



FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE

CONF-881077--7

DE88 015283

HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM

DEPARTMENT OF ENERGY HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM:
AN OVERVIEW

L. Dean Eyman
Director, Hazardous Waste Remedial Actions Program
Support Contractor Office
Martin Marietta Energy Systems, Inc.
Post Office Box 2009
Oak Ridge, Tennessee 37831

Ronald F. Swiger
Quality Director
Martin Marietta Energy Systems, Inc.
Post Office Box 2009
Building 9106, Mail Stop 103
Oak Ridge, Tennessee 37831

ABSTRACT

This paper describes the national Department of Energy (DOE) program for managing hazardous waste. An overview of the DOE Hazardous Waste Remedial Actions Program (HAZWRAP), including its mission, organizational structure, and major program elements, is given. The paper focuses on the contractor support role assigned to Martin Marietta Energy Systems, Inc., through the establishment of the HAZWRAP Support Contractor Office (SCO). The major SCO programs are described, and the organization for managing the programs is discussed. The HAZWRAP SCO approaches to waste management planning and to technology research, development, and demonstration are presented. The role of the SCO in the DOE Environmental Restoration Program and the development of the DOE Waste Information Network are reviewed. Also discussed is the DOE Work for Others Program, where waste management decentralized support, via interagency agreements between DOE and the Department of Defense and DOE and the Environmental Protection Agency, is provided for those sponsors planning remedial response actions.

INTRODUCTION

The magnitude of the waste management problem in the United States is staggering. Two federal agencies addressing this national problem are the

*Operated by Martin Marietta Energy Systems, Inc., for the U.S. Department of Energy under contract DE-AC05-84OR21400.

MASTER



FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



Department of Energy (DOE) and the Department of Defense (DoD). DOE operates large industrial facilities and produces both exotic and familiar waste streams. DOE has over 30 large industrial complexes involved not only in research and development (R&D) but in production of nuclear materials and nuclear weapons. DOE is the nation's largest generator of mixed waste, which contains both hazardous and low-level radioactive waste. DOE also has high-level and transuranic wastes. The responsibility for DOE's hazardous waste cleanup rests with its individual operations offices.

The DoD also produces its share of waste. For example, the U.S. Air Force (USAF) carries out its missions at over 160 installations in the 50 states and U.S. territories. The conduct of the USAF mission requires extensive support functions that result in some bases being large industrial/residential complexes that generate many waste streams, some of which are hazardous. Hazardous wastes are generated by aircraft maintenance and overhaul, machine shops and maintenance activities, training of fire fighters, accidents, and numerous other activities on-base. The Major Air Commands are analogous to the DOE operations offices and are the focal point for hazardous waste cleanup of assigned installations.¹

The purpose of this paper is to provide an overview of the hazardous waste management approach being taken by DOE Defense Programs (DP) for ensuring that critical national hazardous waste problems are identified in a timely manner and that effective corrective actions (remedial response actions) are determined. National integration of hazardous waste management for DP is established under the DOE-DP national Hazardous Waste Remedial Actions Program (HAZWRAP). Support is available to other federal agencies, such as DoD and the Environmental Protection Agency (EPA), through this program. This paper focuses on the contractor support role assigned to Martin Marietta Energy Systems, Inc. (Energy Systems) through the establishment of the HAZWRAP Support Contractor Office (SCO).

This paper provides some background information on HAZWRAP and describes HAZWRAP's roles and missions, organization, and the major hazardous waste programs. The quality assurance program element for the HAZWRAP SCO will be addressed in the paper "Hazardous Waste Remedial Actions Program Support Contractor Office Quality Assurance Program," which will be given by Terrell Horne. The SCO's sampling and analysis quality control program is addressed in the paper "Sampling and Analysis Quality Control for Site Inspections and Remedial Investigations," which will be given by Mitzi Miller and Henry Beiro.

BACKGROUND

In November of 1983 the DOE Office of Defense Waste and Byproducts Management designated the Oak Ridge Operations Office (ORO) as lead office for a national Hazardous Chemical Defense Waste Management Program. In turn, the ORO established an SCO within Energy Systems to assist with this lead assignment. The program at that time was oriented toward identifying technology needs and developing new technologies where needs were not being addressed by the commercial sector.

In January 1986, the DOE Office of the Assistant Secretary for Defense



FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



Programs created the Hazardous Waste and Remedial Actions Program within the Office of Defense Waste and Transportation Management to advise the Assistant Secretary on the rapidly evolving regulatory requirements, particularly the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act. These three Congressional acts will be addressed as RCRA, CERCLA, and SARA, respectively, during the rest of the presentation. The activities already in progress in the Hazardous Chemical Defense Waste Management Program were incorporated into HAZWRAP with no major change and included the management of the development of new technologies for the treatment, storage, and disposal of hazardous and mixed wastes already under way by ORO.²

The HAZWRAP mission received considerable scrutiny by DOE Headquarters (HQ) organizations, and, following a reorganization of the Office of Deputy Assistant Secretary for Nuclear Materials in January 1986, roles and missions have matured.

The DOE-HQ role is to provide policy and direction for overall management of the national HAZWRAP through the Office of the Assistant Secretary for Defense Programs. The DOE/ORO role is to lead the national program through the execution of an effective program management structure to assist DP sites and other federal agencies as they implement compliance agreements and deal with regulators. This office also assists HQ with Environmental Restoration Program planning and execution. The role of the ORO Management and Operating Contractor, Energy Systems, is to provide hazardous waste management support, including subcontractor services, for HAZWRAP through the SCO program management structure.

MISSION

The primary mission of HAZWRAP is to assist the DOE-HQ DP complex in meeting its obligations under RCRA and CERCLA/SARA. These acts govern the management of hazardous wastes. RCRA, originally enacted in 1976 and expanded in 1984, covers the generation, transportation, storage, treatment, and disposal of solid wastes generated from current and future operations. Also governed are releases from leaking underground storage tanks. Federal agencies are subject to RCRA requirements, which are specific, detailed, and restrictive. CERCLA, enacted in 1980 and amended by SARA in 1986, covers the investigation and remediation of spills and abandoned waste sites. Also, the liability for responsible parties is established. SARA established a "Superfund" to finance EPA cleanups and to provide a means for EPA to recover costs. Federal agencies are subject to CERCLA requirements, but cannot draw from the Superfund.

The goal of HAZWRAP is to develop and promote an integrated approach to DOE-DP installation compliance with RCRA and CERCLA that conserves DP's resources for its primary missions while providing technically sound and socially acceptable responses that meet the intent of relevant hazardous waste regulations.² The strategy for meeting this challenge is to

1. provide current, easily accessed information that gives a quantitative picture of the waste streams and inventories to be

FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



handled, the inactive waste disposal sites where remediation is required, the technology and vendor support available, and the applicable regulations;

2. conduct technology demonstration and evaluation projects to gain practical field experience in technology application and thereby facilitate procurement and permitting activities for full-scale remediation;
3. conduct research and development tasks where technology for handling recognized problems is not adequate; and
4. provide technical support to the DOE Environmental Restoration Program manager.

Another equally important HAZWRAP mission is to assist other federal agencies, upon request, to (1) identify and evaluate environmental problems at specified facilities; (2) identify remedial response actions for solving these identified problems; and (3) provide oversight of the implementation of the remedial response actions at the site or sites. The objective is to restore the installations and to eliminate sources of potential threat to public health or the environment.

This mission element is accomplished under the Work For Others (WFO) program wherein DOE supports other federal agencies. The requests for WFO support are documented by interagency agreements between DOE and the requesting federal agency. For example, interagency agreements have been established with specific elements of the Air Force, Navy, Army, and EPA. These agreements provide mutual benefits. A major benefit to the requesting organization is access to a viable project management structure manned with experienced project managers, scientists, other hazardous waste management specialists, and subcontractors designed to ensure that project objectives are successfully met. This project management team can help the organization effectively manage its increasing load of environmental restoration projects without having to hire and train additional employees. The agencies also reap the benefits from the large DOE R&D enterprise, where similar problems are being addressed at R&D facilities such as the Oak Ridge National Laboratory Waste Management Technology Center. In return, DOE's project managers, scientists, and engineers have access to the vast experience gained from managing the variety of projects under varying regulations and interpretations at the regional, state, or local levels at government facilities across the nation. Both DOE and the participating federal agency, such as DoD and EPA, are optimistic about the benefits being gained through these agreements.

Some examples of the waste management project support provided to other federal agencies include hazardous waste management, remedial response actions planning, environmental impact assessments preparation, water and air quality assessments, noise assessments, waste reduction planning, and hazardous waste data base development.

In summary, HAZWRAP consists of two major program areas that interrelate with one another: the DOE program and the WFO program. The synergistic effects derived from the joint management of these two programs are very



FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



beneficial to the quality of the waste management effort provided by the HAZWRAP SCO organizational elements where the work is accomplished. The HAZWRAP organizational hierarchy will be described first, followed by a discussion of the HAZWRAP SCO organization.

DEPARTMENT OF ENERGY HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM ORGANIZATION

The HAZWRAP management hierarchy consists of three DOE organizational levels. The highest level is DOE-HQ, where the DOE HAZWRAP Program Manager, Critz H. George, resides. He is director of the Hazardous Waste and Remedial Actions Division, Office of Defense Waste and Transportation Management, Deputy Assistant Secretary for Nuclear Materials, Office of the Assistant Secretary for Defense Programs.

The second management tier is located in DOE/ORO, where the HAZWRAP Office Program Manager, Robert C. Sleeman, resides. He is assigned to the Waste Management Branch, Research and Waste Management Division, Office of Assistant Manager for Energy Research and Development.

The lowest organizational tier is the DOE/ORO Management and Operating Contractor, where the HAZWRAP SCO Director, L. Dean Eyman, resides. The Management and Operating Contractor for ORO is Energy Systems. The waste management program activities are accomplished in three departments: Hazardous Materials, Systems Integration, and Remedial Actions.

HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM SUPPORT CONTRACTOR OFFICE ORGANIZATION

Seven major programs are managed within HAZWRAP's three departments. The Airborne Hazardous Materials Program and the Waste Minimization Program are assigned to the Hazardous Materials Department. The Information and Data Systems Program, Technology Programs, and Institutional and Environmental Programs are assigned to the Systems Integration Department, and the Environmental Restoration Program and Remedial Actions Planning Program make up the Remedial Actions Department. Following is a brief description of each program to provide an overview of the various hazardous waste management activities being conducted by the HAZWRAP SCO for DOE and other federal agencies.

AIRBORNE HAZARDOUS SUBSTANCES PROGRAM

The Airborne Hazardous Substance Program was established during the latter part of FY 1987. The program objective is to implement cost-effective projects that help measure, evaluate, and minimize human and environmental exposure to indoor and outdoor airborne hazards and to ensure compliance with existing regulations. Project areas include asbestos; radon; formaldehyde; and smoke, dust, fumes, mist, and radioactivity. The technical support provided under the program consists of scoping surveys, chemical analyses, monitoring, training, remedial actions planning, quality assurance, modeling, regulatory reviews, control strategies, and R&D.



WASTE MINIMIZATION PROGRAM

The Waste Minimization Program was recently established to assist sponsors in the formulation and execution of waste minimization programs. USAF and the Navy are the primary sponsors. Projects include waste minimization studies, environmental compliance audits, and special technology application studies such as oil and solvent recycling, incineration feasibility, and hard chrome-plating waste reduction. Some related studies include a hazardous materials management project to provide procedures and software recommendations for the Navy to develop and operate hazardous materials management programs; a hazardous materials incident environmental protection program for USAF fire departments; and a USAF hazardous waste management training program to satisfy RCRA-mandated requirements.

INFORMATION AND DATA SYSTEMS PROGRAM

The Information and Data Systems Program involves the development and maintenance of the DOE Waste Information Network (WIN), a national communications network designed to function as an information tool for conducting data analyses in support of hazardous waste minimization efforts and for promoting technology transfer within the hazardous waste community. Features of the WIN system include:

1. data bases that contain a variety of resource data related to hazardous and mixed waste operations for DOE and EPA;
2. electronic mail, which is a message system available to identified users;
3. bulletin board, which is an electronic newsletter for timely information on conferences, workshops, seminars, and regulatory issues; and
4. file transfer, which is a mechanism for electronic transmission of progress reports and other documents.²

Eight specialized data bases that together cover pertinent aspects of hazardous and mixed waste technology are currently under development.

1. The DOE-DP Hazardous and Mixed Waste Data Base serves as the centralized information resource for DP data. Detailed quantitative and qualitative information on waste streams and inventories is maintained, and each installation's treatment, storage, and disposal capabilities are shown. Detailed data on 1448 waste streams for 30 DOE contractor sites have been entered. Although currently on-line, the data base is being restructured for a newly designed retrieval method, allowing more flexibility for the users. Because it contains detailed waste stream data, only limited access is granted.
2. The Environmental Restoration (CERCLA) Activities Data Base provides an information source on CERCLA sites to assist DOE with the implementation of its remedial actions programs for CERCLA sites. The status of each CERCLA site is contained in the data base. Also

FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



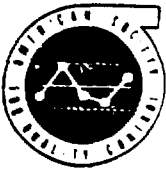
included is detailed information collected at the completion of each phase of remediation. Data from more than 600 waste units are being entered. As with the DOE-DP Hazardous and Mixed Waste Data Base, access to this data base is limited.

3. The Commercial Treatment, Storage, and Disposal Vendors Data Base provides information for selecting commercial vendors who are licensed by the EPA to handle hazardous wastes. Information can be obtained on 569 commercial vendors operating over 2000 facilities, 214 remedial response/spill control contractors, and 103 nationally accredited analytical laboratories. It is an on-line system, and a user's guide is available.
4. The EPA/DOE Hazardous Waste Control Technologies (Thermal Treatment) Data Base provides detailed technical engineering data on thermal treatment technologies to aid permit writers, researchers, industry, and decision makers. Information currently contained covers 84 facilities with thermal treatment capability. Field testing of the data base is in progress. The development effort is jointly supported by EPA and DOE.
5. The Treatment Technologies Data Base provides a comprehensive listing and explanation of available technologies for treatment, minimization, and recycle of wastes generated at DOE and other federal facilities. It also allows for matching a specific remedial action waste with a plausible treatment technology, using engineering criteria. It further provides an estimate of technology performance for the waste stream in question.
6. The Technology Demonstrations Projects Data Base provides summary information and schedules of demonstration projects and R&D tasks. The data base is in the conceptual phase.
7. The DOE-DP Lead Inventory Data Base will support management strategy for lead used in DP operations. Data on facility, location volume, minimization practices in place, recycling efforts, RCRA-compliant disposal facilities, and implementation schedules for operational controls on lead use are contained in the data base.
8. The Resource Directory Data Base provides a list of key contacts within DOE and other federal agencies. It currently contains names of 130 persons representing 19 agencies. This data base is being restructured to provide greater flexibility for the user.

A ninth data base, which is not in the WIN system, is under development for the Air Force Logistics Command to provide data on hazardous waste operations within the command.²

TECHNOLOGY PROGRAMS

The Hazardous Waste Compliance Technology Program is oriented primarily toward RCRA concerns and is composed of the Information and Data Systems Program (previously discussed) and the Treatment, Storage, and Disposal Technology Demonstration Program.



The Treatment, Storage, and Disposal Technology Demonstration Program seeks to demonstrate those technologies developed in the Hazardous Waste R&D Program. The purpose is to demonstrate that a technology in question works. Innovative and/or best-available technologies existing in the commercial sector are also demonstrated for possible future remediation applications. Demonstrations involve as many DOE Operations Offices and as many similar problem sites as possible. The objectives are to gain experience with the procurement and research, development, and demonstration permitting process and to establish cost information and technical data for the process to allow an evaluation of the technology for future application in treating similar wastes at DOE-DP installations.

Demonstrations are under way or planned for the Y-12 Plant, Tennessee; Westinghouse Hanford Company, Washington; Idaho National Engineering Laboratory, Idaho; Lawrence Livermore National Laboratory, California; and the Oak Ridge National Laboratory, Tennessee.

Three demonstration programs are also being managed for USAF. They are the Live Fire Training Facility Demonstration, the Air Stripper with Emissions Controls Demonstration, and the Soil Venting Demonstration.

INSTITUTIONAL AND ENVIRONMENTAL PROGRAMS

The Institutional and Environmental Programs element deals with the areas of environmental regulations and their impacts on programs, environmental planning, and special topics. A Regulatory Specialist provides interpretation of existing and planned laws and regulations and maintains an outreach program to the field offices and sites that includes electronic bulletin boards, periodic formal instruction, and other services, as appropriate. Examples of services provided include:

- o RCRA/CERCLA training workshops tailored for each DOE field office and conducted during FY 1988.
- o An electronic bulletin board of relevant Federal Register listings, updated weekly.
- o An electronic bulletin board of significant regulatory issues updated as appropriate.
- o Call-in service for questions of a regulatory nature.
- o Regulatory Reference Books for relevant laws updated annually.
- o Ad hoc review and interpretation of introduced legislation potentially affecting the DOE mission.

The environmental planning activity supports DOE and other federal agencies in the analysis and interpretation of status relative to regulatory compliance, analysis of alternatives, and coordination of the planning process. A representative activity was the DOE-DP Strategic Alternatives Study, which evaluated the generation of hazardous and mixed wastes at DP facilities, the existing and planned facilities for managing those wastes,



FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



and new options by field office and contractor staff.

ENVIRONMENTAL RESTORATION PROGRAM

The Environmental Restoration Program was implemented in late FY 1987 under the auspices of the DOE Office of Defense Waste and Transportation Management to focus management responsibility to meet DOE/DP remedial action needs. Management policy and direction is provided by this DOE-HQ office; however, program support is being provided by the SCO program element. The purpose of the program is to provide a coherent, identifiable program to meet the remedial action responsibilities incumbent upon the Assistant Secretary for Defense Programs for requirements derived primarily from RCRA Sect. 3004(U) and CERCLA/SARA.

The types of projects included in the program are remedial action planning and execution, technology development and demonstration, monitoring systems, CERCLA assessments before excising real property assets, permit preparation, multiparty cleanup plans and activities, RCRA closures of certain land units, and remediation of certain transuranic wastes buried on DP facilities. The program is roughly equivalent to the DoD's Defense Environmental Restoration Account program.

The Environmental Restoration Program activities include program management planning and preparation of guidance to the field, budget development, funding allocation development, technology evaluations, monthly project status reporting, and the establishment of base-line FY 1989 programs. The funding for FY 1988 is established at about \$98 million.²

REMEDIAL ACTIONS PLANNING PROGRAM

Remedial actions planning deals with a wide range of contaminants of varying toxicity in diverse environments. The HAZWRAP SCO Remedial Actions Planning Program activities primarily support the USAF Installation Restoration Program (IRP). The DoD established the IRP to identify and evaluate the environmental problems at DoD facilities, to develop means for solving the problems, and to carry out environmental restoration as needed. Other DoD sponsors include the Air Force Reserves, Air National Guard, the Navy Energy and Environmental Support Activity, and the Army Toxic and Hazardous Materials Agency. Support to the Naval Facilities Command is also expanding rapidly.

The potential workload for the USAF is very large--over 1500 contaminated sites have already been identified at 160 installations, and the USAF is aggressively dealing with the problems at these sites. The IRP was designated the DoD CERCLA program, and the CERCLA remedial response actions terminology is being used.

The SCO is providing project management support in the form of the remedial response actions statements of work preparation, subcontractor services and deliverables verification, project control and reporting, and sponsor and regulatory interfaces. This support is provided through the project team concept, which is discussed in more detail in the paper by Terrell Horne.



FIFTEENTH ANNUAL NATIONAL ENERGY DIVISION CONFERENCE



A unique feature of this service is the use of subcontractors to prepare the remedial actions plans. Each of six subcontractor firms are responsible for the installations in one specific region of the United States. The regions are defined on the basis of equivalent number of installations and boundaries of standard federal regions. Each EPA Regional Office deals with only one Remedial Actions Program (RAP) subcontractor. This arrangement has improved communication and efficiency of the RAP process.

Two other subcontractors, five 8(a) firms, and an Oak Ridge National Laboratory project team are also available to assist with excess workloads or to replace subcontractors whose performance is less than desired. The contracts for environmental technical support are being recompleted, and eight subcontractors and three alternates will be selected later this year.

The remedial actions process consists of the following types of remedial response actions: preliminary assessment, site inspection, remedial investigation, feasibility study, record of decision, remedial design, and operations and maintenance. There are over 150 projects under way, with the majority addressing remedial investigation and feasibility study remedial response actions. The funding for FY 1988 exceeds \$60 million.

SUMMARY

In summary, the mission of HAZWRAP is very broad. Its mission is not only to support DOE-DP, but also to support other federal agencies through interagency agreements. The interagency partnership is working very well, and the remedial response actions process is better understood by all participants. As a result, the role of the HAZWRAP SCO is expanding.

Three major programs have been added within the last year: the Airborne Hazardous Materials Program, the Waste Minimization Program, and the Environmental Restoration Program. The assignment of remedial actions planning projects is increasing as the program becomes more involved with the remedial response actions process. Data base development is also increasing because of the need for more information. The base-line Technology Program has been established, and the number of demonstration projects is expected to increase next year.

HAZWRAP has matured extensively over the last 5 years, with the managers, scientists, engineers, administrators, and subcontractors gaining invaluable experience. The SCO program management organization is in place, effectively manned, and available to meet diversified hazardous waste management needs and future challenges.

REFERENCES

1. R. B. Craig et al., "The Air Force Installation Restoration Program: Progress and Perspective," paper presented at Waste Management '86, March 1986.
2. L. D. Eyman, "Activities in Department of Energy Hazardous and Mixed Waste Defense Waste Management," paper presented at Waste Management '88, April 1988.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.