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**ENVIRONMENTAL
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**Annual Summary Report of the
Decontamination and
Decommissioning Surveillance and
Maintenance Program at Oak
Ridge National Laboratory for
Period Ending September 30, 1991**

**M. K. Ford
L. Holder, Jr.**

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
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DEPARTMENT OF ENERGY

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Environmental Restoration Division
ORNL Environmental Restoration Program

**Annual Summary Report of the Decontamination and Decommissioning
Surveillance and Maintenance Program at Oak Ridge National Laboratory
for Period Ending September 30, 1991**

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Oak Ridge National Laboratory

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1. INTRODUCTION

The Oak Ridge National Laboratory (ORNL) Decontamination and Decommissioning (D&D) Program has continued to provide surveillance and maintenance (S&M) support for 34 surplus facilities. The objectives are (1) to ensure adequate containment of residual radioactive materials remaining in the facilities, (2) to provide safety and security controls to minimize the potential hazards to on-site personnel and to the general public, and (3) to manage the facilities in the most cost-effective manner while awaiting decommissioning. This support has included work in three principal areas: (1) S&M planning, (2) routine S&M, and (3) special projects designed to correct serious facility deficiencies beyond the scope of routine maintenance.

2. SURVEILLANCE AND MAINTENANCE PLANNING

2.1 U.S. DEPARTMENT OF ENERGY TIGER TEAM ASSESSMENT

Preparations were made in late FY 1990 to provide tours of surplus facilities to personnel contracted by the U.S. Department of Energy (DOE) to assess these facilities in terms of environmental, safety, and health issues. These planned tours were part of an ORNL-wide assessment and were conducted within a two-month time frame. Experts in the areas of process and management control, with particular emphasis on concerns related to the Occupational Safety and Health Act (OSHA), were present for the inspections. No specific findings were uncovered for any facilities in the D&D Program.

2.2 FACILITY ASBESTOS ABATEMENT

Surveys of surplus facilities were completed in FY 1990 for potential hazards related to asbestos. These surveys were conducted by Lee Wan & Associates to enable the ORNL Industrial Hygiene Department to determine the future need for abatement activities at these facilities. Results were received and assessed, and a schedule was developed for FY 1991 abatement for areas needing immediate attention. National Environmental Policy Act (NEPA) documentation was submitted as a categorical exclusion (CX) for DOE-HQ approval which is still pending.

2.3 FACILITY HAZARD SCREENING

Facilities in the D&D Program have been segregated and grouped for hazard screening. Facilities were grouped according to the magnitude of their hazards in order to determine the need for and extent of follow-on safety documentation.

The hazard screening process results in the placement of facilities into one of four initial hazard classifications. The initial classification is used in determining if further analysis is required and in a future recommendation to DOE of a classification for each facility. At this stage in the screening process, all surplus facilities in the D&D S&M Program have been proposed as low-hazard facilities, with the exception of the Molten Salt Reactor Experiment (MSRE), which has been proposed as a moderate hazard facility.

2.4 SURVEILLANCE PLANNING

Documentation was submitted for NEPA compliance for (1) the repackaging of zinc bromide solution stored at the MSRE, (2) sampling and analysis of water at the Homogeneous Reactor Experiment (HRE) storage pool and the 3002 filter house canal plus addition of integrators to the process water makeup, (3) waste evaporator roof repair, and (4) OSHA compliance upgrades at the HRE and the Low-Intensity Test Reactor (LITR).

3. ROUTINE SURVEILLANCE AND MAINTENANCE

3.1 NON-DEFENSE SURPLUS FACILITIES

3.1.1 Molten Salt Reactor Experiment

DOE Tiger Team site visits were conducted at the MSRE in October. Tiger Team personnel included representatives from radiation protection, criticality, groundwater monitoring, and fire protection as well as a process chemist interested in process corrosion at MSRE associated with design of the drain tanks system. Observations from the teams centered on OSHA compliance and postings at the facility. In response to inquiries by Tiger Team groups, several signs indicating that MSRE is inactive and awaiting decommissioning were added to the site.

The east bank of cell-ventilation filters at MSRE was changed and dioctyl phthalate tested. This testing indicated that the bank was available for continued service. Also, a bearing on the east fan unit was found to be leaking and was replaced. This unit was placed on standby.

Calibrations were performed on instrumentation associated with the reactor and drain tank cells which is linked to the Waste Operations Control Center. All differential transmitters, local gages, and associated linkages were checked to establish new set points for parameters that have changed since reactor shutdown.

Preparations were made for an upcoming radiological monitoring that will coincide with the annual reheat and drain tank cell leak test at MSRE. In order to ascertain background radiation for potential shielding, a radiological survey was conducted in the north electric service area where the monitoring will likely be staged. The tests are scheduled for FY 1992.

In preparation for a scheduled site visit at the MSRE by the head of the DOE-HQ Office of Nuclear Safety, cleanup activities were conducted at the facility. The cleanup focused on priorities established by health and safety needs/deficiencies. Approximately 150 ft.³ of solid low-level waste were sent to tumulus for disposal, many items were salvaged for reuse by ORNL, electrical equipment was inspected and retagged, and Industrial Hygiene posted additional placards for space and asbestos.

3.1.2 Shielded Transfer Tanks

Materials were delivered to erect a removable awning over the Shielded Transfer Tanks being stored at the Decontamination Facility, Building 7819, and the four required footings have been poured. Environmental review and documentation for NEPA compliance have been completed and received for the construction of the awning over the tanks. The work is scheduled for early FY 1992.

3.2 DEFENSE SURPLUS FACILITIES PROGRAM

3.2.1 Surplus Reactors

Site visits were conducted at HRE, the Low-Intensity Test Reactor (LITR), and the Oak Ridge Graphite Reactor (OGR) by members of the DOE Tiger Team, with emphasis on OSHA compliance, groundwater monitoring, and air emissions at the facilities.

An action plan was developed to address findings from NUS Corporation assessing surplus reactor facilities with respect to OSHA violations. The action plan is prioritized according to environmental, safety, and health issues that have direct bearing on S&M personnel performing work at the facility. This action plan also incorporates several current internal safety inspections in order to prioritize all activities of a similar nature and therefore better integrate all upcoming safety projects into one work package. Environmental review and documentation for NEPA compliance is pending a CX determination.

Radiological surveillance of the HRE was completed this year. This survey was subcontracted to Afftrex, Ltd. and updates an earlier (mid-1970s) report published by ORNL personnel while providing survey results compatible with current guidelines and limits. Beta-gamma and alpha direct measurements were taken for radiation and contamination for all accessible portions of HRE. A report of the findings is due in early FY 1992.

Also, Lee Wan and Associates performed an assessment of the HRE relative to asbestos. More than 70 samples were taken from over 20 contiguous areas within the facility. The report on their findings is pending.

The environmental documentation for NEPA compliance was completed and received for proceeding with the HRE Storage Pool Inventory. Following the approval, miscellaneous debris located around the pool was surveyed, segregated by radiological methods, and disposed of. The inventory of the pool was then completed and contents of the pool logged for future plans of decontaminating the storage pool. Results will be published in early FY 1992.

3.2.2 Old Hydrofracture Facility

Old Hydrofracture Facility (7852) control-room blower bearings were noisy and in need of service. A greasing in addition to the normal plant-maintenance schedule solved the problem; however, these bearings have exceeded their expected life, and plans are being made to replace them. Part of the noise was belt squeal, which was remedied by dressing the belts. The bearing housing, bearings, and pulleys also have been received for the pump house blower that is the same age. Installation of the new parts is scheduled for early FY 1992.

4. SPECIAL MAINTENANCE PROJECTS

4.1 NON-DEFENSE SURPLUS FACILITIES PROJECTS

4.1.1 Molten Salt Reactor Experiment Zinc Bromide Repackaging

Environmental documentation for proceeding with the zinc bromide repackaging and transfer at MSRE was approved and received. The solution was transferred from the Maintenance Control Room to a diked area in the Diesel Room (Bldg. 7555), transferred into 30-gal poly-lined drums inside a fabricated diked area, and secured for storage, complete with U. S. Department of Transportation placards and Material Safety Data Sheets available on site.

4.1.2 Molten Salt Reactor Experiment Asbestos Abatement

Environmental review and documentation were also initiated in February for abatement of asbestos from air-conditioning ducts within the high-bay area of MSRE. Further action on this project will follow approval of appropriate NEPA documentation.

4.2 DEFENSE SURPLUS FACILITIES PROJECTS

4.2.1 Sampling and Analysis and Placement of Integrators for the Homogeneous Reactor Experiment Pool and the 3002 Filter House Canal

Environmental review and documentation were approved and received for sampling and analysis of these pools and the placement of integrators on makeup water lines to the pools. New integrators were placed on the process makeup lines and a schedule was established with environmental sampling and analysis personnel at ORNL for an early FY 1992 sampling of both pools.

4.2.2 Waste Evaporator Roof Repair

The environmental document for NEPA compliance was completed and approved to install a new roof. Installation is underway and is scheduled for completion in early FY 1992. A new coat of paint was applied to the exterior of the building.

4.2.3 Graphite Reactor Asbestos Abatement

Environmental review and documentation were initiated in March for asbestos abatement at several hazardous areas on process piping in the OGR. Further action on the project will follow approval of appropriate NEPA documentation.

4.2.4 OSHA Compliance Upgrades for the Homogeneous Reactor Experiment and the Low-Intensity Test Reactor

Environmental review and documentation were initiated in February for upgrades to these facilities to comply with OSHA standards for industrial facilities. Further action on the project will follow approval of appropriate NEPA documentation.

5. SUMMARY

S&M activities will continue in FY 1992. Routine S&M will continue as scheduled. Asbestos abatement and OSHA compliance upgrades at LITR and HRE will all continue pending approval of NEPA documentation. Sampling and analysis of the HRE and 3002 pools and the repair of the Waste Evaporator roof will continue as schedules permit.

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EXECUTIVE SUMMARY

The Surplus Facilities Management Program and Defense Facilities Decommissioning Program were established at Oak Ridge National Laboratory (ORNL) in 1976 in order to provide collective management of all surplus sites under ORNL control on the Oak Ridge Reservation. Some 34 facilities, classified into 3 civilian-related and 8 defense-related projects, are currently managed by the recently integrated Decontamination and Decommissioning Program. Support includes (1) surveillance and maintenance (S&M) planning, (2) routine S&M, and (3) special maintenance projects. This report documents routine S&M, special projects, and special maintenance performed on these facilities for the period of October 1990 through September 1991.

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