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MANAGEMENT INITIATIVES TO WASTE MANAGEMENT DECISIONS
AND ENVIRONMENTAL COMPLIANCE IN OAK RIDGE, TENNESSEE*

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INTRODUCTION

Martin Marietta Energy Systems, Inc. (MMES) has been the operating contractor for the nuclear production and research facilities at Oak Ridge, Tennessee and Paducah, Kentucky for about four and one-half years. Environmental compliance, regulatory interaction, and public confidence have been very significant issues during this time. This presentation will review the environmental situation in Oak Ridge in 1984 and will discuss management initiatives and experience in the development and implementation of effective environmental and waste management and health and safety programs committed to the protection of the environment, our workers and the public with an overall goal of full compliance with all current and anticipated regulations.

BACKGROUND

Martin Marietta Energy Systems, Inc. has operated the three installations in Oak Ridge, Tennessee and the installation in Paducah, Kentucky for the Department of Energy (DOE) since April 1, 1984. At this time, MMES took over as the operating contractor for these installations which are: the Oak Ridge Y-12 Plant (Y-12), Oak Ridge National Laboratory (ORNL), Oak Ridge Gaseous Diffusion Plant (ORGDP), and Paducah Gaseous Diffusion Plant (PGDP). Union Carbide Corporation had been the operating contractor for the DOE and its predecessor organizations for the past 40 years. In November 1986, MMES also assumed operation of the Portsmouth Ohio Enrichment Facility (PORTS) after Goodyear Atomic Corporation requested to be relieved of the operating contract.

All of these installations have a legacy of environmental problems traceable to the beginning of the nuclear age during World War II and immediately following. While there has been an increasing awareness in environmental concerns and major environmental legislation has been enacted at the federal and state levels for controlling existing and potential future sources of environmental pollution, awareness has

become especially acute in Oak Ridge since late 1982 and in 1983. During this time, a number of events led to an avalanche of public outcry, bad press, environmental compliance orders, a Memorandum of Understanding, a Congressional Hearing, and legal action over serious environmental problems associated with past and present waste disposal practices. These events started with the revelation that the Y-12 Plant had lost, or unaccounted for, about 2 million pounds of mercury during the late 1950s and early 1960s (actually about 1.3 million pounds of this has not been accounted for). Much of this mercury is believed to have been lost to the environment and some of this was lost through various processes to a creek which runs through the city of Oak Ridge and the reservation and subsequently discharges into the Clinch River and Watts Bar Lake.

DISCUSSION

On taking over as the prime contractor for operating the Oak Ridge and Paducah facilities, MMES was acutely aware of the need for and committed to installing a strong environmental management system. To this end, MMES has established a strong functional oversight of environment, safety, and health programs for all five installations and assigned the function to a single manager reporting directly to the President. This organization, Environmental and Safety Activities (ESA), is charged with formulating policy, developing strategy, overseeing and coordinating the environmental, waste management, safety, and health activities for all installations, and being the prime technical interface for MMES with the regulatory agencies. Permit issue resolution and regulatory compliance are the responsibility of the DOE contractually defined as the owner-operator of the facilities. This functional ESA organization provides for the effective management of 1) regulatory compliance; 2) technical coordination; 3) information system management and planning; 4) waste management coordination, and 5) safety and health program coordination. The implementation of the policy

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and strategy for the total ES&H program is accomplished through close work and cooperation with the ES&H staff organization at each installation.

As an example of the considerable efforts expended on management systems changes to maximize our efforts, the ESA staff has increased from an original level of 4 total staff in 1983, to a present level of 19, covering the major areas of Environment, Safety, and Health (ESH) responsibility. Similarly, the number of ESH personnel in the total MMES organization has been increased from about 500 in 1983 to more than 800 today, which includes only those professionals in the ESH area but not the very important areas which support ESH, such as engineering, research and development, laboratories, maintenance, operations and other line functions. The ESH personnel have been carefully selected based on their expertise relative to identified problem areas.

A very important oversight function of the ESH programs is long-range planning. The ESH programs are separated into two prime areas of functional responsibility: 1) Environmental and Waste Management and 2) Health and Safety. Each is addressed in separate long-range planning exercises where these areas are broken further into the prime program areas (environmental) or disciplines (health and safety) which comprise the major breakout for long-range planning and management. These plans identify the program areas, strategy, funding requirements for each installation, resource needs, and schedules for the various disciplines, providing MMES and DOE with programs to be fully responsive to its environmental, health and safety needs. The objective is to be in full compliance with all applicable environmental, health and safety regulations, and DOE orders. Through development and use of the long-range planning tool and centralized data base systems, the five MMES installations have identified almost 400 projects, including management and remedial action programs, that are estimated to require about 1.8 billion dollars in funding during the fiscal years 1987 to 1994. Estimates of additional funding of about the same level have been made for the years beyond 1994.

In addition to the more usual areas of environmental compliance and waste management, MMES is implementing active programs for multi-site activities involving the treatment, storage, and disposal of low-level and hazardous wastes. The Low-Level Waste Disposal Development and Demonstration (LLWDDD) and the Hazardous Waste Development Demonstration and Disposal (HAZWDDD) Programs are designed to define the facilities and processes necessary for effective management of low-level radioactive, hazardous and mixed wastes on the Oak Ridge Reservation and other MMES installations. A very important part of these programs is the demonstration of treatment, storage, and disposal technologies through active

participation with and use of the DOE Model concept being sponsored through the DOE Oak Ridge Operations.

There are several other important overall functions of the ESH organization including a vulnerability and risk program, audit and appraisal program, and a management systems approach to job performance. The vulnerability and risk program has been implemented to ensure continued senior management attention and to formally identify and assess hazards and develop and implement action plans for quick-resolution of major concerns. A management systems approach to ESH mission performance is being undertaken to provide greater policy and procedures structure and more intensified checks and balances oversight to ensure that activities are being done correctly. This system is not intended to detract from the superb individual job performance of our personnel, but provides a systems approach to assurance of the integrated function. An important component of our management system is the highly structured internal audit and appraisal program that focuses across all ESH areas. This program not only utilizes our internal expert personnel to conduct detailed self-assessments and oversight audits, but also involves the use of subcontractors to look over our operations. Martin Marietta program managers also work with many agencies such as EPA, Tennessee Department of Health and Environment (TDHE), Kentucky Department of Environmental Protection (KDEP), Ohio Environmental Protection Agency (OEPA), DOE, and DOE contractors. Our Interagency Waste Management Advisory Committee, with membership from the above regulatory bodies, meets monthly, or as needed, to assess and develop programs.

The Oak Ridge Environmental Advisory Committee (EAC) is the flagship committee providing a strong technical and local citizenry oversight and interface with MMES and DOE, and the public. In Oak Ridge, the committee serves all of the installations. It is comprised of 11 members, 6 of whom are noted technical authorities from across the United States and five are local citizens and community leaders. The committee is chaired by Dr. Frank Parker of Vanderbilt University and includes a dean of engineering, geohydrologist, medical doctor, and medical researcher, director of analytical chemistry for a major chemical company, two lawyers, a state senator, school superintendent, and an active community representative. Since the successful implementation of the Oak Ridge EAC, MMES has also established similar committees at Paducah, Kentucky and Portsmouth, Ohio. Several other DOE installations, both in the Oak Ridge Operations Office and in other field offices, have also appointed Environmental Advisory Committees. Energy System's performance in all environment, health, and safety areas, is also monitored closely by DOE through daily contact, communications with management and technical

status, and routine and special audits of the various ESH programs.

CONCLUSION

Martin Marietta Energy Systems is committed to the protection of the environment, our workers, and the public with an overall goal of full compliance with all current regulations, anticipation and participation in the development of future regulations, and planning for complying with those future regulations.

To this commitment, MMES has established special management systems, made a conscious effort to have public involvement, and has established extensive working relationships with the federal and state regulatory bodies, most notably the EPA Regions IV and V, TDHE, KDEP, and the OEPA. This program and our experience described in this paper have been successful in bringing about immense improvement in a bleak situation. The commitment of our employees, our environmental and safety organization, and the management at each installation is most evident and necessary for the implementation and success of our program in Oak Ridge. Energy Systems also believes appropriate modifications to this approach could be invaluable to others in dealing with similar issues.

An appropriate close to this presentation is taken from the first three paragraphs of an article by Frank Munger, Knoxville News-Sentinel, Sunday, May 15, 1988, "Oak Ridge Cleanup Progresses":

"Oak Ridge - In early 1983, when Gary Davis first looked at pollution problems on the government's Oak Ridge reservation, plant operators deserved an F- on their report card, he says. Five years later, the environmental lawyer believes the grade has improved to a B. "It's a tremendous improvement," said Davis, who filed suit against the DOE in 1983 on behalf of the Legal Environmental Assistance Foundation. He won, forcing the agency to comply with state and federal hazardous-waste regulations. The impact was felt at DOE installations nationwide....."

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