements are recommended, these improvements will be incorporated into DoD guidance.

Because the draft report contains only a partial analysis of DoD's existing EMSs, it does not present senior DoD leadership, Congress, or the public with accurate portrayal of DoD's commitment to environmental quality and should be re-written. My staff point of contact for this action is Mr. Andrew Porth at (703) 604-1820. Please let us know if you would like to meet with us to discuss our concerns in more detail.

Peter Walsh
Assistant Deputy Under Secretary of Defense
(Environmental Quality)

Environmental Security *Defending Our Future*

OFFICE OF THE UNDER SECRETARY OF DEFENSE
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WASHINGTON DC 20301-3000

ACQUISITION AND TECHNOLOGY

10 DEC 1996

ODUSD(ES)/EQ-PP

MEMORANDUM FOR OFFICE OF THE INSPECTOR GENERAL (OAIG-AUD)

SUBJECT: Project No. 6CB-5006.01: Strategies for Improving Environmental Management Systems in the DoD August 19, 1996

Thank you for the opportunity to review and comment on the DoD Office of the Inspector General report: "Strategies for Improving Environmental Management Systems in the DoD." In general, we concur with the thrust of recommendations for the Deputy Under Secretary of Defense (Environmental Security) to improve its Environmental Management Systems (EMSs). However, we are very concerned that the report does not present an accurate assessment of DoD's existing EMSs or program. Further it does not support its conclusion that the benefits of adopting a formal quality-based EMS, such as ISO 14001, outweigh the costs of implementation. We believe that the report, as written, does not present senior DoD leadership, Congress, or the public with an accurate portrayal of DoD's commitment to environmental quality.

The DoD environmental program includes five major areas of emphasis: Conservation, Pollution Prevention, Compliance, Restoration, and Technology. The IG report focuses on the Compliance area, largely ignores the other areas, and does not mention improvements made in those programs over the last two years. As a result, the report does not present an accurate picture of the existing program.

The draft report contains only a partial analysis of DoD's existing EMS. While there is no single DoD instruction that governs the establishment of EMS at DoD, we believe that the department has a strong and largely consistent EMS in place. Attachment 1, DoD's FY 1995 Environmental Quality Report to Congress, provides an overview of DoD's program. Attachment 2 briefly describes the Department's EMS and identifies how the system includes key elements of ISO 14001.

The draft does not discuss the Department's recent work to improve its EMS, including the establishment of an Environmental Management Systems Committee this past spring. This effort represents but one of many efforts to continually improve DoD's EMS. One of the first tasks of the Committee is to conduct a policy gap analysis to evaluate the adequacy of current EMSs. After this work is done, the Committee will recommend what policy changes (including goals and implementation plans) may be needed to improve environmental management within DoD. If significant improvements are recommended, these improvements will be incorporated into DoD guidance.

Environmental Security *Defending our Future*

Finally, the report does not provide a realistic analysis of the costs and benefits of adopting a formal quality-based EMS such as ISO 14001, but instead relies on anecdotal evidence and assertions to promote such implementation. For example, the report states "initial investments to improve quality-based environmental management systems can be recovered in three years." Attachment 3 provides specific comments on areas of the report that contain misleading, inaccurate or unsubstantiated statements.

My staff point of contact for this action is Mr. Andrew Porth at (703) 604-1820. Please let us know if you would like to meet with us to discuss our concerns in more detail.

Peter Walsh
Assistant Deputy Under Secretary of Defense
(Environmental Quality)

Attachment 2

Brief Comparison of DoD Environmental Program and Key Elements of ISO 140001

The following is an abbreviated comparison of DoD's existing environmental management system with the International Organization for Standards (ISO) Environmental Standard ISO 140001. A detailed gap analysis comparing DoD's program with ISO 14001 is one of the primary tasks of DoD's Environmental Management Systems Committee.

4.1: Environmental Policy

The Department of Defense (DoD) Environmental Security Directive (DoD Directive 4715.1 dated February 24, 1996) and supporting instructions signed by the Under Secretary of Defense (Acquisition and Technology) establish environmental protection goals and developed supporting strategies that fully complement accomplishment of the Department's overall mission. The instructions also establish budget priorities and measures for evaluating how well established goals are being met.

The DoD Acquisition Directive, DoDD 5000.1 "Defense Acquisition" dated March 15, 1996, directs that environmental performance must be considered in the acquisition process along with other factors such as mission performance and cost. In addition, the DoD Planning instruction (DoDI 4715.9 "Environmental Planning and Analysis" May 3, 1996) requires the completion of an environmental analysis in accordance with the National Environmental Policy Act to aid decision making.

All of these documents are available to the public and have been communicated throughout DoD.

4.2: Environmental Planning

The Department annually provides budget development guidance direction to the DoD Components through both the Program Objective Memorandum (POM) Preparation Instruction and Defense Planning Guidance. These documents along with the DoD Environmental Security Directive and its supporting instructions specifically identify environmental performance goals and targets for planning purposes. The Deputy Under Secretary of Defense (Environmental Security) reviews the DoD Component budget submissions to ensure they meet guidance.

For example, the pollution prevention instruction DoDI 4715.4 contains detailed procedures for establishing recycling programs to ensure that materials are recycled in an

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appropriate manner. The instruction requires the DUSD(ES) annually to evaluate DoD Component execution of five measures of merit including, toxic release inventory, solid waste, hazardous waste disposal, and alternative fuel vehicles. Similar measures of merit exist for the compliance, cleanup and conservation instructions.

Each organizational unit within DoD has policies and procedures in place to meet DoD environmental goals and legal requirements. The Department has an extensive environmental support staff consisting of some 8,000 environmental professionals and has made significant annual investments--now nearly $5 billion per year--to meet its environmental obligations. This cadre of legal and technical experts, present at installation, major command and headquarters levels, are responsible for keeping DoD organizations abreast of the latest environmental requirements. Further, this team is supported by regional environmental coordinators for each of the EPA regions and Centers of Excellence for each of the DoD Services.

The DoD EMS Committee is examining the extent to which the legal structure, the instructions, procedures and policies are implemented.

4.3: Implementation and Operation

DoD Component policies, directives and the chain of command define, document and communicate the roles and responsibilities of personnel and organizations that participate in environmental management. These policies ensure that environmental responsibilities are not just limited to traditional environmental support organizations. Oversight of the implementation of these policies and analysis of what new policies need to be crafted are executed by Defense Environmental Security Council through the Environmental, Safety and Occupational Health Policy Board. Policy formulation and execution oversight is conducted by various committees (pollution prevention, compliance, conservation, etc.) that report to the board. The DoD EMS Committee is analyzing the extent to which this communication is effective. In addition, DUSD(ES) is coordinating a documented entitled "Committee Process Improvements" with the DoD Components.

The Department is developing an extensive training program so that all persons can meet the environmental responsibilities of their jobs. The Department provides an environmental awareness program during military recruit training. The Services have evaluated the environmental requirements of military enlisted personnel jobs, such as jet engine maintenance and fire fighting, and are currently in process of embedding appropriate environmental instruction into the technical training programs. The Department is also in process of inserting discussion of national and international environmental criteria in professional (officers) military education programs. The Services are developing an integrated professional continuing education and training program for both civilians and officers. This program provides the legally mandated training for those persons handling hazardous materials. It also provides education for environmental professionals so they can meet the changing challenges of their jobs. The Department is also inserting environmental instruction into the education programs for non environmental professionals whose actions could affect the environment. For example, the

Department is currently revising the curricula at the Defense Acquisition University so that persons managing acquisitions in the future would better understand environmental requirements and the environmental cost implications of their decisions. The Services and the Department conduct Environmental Leadership Courses to prepare installation commanders and senior officials to understand and meet the environmental responsibilities of their jobs.

Over the past several years, the Department of Defense has implemented a number of initiatives to improve operational control of activities associated with environmental aspects. For example, installation implementation of centralized hazardous material management reduced environmental compliance problems. Other source reduction initiatives and technologies have achieved similar results. Details of these programs and other initiatives are found in attachment 1.

The maturation of source reduction methods and the communication of environmental monitoring information to verify achievements will be supported by the Department's Department of Defense Environmental Security Corporate Information Management (DESCIM) system. DoD plans to use DESCIM to provide for more effective and efficient management of the environmental program. The system, to be used by all Services, standardizes data entries and information display. The system is being developed to meet management needs at all organizational levels - installation, major command and headquarters.

The EMS Committee is examining the extent to which the implementation of various initiatives including DESCIM is documented and communicated within DoD.

4.4: Checking and Corrective Action

DoD has a well-established program for auditing adherence to environmental statutes and DoD environmental policy and guidance. Each DoD Component has multiple audit programs that seek to correct deficiencies at the installation level. In response to the DoD IG report "Strategies for Improving DoD Environmental Compliance Assessment Programs," ODUSD(ES) established a work group to examine how to use root cause analysis to better correct and improve environmental management. This work group is composed of members of DoD's Compliance Committee that regularly reviews the status of Notices of Violations and works to take corrective action to eliminate the notices of violations. The EMS Committee will also examine the extent to which DoD's various audit programs meet the requirements of an EMS such as ISO 14001.

4.5: Management Review

The Department's Environmental Security directive and supporting instructions establish goals and require the Services to provide assessments, at least annually, to the Deputy Under Secretary of Defense (Environmental Security) on progress towards achieving those goals. These reviews include the senior environmental officials from the Components and OSD and address both goals and deficiencies.

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The Department has also developed numerous initiatives to improve environmental performance. One example is ENVVEST, which seeks to assist individual installations in investing in high performance pollution prevention projects by providing relief from low performance compliance requirements, particularly paperwork requirements. Under this initiative, a regulator may grant relief from requirements that provide little additional health protection or environmental improvement. In return for such relief, the installation commander, in coordination with the regulator, commits the money originally programmed to satisfy the "waived" requirements, to fund high payback pollution prevention projects. A second example is the single process initiative. Under this initiative, program managers for different weapon systems supported by a single process agree to a single test and validation process for an environmentally sound alternative to that process. If the test and validation process is successful, changes affecting all weapons are made simultaneously, thereby improving the environment and reducing costs.

A third example is a new initiative called "Institutionalizing Pollution Prevention Approaches to Compliance" (IPPAC) which is a working group made up of senior representatives from each of the DoD Components. It is DoD policy that Pollution prevention approaches are the preferred means of meeting existing or emerging compliance requirements. The goal of this work group is to identify those institutional barriers, policies, guidance or tools that might need addressing before the pollution prevention approach can be fully utilized in the Department. The group will recommend improvements to DoD's existing EMS to eliminate barriers to institutionalizing pollution prevention approaches to compliance.

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Final Report Reference

Attachment 3

Specific Comments on Strategies for Improving Environmental Management Systems in the DoD

Page 3 Last paragraph. The discussion asserts that environmental compliance assesments are the main tool on which Services rely to determine whether compliance policy objectives are met. This is just one of several tools the Services use. Various in progress reviews and other audit programs help ensure compliance as well.

Revised Page 5

Page 5 Last paragraph. The statement "each element of the DoD environmental security program is founded, either directly or indirectly, on the mandates of environmental legislation" is not accurate. The majority of the Department's pollution prevention programs are not mandated by legislation. For example, DoD's strong pollution prevention language in the DoDD 5000.1 "Defense Acquisition" has no direct link to legislation.

Deleted

Pages 6-7: The discussion of the DoD compliance based system does not fully acknowledge the extensive nature of DoD Components environmental programs which include strong pollution prevention elements. This is especially true of statements such as found in the second paragraph on page 7, "Most environmental experts agree that unless Government organizations refocus resources on pollution prevention, there is no viable strategy for reducing environmental costs and for improving environmental performance." Such statements imply that DoD has neither spent resources nor developed policy to develop pollution prevention programs. The statement also ignores DoD's recent changes in environmental funding categories that emphasize spending resources on pollution prevention to solve compliance issues. In addition, the report does not identify who "most environmental experts" are.

Revised Page 9

Page 8 Last paragraph: The sentence "The DoD Components lack the tools needed to routinely and systematically identify and correct their weaknesses" is stated too broadly and fails to recognize DoD Component tools that correct weaknesses. DoD's extensive auditing program is designed to identify these weaknesses. Other programs, such as the Air Force's successful pollution prevention opportunity assessment program help installations go beyond merely correcting problems. The assessments frequently give installations ideas for eliminating waste streams all together.

Revised Page 10

Page 9: This page repeats many of the findings of the previous DoD IG report "Strategies for Improving DoD Environmental Compliance Assessment Programs," and applies them broadly to DoD's overall environmental program. As a result, the narrow finding that deficiencies exist in DoD's ability to correct all findings of compliance audits is applied to the entire DoD

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Final Report Reference

environmental program in a report that consistently fails to acknowledge the breadth of the DoD environmental program.

Revised Page 13

Page 12 Second paragraph: The statement the "DoD Components are still well behind other Government agencies" is completely unsupported by the perception other Federal agencies have of Department of Defense environmental programs. EPA frequently directs other Federal agencies o DoD environmental programs to help the agencies improve their environmental programs. Moreover, appendix D, E, and F do not support this conclusion. The Department of Energy is the only agency besides EPA, a regulatory agency, recognized in the report for its environmental management improvement.

Revised Page 14

Page 13 Senior Level Commitment Paragraph. The sentence that states "senior-level management has not recognized the importance of EMS for DoD environmental program" is not accurate. Both DUSD(ES) and PADUSD(ES) demonstrated their recognition of the importance of environmental management systems when they attended an all-day meeting (co-hosted by the DOD IG on March 15, 1996) on ISO 14000. The existing DoD Environmental Management System Committee was established as a direct result of DUSD(ES) participation in the meeting. DUSD(ES) is using ISO 14001 as a framework to assist her strategic planning efforts

Revised Page 15

Page 14 Many of the statements made on this page are speculative and more properly should be stated in the form of issues that the IG believes DoD should examine in more detail. For example, the statement "risks associated with recurrent regulatory compliance violations and missed opportunities for regulatory benefits represent even greater problems and costs" is not substantiated. The report might accurately state "DoD would benefit from an examination of whether risks associated with recurrent regulatory compliance violations and missed opportunities for regulatory benefits represent even greater problems and costs." The assertion contained in the statements "An EMSS provides a way for the DoD to demonstrate to regulatory authorities and the public that the DoD is doing all it can to decrease the negative environmental effects of DoD operations. This fact alone can help decrease pressures for stricter regulations, reduce regulatory burdens, and result in reduced liabilities and penalties," does not comport with the current "wait and see" attitude of the regulatory community, especially EPA Headquarters. Again, the report should have stated that DoD should work with regulators to determine what the decrease in regulatory burdens may be.

Revised Page 37

Page 37 First full paragraph. The date for the EPA document "Incentives for Self-Policing" should be December 18, 1995 not 1996.

Revised page 45

Page 45 First full paragraph. The discussion of EPA's Code of Environmental Management Principles CEMP is not accurate. EPA's CEMP is not identical to ISO 14000. The standards are similar but are not identical. It is also not accurate to state that EPA is considering adopting ISO 14000 as a national standard.

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Audit Team Members

This report was prepared by the Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD.

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