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ORNL/RAP-1

The Surplus Contaminated Facilities Program Maintenance and Surveillance Plan FY 1987-1996

T. W. Burwinkle

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ORNL/RAP-1

OPERATIONS DIVISION
ENVIRONMENTAL RESTORATION AND FACILITIES UPGRADE PROGRAM
REMEDIAL ACTION PROGRAM

(Activity KG 02 00 00 0, ONL-KG02)

THE SURPLUS CONTAMINATED FACILITIES PROGRAM
MAINTENANCE AND SURVEILLANCE PLAN
FY 1987-1996

T. W. Burwinkle

Date of Issue - May 1987

Prepared for the
Assistant Secretary for Energy Research

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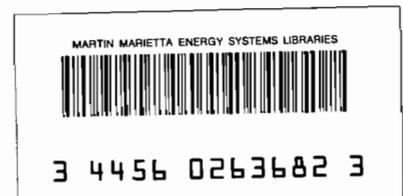




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SUMMARY

The Surplus Contaminated Facilities Program (SCFP) at the Oak Ridge National Laboratory (ORNL) is part of the Environmental Restoration and Facilities Upgrade (ERFU) Remedial Action Program (RAP). The objective of ERFU is to provide ORNL the capability to meet applicable environmental regulations through facility development activities and site remedial actions. In support of this objective, the RAP provides collective management of sites within the Laboratory which are in need of corrective action, prioritizes those areas in terms of health, safety, and environmental concerns, and implements the appropriate level of remedial action. The SCFP provides support to identifiable facilities which formerly served one or more of the many Laboratory functions. Program activities include (1) maintenance and surveillance of facilities awaiting decommissioning; (2) planning safe and orderly facility decommissioning; and (3) implementing a program to accomplish facility disposition in a safe, cost effective, and timely manner. In order to achieve the first objective, a formal plan which documents the maintenance and surveillance needs for each facility has been prepared. This report provides this documentation for the 26 facilities currently included in the SCFP, and includes projected resource requirements for the planning period of FY 1987 through 1996.



THE ORNL SURPLUS CONTAMINATED FACILITIES PROGRAM
MAINTENANCE AND SURVEILLANCE PLAN

1. INTRODUCTION

The Surplus Contaminated Facilities Program (SCFP) at the Oak Ridge National Laboratory (ORNL) is part of the Environmental Restoration and Facilities Upgrade (ERFU) Remedial Action Program (RAP). This work is funded through the Multi Program Laboratories Facilities Support (KG) program. The purpose of ERFU is to provide comprehensive management of activities which will develop new and improved facilities to meet high priority environmental needs. Its objective is to provide ORNL the capability to meet applicable environmental regulations through facility development activities and site remedial actions. In support of this objective, the RAP provides collective management of sites within the Laboratory which are in need of corrective action; prioritizes those areas in terms of health, safety, and environmental concerns; and implements the appropriate level of remedial action. The SCFP provides support to identifiable facilities which formerly served one or more of the many Laboratory functions. Program activities include (1) maintenance and surveillance of facilities awaiting decommissioning; (2) planning safe and orderly facility decommissioning; and (3) implementing a program to accomplish facility disposition in a safe, cost effective, and timely manner. In order to achieve the first objective, a formal plan which documents the maintenance and surveillance (M&S) needs for each facility must be prepared. This report provides this documentation for the facilities currently included in the SCFP.

1.1 THE SCFP

The SCFP was organized during the second half of FY 1985 to encompass the needs of surplus contaminated facilities at ORNL which are not a part of the national Surplus Facilities Management Program (SFMP). The latter program was organized at ORNL in 1976 and includes facilities which were identified as surplus at that time. The SFMP provides collective management of facilities which were formerly utilized for Defense and Nuclear Energy programs. Since its inception, the SFMP has provided M&S support for 75 facilities, successfully decommissioned six facilities, and has two facilities currently undergoing decommissioning. The SFMP does not, however, include any facilities which have been removed from service since 1976 or any which will become surplus in the near future. The need existed for a companion program which would include Energy Research facilities and those which were utilized by several programs within the Laboratory. The SCFP was organized to complement other ORNL Remedial Action programs to meet the needs of the many facilities which fall into these categories.

Organization began in the latter half of FY 1985 with a Laboratory-wide survey requesting information on facilities which should be considered for inclusion. Responses were collected, reviewed, and followed by site visits and interviews with designated facility contacts to establish the list of facilities which would comprise the program. A current listing of the facilities is given in Table 1. The 26 facilities range from single storage tanks to entire laboratory complexes and are located in both valleys of ORNL, and in ORNL areas at the Y-12 plant (see Figs. 1, 2, and 3). Past operations at the facilities have been widely varied, but have all resulted in contamination with radioactive or hazardous materials. These materials include long-lived fission products (Sr-90, Cs-137), activation products (Co-60), transuranic materials, and hazardous chemical wastes such as petroleum products and PCB. The extent of contamination is dependent on the nature of the facility operations, the manner in which it was shutdown, and the level of care which has been in effect since operations were completed.

Many of the facilities included in the SCFP are portions of larger facilities or buildings and therefore have at least some degree of surveillance already in place. In most cases, however, the effort cannot adequately address the needs of continued safe surveillance and maintenance due to budget or manpower constraints. In addition, some areas are stand-alone structures which are largely neglected and already in a deteriorating condition potentially threatening the safety of personnel and the environment. The list also includes a few sites which are still in operation but will become surplus in the near future by new construction or by program phaseout. The intent of the SCFP is to encompass these areas within ORNL and remain open to other facilities which may fall into these categories in the future.

The M&S Plan is the first of two major documents which will guide the program in the near term. Its purpose is to describe the activities involved in assuring continued safe, protective storage until final facility disposition is initiated. The second document will be a long-range plan which will provide an indepth overview of the entire program including plans for facility management up to and including final decommissioning.

1.2 M&S PROGRAM OBJECTIVES

The objectives of the ORNL SCFP M&S Program are:

1. to ensure adequate containment of residual radioactive and hazardous materials remaining in the facilities,
2. to provide safety and security controls to minimize the potential hazards to on-site personnel and the general public, and
3. to manage the facilities in the most cost-effective manner.

Table 1. Functional listing of Surplus Contaminated Facilities

Hazardous Waste Sites

Oil Storage Tank

Radioisotope Processing Facilities

Cobalt-60 Storage Garden
Strontium-90 Power Generators
ORNL 86-inch Cyclotron
Pu Process Condensate Tank
Pu Processing Facility
Curium Handling Glovebox

Experimental Reactor Facilities

Tower Shielding Facility Equipment

Radwaste Facilities

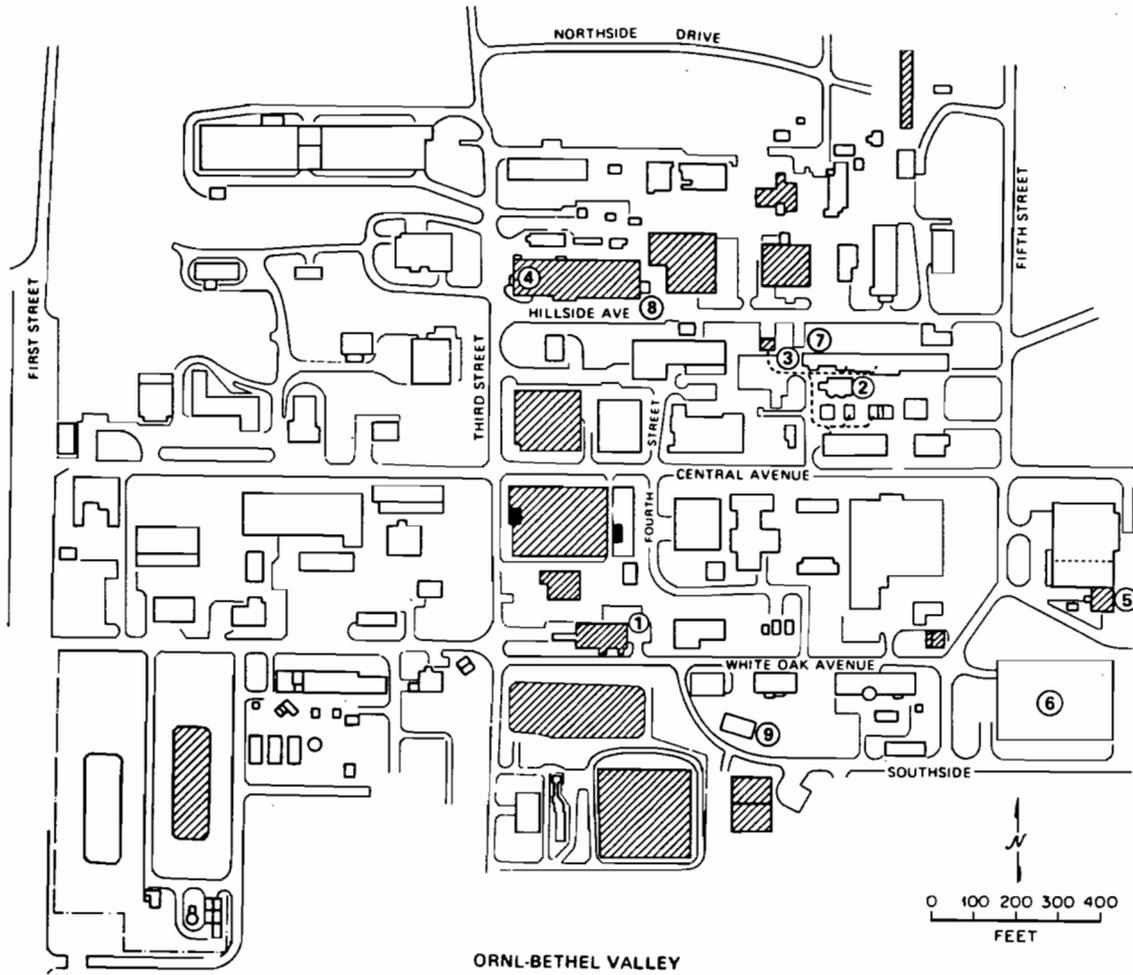
FPDL LLW Transfer Line
FPDL Filter Pit
Isotopes Ductwork/3110 Filter House
LLW Tank W1-A
Offgas Filter House (3121)
Decontamination Facility (7819)
Decontamination Facility (9419-1)

Research Laboratories

High Level Chemical Development Laboratory (4507)
MSRE Fuel Handling Facility
Coolant Salt Technology Facility
High-Level Radiation Analytical Facility (3019-B)
Remote Coating Furnace Loop
Ceramic Processing Laboratory
Transuranium Research Lab 45

Other Contaminated Sites

Storage Pad
Storage Tank (9201-3)
Attic (9204-1)
East End Basement (9204-1)



1. FPD FILTER PIT/LLW TRANSFER LINE (3517)
2. COBALT-60 STORAGE GARDEN (3029)
3. ISOTOPES DUCTWORK/3110 FILTER HOUSE
4. HIGH LEVEL RADIATION ANALYTICAL FACILITY (3019B)
5. HIGH LEVEL CHEMICAL DEVELOPMENT LAB (4507)
6. REMOTE COATING FURNACE LOOP/CERAMIC PROCESSING LAB (4508)
7. STRONTIUM 90 POWER GENERATORS
8. OFFGAS FILTER HOUSE (3121)
9. STORAGE PAD

Fig. 1. Location map for ORNL Surplus Contaminated Facilities - Bethel Valley Area.

- 1. DECONTAMINATION FACILITY (7819)
- 2. TRANSURANIUM RESEARCH LAB 45
- 3. OIL STORAGE TANK

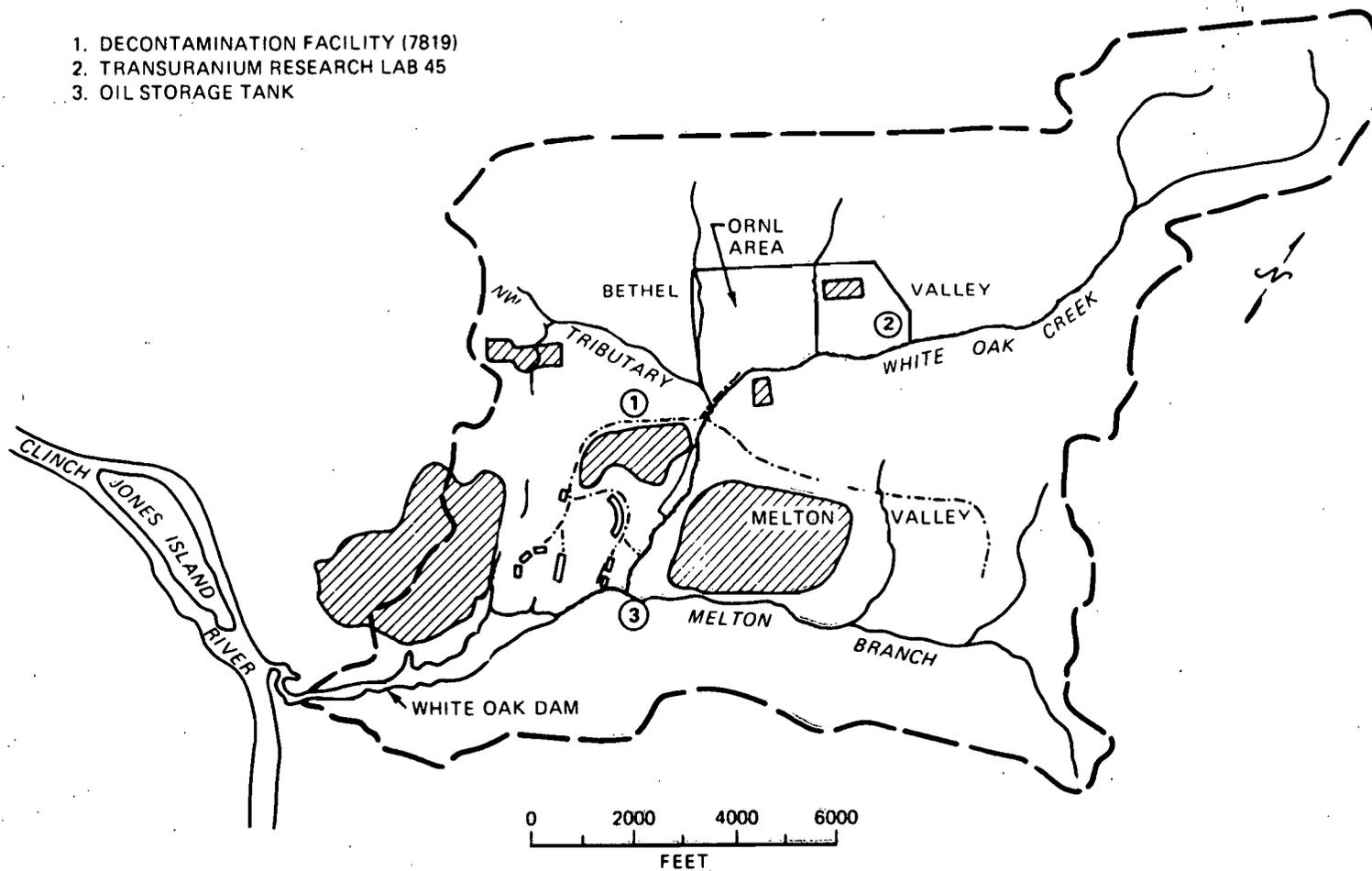


Fig. 2. Location map for ORNL Surplus Contaminated Facilities - Melton Valley Area.

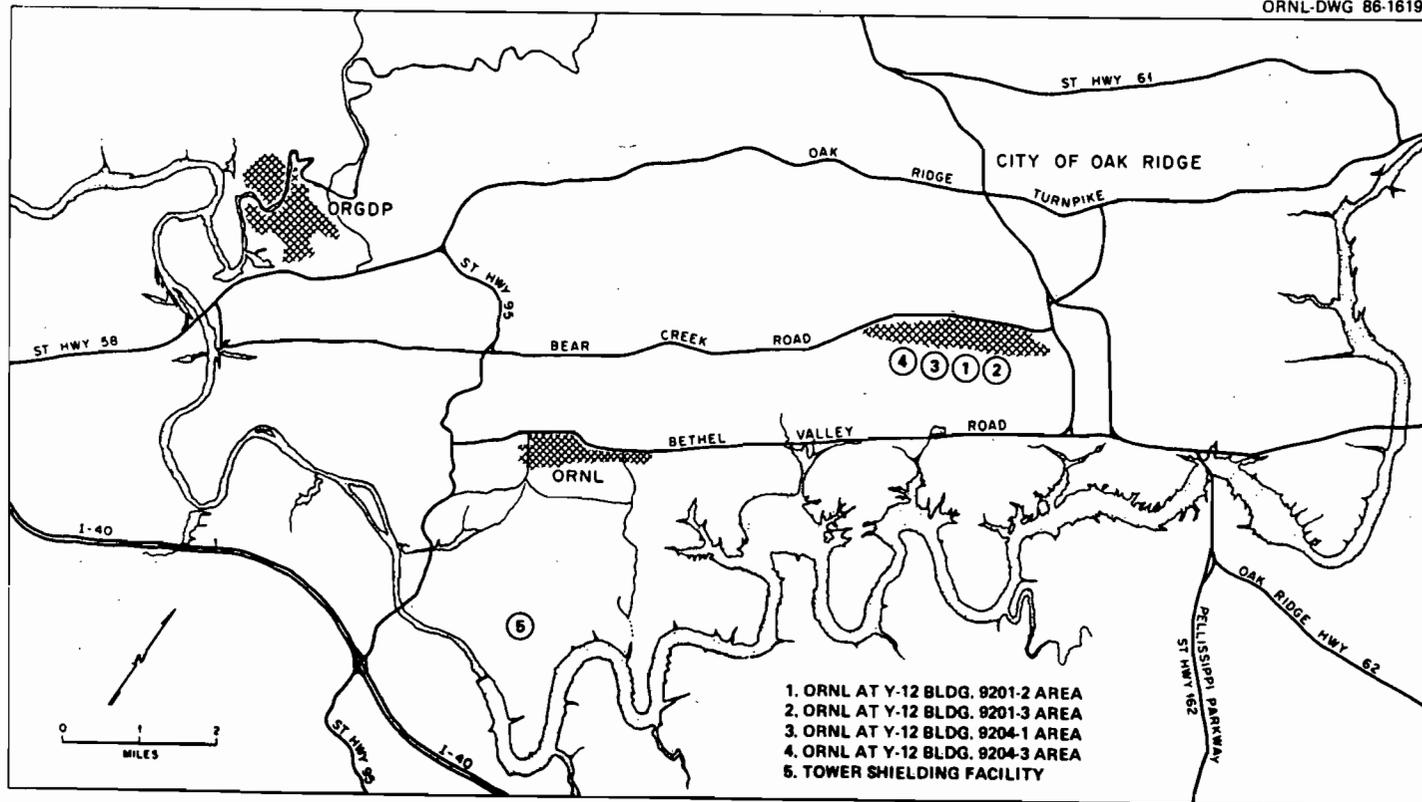


Fig. 3. Location map for ORNL Surplus Contaminated Facilities - Tower Shielding Facility and ORNL Areas at Y-12.

Successfully meeting these objectives requires unified effort of the SCFP staff, facility operating personnel, health and safety personnel, Laboratory security forces, and maintenance crafts. The program is also structured to be responsive to all applicable environmental regulations as well as ORNL standard operating practices and procedures.

1.3 SCOPE OF THE M&S PLAN

This M&S plan will address M&S requirements appropriate for each facility in the program until decommissioning is begun. The plan will provide: (1) an outline of the program structure including functional and reporting responsibilities; (2) requirements of general, radiological, safety, and security inspections; (3) requirements of facility maintenance including programmed and special maintenance activities; (4) documentation of program activities; (5) project summaries describing facility characteristics pertinent to M&S and estimates of annual resource commitments to carry out M&S; and (6) an integrated M&S strategy which will summarize the resource requirements within the functional framework of the program. The latter section will be used as a budget planning base for near-term (<10 years) program funding requirements.

In order for this M&S plan to remain current and effective, it will be reviewed and updated annually. The revised plan will support the annual drafting of the Field Task Proposal/Agreement for the RAP M&S subtask. It will also serve as a reference document providing DOE and management personnel with program philosophy and direction.

2. PROGRAM DESCRIPTION

2.1 STRUCTURE AND RESPONSIBILITIES

The SCFP is administered by Waste Management Section staff within the Operations Division, with programmatic direction from the ERFU office under the Nuclear and Chemical Waste Program (Fig. 4). M&S is one of three primary functions in the implementation of remedial action. The other functions include management of current remedial action projects, and near-term and long-range planning. Two other M&S programs are administered by the RAP: the SFMP and the Site Corrective Measures Program (SCMP) which deals primarily with non-facility contaminated sites.

Maintenance and surveillance functions are carried out by a multidisciplinary team from many different support and research divisions. However, primary responsibility for conducting M&S lies with the division under whose control the facility formerly operated. Financial support for these activities flows through the SCFP, which therefore has the ultimate

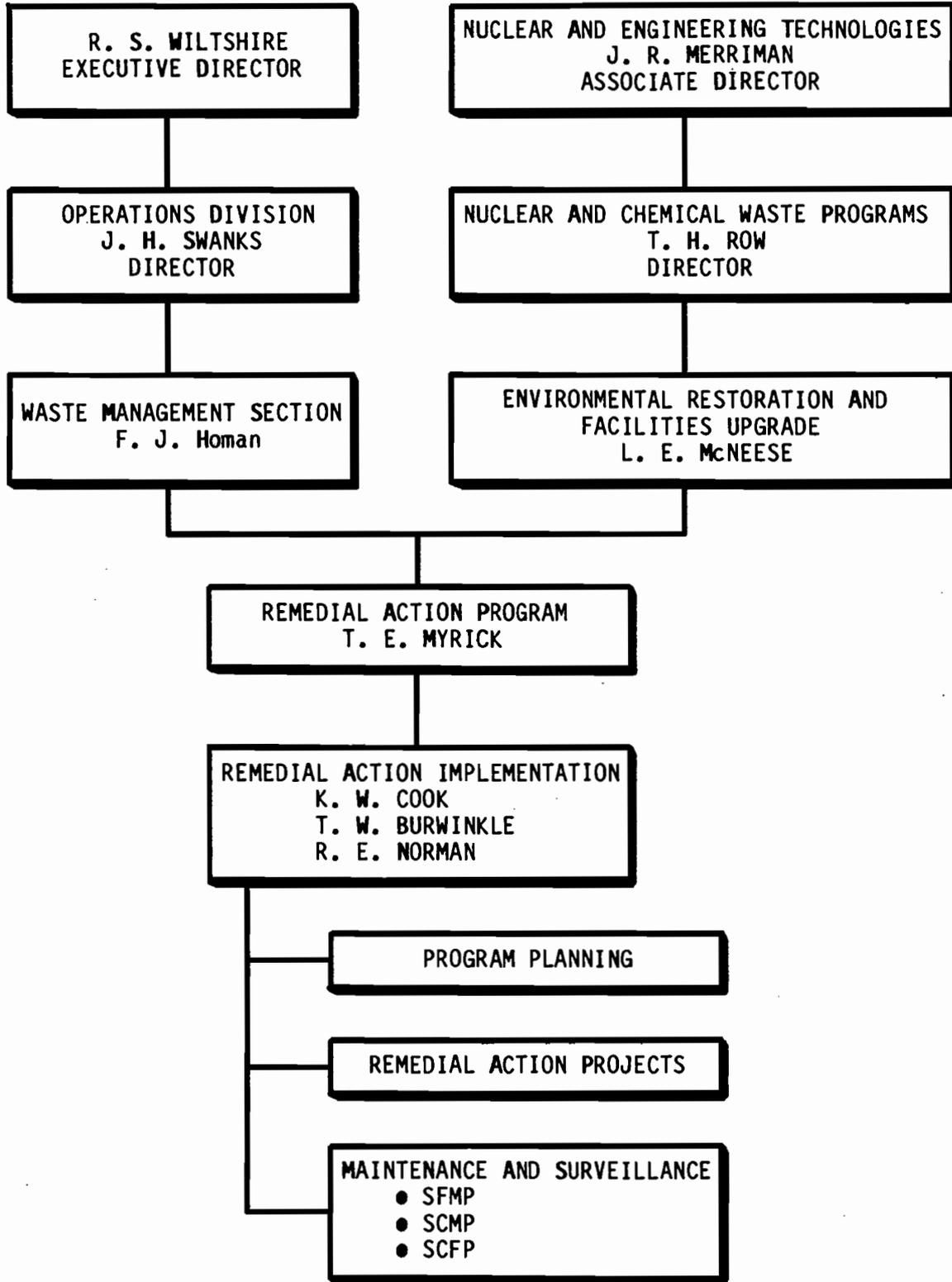


Fig. 4. Remedial Action Program organization structure.

responsibility for ensuring that the objectives of the program are being met. The supported facilities have been organized for more effective control into three areas as shown in Table 2, with responsibility for day-to-day activities delegated to the respective divisions. This responsibility may be further delegated within a division to a single identifiable facility supervisor which will serve as the program contact for daily activities. Project reporting will flow through the section offices as indicated or as established by agreement with respective divisions.

The facility supervisors are charged with the responsibility of providing adequate surveillance and maintenance of their respective facilities to assure compliance with program objectives. They also have the responsibility for notifying the program office of any significant occurrence at the facilities under their control which may impact the health and safety of working personnel or the general public, or adversely affect the environment. Surveillance requirements have been established for each facility based on the operational history, the current facility conditions, and the occupancy of the building or area. These requirements were judged to adequately address facility requirements based on information obtained from scoping surveys conducted by the Environmental and Occupational Safety Division and after consultation with facility personnel. Some facilities require continuous monitoring of ventilation streams and process liquid discharges, while others may need only periodic surveillance of exterior surfaces to assess the adequacy of the containment. Maintenance requirements for SCFP facilities include both routine repairs or equipment replacements as well as major repairs of structurally deteriorating systems. Requests for maintenance manpower and resources are initiated by the respective facility supervisor.

In support of the SCFP M&S activities, the following divisions have direct responsibility for facility control:

1. Operations (Op),
2. Engineering Technology (ET),
3. Chemical Technology (ChT),
4. Metals and Ceramics (M&C), and
5. Chemistry (Ch).
6. Research Reactors (RR)

In addition, seven other divisions have active participation in the program by their direct or indirect support:

1. Environmental and Occupational Safety (E&OS),
2. Laboratory Protection (LP),
3. Quality Department (QD),
4. Plant and Equipment (P&E),
5. Instrumentation and Controls (I&C),
6. Analytical Chemistry (ACh), and
7. Engineering (ENG).

Table 2. SCFP M&S responsibilities.

<u>Category/Facility</u>	<u>Responsible Division</u>
Research Support Facilities	
Oil Storage Tank	Operations
FPDL LLW Transfer Line	Operations
FPDL Filter Pit	Operations
LLW Tank W1-A	Operations
Decontamination Facility (7819)	Operations
Storage Pad	Chemical Technology
Offgas Filter House (3121)	Chemical Technology
Tower Shielding Facility Equipment	Research Reactors
High Level Chemical Development Laboratory	Chemical Technology
High Level Radiation Analytical Facility	Chemical Technology
Remote Coating Furnace Loop	Metals and Ceramics
Ceramic Processing Laboratory	Metals and Ceramics
Transuranium Research Laboratory 45	Chemistry
Isotope Production Facilities	
Co-60 Storage Garden	Operations
Sr-90 Power Generators	Operations
Filter House (3110)/Isotopes Ductwork	Operations
86-inch Cyclotron	Operations
Pu Process Condensate Tank	Operations
Pu Processing Facility	Operations
Cm Handling Glovebox	Operations
Technology Support Facilities	
MSRE Fuel Handling Facility	Engineering Technology
Coolant Salt Technology Facility	Engineering Technology
Storage Tank (9201-3)	Engineering Technology
Attic (9204-1)	Engineering Technology
East End Basement (9204-1)	Engineering Technology
Decontamination Facility (9419-1)	Engineering Technology

This support is provided either at the request of the facility supervisor or is conducted independently as part of the overall ORNL surveillance and maintenance program. For those activities conducted specifically for the SCFP, direct funding is provided through the program office. Those activities provided as part of normal ORNL operation are funded through overhead, and do not require SCFP funds. A general breakdown of the level of participation by facility control and support divisions is shown in Fig. 5.

2.2 M&S REQUIREMENTS

Brief outlines of the M&S requirements for the surplus contaminated facilities are presented in the following report sections. These discussions have been formatted to correspond with the M&S activities listed in Fig. 5, in terms of (1) surveillance requirements, (2) maintenance requirements, and (3) documentation. Details of the M&S activities conducted at each facility to fulfill these requirements are provided in Sect. 3.

2.2.1 Surveillance Requirements

Routine surveillance is provided at SCFP facilities in order to assure that each site remains in a radiologically safe condition and hazardous materials are safely contained. Inspections are conducted to survey radiological conditions, monitor the operability of any equipment required to maintain safe conditions, check safety-related items, provide site security controls, and inspect structural integrity. Requirements have been established for these activities in four general areas: (1) Facility Surveillance, (2) Radiological Surveillance, (3) Safety Inspections, and (4) Security and Protection. Discussion of these requirements is as follows.

2.2.1.1 Facility Surveillance

Periodic inspection of each SCFP facility must be conducted. The frequency of inspection is determined by the type of facility, the level of containment provided for hazardous or radioactive materials, and the potential for personnel access to the site. The minimum frequency of inspection is annual, however, facilities which have active containment, process, or monitoring systems must be inspected on a more frequent basis (daily, weekly, or monthly).

Facility surveillance is normally carried out by the facility supervisor or his designated appointee as part of a routine inspection of other operating areas. Surveillance items include:

1. visual inspection of the facility or equipment for structural or system failures, material degradation, liquid leaks, radiation monitor indications, burning odors, equipment irregularities, etc.;

DIVISION	SURVEILLANCE				MAINTENANCE		DOCUMENTATION
	FACILITY SURVEILLANCE	RADIOLOGICAL SURVEILLANCE	SAFETY INSPECTIONS	SECURITY & PROTECTION	ROUTINE MAINTENANCE	MAJOR REPAIRS	ACTIVITY REPORTING
<u>FACILITY CONTROL</u>							
OPERATIONS	X	X	X	X	X	X	X
ENGINEERING TECHNOLOGY	X		X	X	X	X	X
CHEMICAL TECHNOLOGY	X		X	X	X	X	X
ANALYTICAL CHEMISTRY	X		X	X	X	X	X
METALS & CERAMICS	X		X	X	X	X	X
<u>SUPPORT</u>							
ENVIRONMENTAL & OCCUPATIONAL SAFETY	X	X	X		X	X	X
LABORATORY PROTECTION			X	X			X
QUALITY DEPARTMENT	X						X
PLANT & EQUIPMENT	X				X	X	X
INSTRUMENTATION & CONTROLS	X				X		X
ANALYTICAL CHEMISTRY		X					X
ENGINEERING						X	X

Fig. 5. ORNL divisional participation in the SCFP Maintenance and Surveillance Program.

2. routine checks on containment ventilation systems, including pressure drop readings, indicators of building or cell negative pressures, operability of auxiliary containment systems, etc.;
3. observation of liquid levels in sump areas, storage tanks, canals, and storage pools;
4. process equipment operability checks, including air compressors, water pumps, sump pumps, etc.; and
5. other facility-specific needs, such as argon manifold checks, steam system checks, manipulator inspections, and other mechanical systems vital to maintaining safe protective storage.

In addition to these operator surveillance activities, routine inspections of the radiation detection instrumentation, building exterior and roof conditions, overhead cranes, and testing of HEPA filtration systems are provided through the Laboratory-wide surveillance program as it applies to individual facilities. ORNL quality assurance requirements are met through these on-site inspections and routine QA audits.

2.2.1.2 Radiological Surveillance

The requirements for radiological surveillance are broken down in two categories, (1) radiation/contamination surveys and (2) radioactive waste stream and environmental monitoring. Radiation surveys are conducted regularly by E&OS staff, on a schedule dictated by the type and levels of contamination, and the facility design or layout. Waste stream or environmental monitoring of areas or individual facilities is provided as part of the ORNL waste management operations¹ and environmental management², and by similar functional groups at Y-12 for ORNL areas located within their jurisdiction. Environmental monitoring is accomplished through a comprehensive sampling and monitoring program directed at early detection and mitigation of releases which could otherwise have adverse effects on operating personnel, the general public, and the environment.

Radiation survey procedures have been established at ORNL³ to provide adequate characterization and surveillance of radiation/contamination zones at the SCFP facilities. These procedures include:

1. daily direct radiation surveys and smears for transferable contamination in occupied contamination areas,
2. personnel monitoring during all operations within contamination/radiation zones,
3. weekly surveying (direct and/or smear) of accessible areas adjacent to contamination zones,
4. monthly, semi-annual, or annual surveys of areas of radiological concern that are remote from routine personnel access,

5. surveillance of all equipment or materials removed from an SCFP site, and
6. inspection and calibration of health physics instrumentation (hand and foot monitors, continuous air monitors) on a routine schedule.

This routine surveillance is provided by E&OS staff as part of their regular inspection of active and surplus facilities within each established survey area. Additional survey support is obtained by the facility supervisors as needed to meet special requirements.

The ORNL Waste Operations Control Center (WOCC) provides continuous surveillance of liquid and gaseous effluents released from operating areas within the Laboratory and from some inactive ones as well. Data from remote instrumentation are transmitted to the WOCC for monitoring and recording of operating characteristics of the liquid and gaseous radwaste system. Shift operators are on duty continuously providing 24-hour surveillance. In the event of abnormal activity release or instrumentation failure, the shift operator alerts the appropriate supervision enabling corrective action to be taken.

The WOCC is presently monitoring few parameters which are directly related to SCFP facilities. However, the capability offered by the WOCC provides assurance that catastrophic releases from facilities within the X-10 area would be rapidly dealt with. Data acquired at the control center includes surveillance of:

1. exhaust duct gaseous effluent radioactivity,
2. cell blower status,
3. process water flow rates and radioactivity, and
4. low-level liquid waste (LLW) collection tank inventories and transfers.

In addition to these continuous surveillance activities, periodic sampling and analysis of liquid effluents are conducted, primarily in the vicinity of abandoned LLW storage tanks. Monthly dry-well samples are obtained to give an indication of potential radionuclide migration into groundwater around tanks.

2.2.1.3 Safety Inspections

Safety inspections will be conducted on a routine basis for all SCFP facilities to identify existing and potential hazards to personnel and inspect facilities and safety related equipment for proper accessibility and operability. Inspections will be performed semi-annually in accordance with Procedure 1.1 of the ORNL Safety Manual⁴. To maximize the efficiency and consistency of the process, the inspections should be carried out in conjunction with the routine safety inspections for the active facilities in the respective areas and by the same inspection team appointed for this task. Safety surveillance will focus on general inspection of building conditions to identify unsafe conditions,

practices, fire hazards, etc. Action items that result from these inspections will be referred to facility supervisors for correction, and corrective action or maintenance performed as a result will become part of the maintenance and surveillance file for the facility. More frequent (weekly, monthly, or quarterly) inspections or testing of emergency equipment may be undertaken as deemed appropriate by the facility supervisor or fire protection or safety staff personnel.

In special instances, the Laboratory Director's Safety Review Committee may be directed to conduct a more comprehensive and thorough safety review or inspection of an SCFP site. Such a review would be conducted to determine in greater detail existing conditions or potential problems which might pose significant risk to ORNL personnel, facilities, or equipment. Results from this type of investigation would be used by the SCFP staff to redefine the scope of the M&S requirements for a particular facility and adjust resource commitments to meet the required level of support.

2.2.1.4 Security and Protection

As a restricted government installation, ORNL is provided with comprehensive safeguards, security, and protection systems. These systems include exclusion fencing around the main laboratory complex and around remote facilities, continuously manned guard posts, controlled access to sensitive and hazardous areas, fire alarm and protection systems, a fully equipped and continuously manned fire department, and routine (random) security patrols. Due to this complete and comprehensive protection network, little additional security or protective measures are required for SCFP sites. Access to facilities where potential hazards exist is further restricted by facility operators who are required to minimize unnecessary personnel entry. Controlled access is usually accomplished by maintaining abandoned areas in a locked and secured condition, providing appropriate entry restriction, and adequate posting of radiation and chemical hazards.

2.2.2 Maintenance Requirements

Maintenance of SCFP facilities falls into two categories: (1) routine, or programmed maintenance, and (2) special maintenance required for major repairs of structures or equipment. Guidance for most maintenance requirements is provided in the Plant and Equipment Division Procedures Manual.⁵ The P&E Division (Maintenance Division for ORNL areas at Y-12) is responsible for conducting most program maintenance according to its own routine maintenance schedule or at the request of facility supervisors. Funding for much of the routine maintenance items (grounds care, exterior painting, and preventative equipment maintenance) is provided through ORNL overhead charges. Support for other maintenance, major repairs, or improvements directly related to the upkeep of the surplus facility must be provided by the SCFP.

2.2.2.1 Routine Maintenance

Preventative maintenance requirements and schedules are established by P&E for each SCFP facility based on the type of structures and equipment involved. Input from the facility supervisor and P&E Field Engineer is used to identify critical equipment and systems and determine necessary maintenance frequencies. Routine maintenance activities include inspections, adjustments, lubrication, reconditioning, and other activities designed to preclude failures and prolong the service life of structures and equipment.

Corrective maintenance is provided for equipment failure, malfunction, or breakdown. Repair or replacement is conducted to rectify the immediate problem and provide for long-term operability. Users of facility equipment or personnel designated for facility surveillance are responsible for reporting operational failures or other concerns to the facility supervisor. The supervisor in-turn submits an appropriate request to the responsible P&E facility engineer for corrective action.

Modification maintenance, such as minor facility alterations or improvements, may be required to reduce safety hazards or to provide increased levels of containment. As with the other forms of routine maintenance, this would be initiated by the facility supervisor by requesting the appropriate form of P&E craft support. No specific review or approval is required from the SCFP office.

2.2.2.2 Major Repairs

Periodically, major facility repairs or improvements may be required to correct a serious deficiency such as degradation of structures which could threaten continued radionuclide containment, or to eliminate a significant safety concern. Such improvements could involve actions such as roof repair, removal of deteriorating equipment, decontamination of recurring problem areas, or construction of temporary barriers. The scope of this type of projects can vary from routine construction jobs to more complex tasks requiring engineering designs, safety reviews, detailed work plans, and specialized construction forces. Since these projects can usually be anticipated and planned for, additional program requirements exist to provide management control over costs and schedules.

Requests for major repairs must be submitted to the SCFP office for approval prior to beginning detailed plans. Task plans which contain cost and schedule projections, must be developed by the facility supervisor at least six months before the anticipated project start date. These major repairs should be forecasted as early as possible to allow proper planning for budget allocations. Direction and control of the project will be the responsibility of the facility supervisor, with routine status reporting required.

2.2.3 Documentation

Documentation of all M&S activities supported by the SCFP is provided by the division responsible for each task. Reporting may range from computer control cards submitted by field engineers or surveyors to detailed engineering design packages for major repairs. Facility supervisors are responsible for maintaining a file of all facility-related M&S activities which they initiate or control. Health physics records are archived by the E&OS Division, and P&E program maintenance files are maintained on computer with routine distribution to appropriate facility operators or division management. Quality Department inspection reports are also computer filed, with summaries distributed to division offices. Remaining M&S participants maintain permanent records of their activities within the respective divisions.

The facility supervisor concept of managing M&S provides the most cost-effective approach to controlling abandoned sites. Responsibility for ensuring the necessary M&S activities are carried out rests with the facility supervisor. Reviews of activities will be conducted periodically and audits of M&S records will be performed to assure the SCFP office that adequate M&S is being carried out and documented. Status reports will be provided monthly by the facility supervisors to the SCFP office for input to the ERFU Remedial Action Program monthly report to the DOE. Annual reports summarizing the past year's M&S activity will also be compiled by the facility supervisor at the end of the fiscal year and forwarded to the program office. These reports will provide a concise summary of the past year's surveillance data, summary of significant maintenance carried out, and a log of calibrations of critical surveillance instrumentation. In addition, the annual reports should include a brief discussion of future needs at each site, with cost estimates for major repairs or upgrades. These reports can be appropriately combined for a group of facilities under the control of an individual supervisor. In conjunction with the annual reporting, an annual site review and program audit will be conducted and documented to assess the needs and performance of program participants.

3. PROJECT SUMMARIES

Summaries of M&S activities have been developed for each of the SCFP sites which are included in the program as of second quarter FY 1986. The summaries have been developed with information obtained from interviews with facility contacts, scoping surveys performed by the E&OS Division, and followup discussion with facility supervisors. In addition to M&S requirements, the summaries also include a brief overview of the facility history and current conditions. Manpower estimates and associated costs have been included for each activity. Facility-related costs are integrated for the entire program in Sect. 5.

The M&S activity summaries contain information in the following categories:

1. Facility Name - The ORNL-designated facility title, which in most cases describes the facility or project associated with its former use.
2. Location - A building or site number as defined in the ORNL Building Directory. Specific laboratories or areas within a building are designated by room numbers or other descriptors which define the specific area of inclusion. For those facilities which are not designated by a specific ORNL number, the area is described by directional reference to an adjacent numbered building. The description also includes identifying the location in Bethel Valley, Melton Valley, or in the ORNL areas at Y-12 (see Figs. 1, 2, and 3).
3. Service Dates - The period of time over which the facility was considered operational. At some locations, the exact dates of operation are not precisely known and have been approximated. Other sites are included which are still in service but are expected to become surplus during FY 1987. These are indicated by a projected future date at which time they would be supported by the SCFP M&S program.
4. Facility Status - A listing of the current facility status in terms of operability, occupancy, and facility responsibility. The current facility supervisor is also identified.
5. Facility Description - A brief discussion of the facility operating history, physical description, current conditions, radiological and chemical hazards, and occupancy. These descriptions are based on available historical information, recollections of knowledgeable personnel, and information obtained from scoping surveys⁶.
6. Security/Protection Systems - A description of the security and protection systems provided at each facility. Such items include fire alarms and sprinklers, exclusion fencing, access restriction, radiation/contamination zone posting, and other control measures. The systems described are in addition to the Laboratory-wide security provided by the perimeter fencing, guard stations, and fire fighting equipment.
7. Surveillance Activities - An itemized listing of surveillance tasks conducted at each facility. Specific data are provided in terms of task titles, surveillance frequencies, ORNL divisional responsibilities, documentation requirements, and estimated manpower or resource needs. The task listings are general in nature, with additional detail provided in the appropriate ORNL operating manuals. Division responsibilities are consistent with those found in Sect. 2. Surveillance documentation exists in a variety of forms, including shift check sheets, memos-to-file, and computer printout. Where appropriate, specific ORNL forms have been identified that are used in recording survey results; otherwise, the listing identifies the type of documentation used and the administrative

unit responsible for maintaining the file (i.e., WOCC records refers to files maintained at the ORNL Waste Operations Control Center). Manpower and financial resource requirements are recorded in man-hours (mh/y) for individual tasks and in dollar costs (FY 1987 dollars) for material needs. Items that do not require direct SCFP funding have been highlighted.

8. Routine Maintenance - An itemized listing of routine maintenance activities for each facility, similar in scope and content to Item 7.

9. Anticipated Repairs/Improvements - A brief description of identified major repairs or other facility improvements scheduled for the planning period. These include the need for repairs, scope of the task (including an estimate of resource needs), and the proposed year of expenditure.

10. Cost and Schedule - A summary of surveillance costs, routine maintenance needs, and major repairs requirements. This summary totals the manpower and dollar costs on an annualized basis and provides a schedule of these costs by year of expenditure through the planning period. Cost estimates beyond FY 1989 are in constant FY 1989 dollars.

M&S summaries are presented in Appendix A according to the purpose of their former use as indicated in Table 2. Facilities are treated as individual entities as indicated by their title even though they may reside within a single larger building, or served a common facility or program.

4. PROGRAM DEVELOPMENT

In order to maintain a responsive and viable program, a comprehensive reevaluation will be undertaken at least every five years. This effort will focus on assessing the status of the SCFP facilities to ensure adequate control is being maintained and to provide input for establishing decommissioning priorities. In FY 1987, this activity will include in-depth site evaluation to support long-range planning of corrective actions and decommissioning feasibility studies. This will involve on-site inspections, radiation surveys, and safety assessments to provide an evaluation of the current M&S program and provide conceptual decommissioning decommissioning designs and cost estimates for each facility.

5. PROGRAM COSTS AND SCHEDULES

Based on information compiled for each facility, overall M&S program costs have been developed. The annual resource requirements are given in Table 3 for the planning period FY 1987 through FY 1996. Costs have been itemized by facility and grouped according to functional purpose.

Table 3. Maintenance and Surveillance Program Costs

Category/Facility	Site Operations Support	Year										
		87	88	89	90	91	92	93	94	95	96	
Research Support Facilities												
Oil Storage Tank	ER	-	-	-	-	-	-	-	-	-	-	-
FPDL LLW Transfer Line	DP	-	-	-	-	-	-	-	-	-	-	-
FPDL Filter Pit	ER	2.9	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
LLW Tank W1-A	DP	6.9	7.2	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Decontamination Facility (7819)	ER	3.3	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Pad	ER	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Offgas Filter House (3121)	NE	4.0	4.2	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Tower Shielding Facility Equipment	NE	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
High Level Chemical Development Laboratory	NE	19.8	20.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
High Level Radiation Analytical Facility	ER	32.0	33.6	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3
Remote Coating Furnace Loop	NE	2.4	2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Ceramic Processing Laboratory	NE	3.4	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Transuranium Research Laboratory 45	ER	5.4	5.7	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Isotope Production Facilities												
Cobalt-60 Storage Garden	ER	3.6	3.8	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Strontium-90 Power Generators	ER	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Filter House (3110)/Isotopes Ductwork	ER	3.9	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
86-inch Cyclotron	ER	40.6	42.6	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8
Pu Process Condensate Tank	ER	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Pu Processing Facility	ER	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Curium Handling Glovebox	ER	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Technology Support Facilities												
MSRE Fuel Handling Facility	NE	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Coolant Salt Technology Facility	NE	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Storage Tank (9201-3)	NE	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Attic (9204-1)	DP	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
East End Basement (9204-1)	DP	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Decontamination Facility (9419-1)	NE	3.3	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
SUBTOTAL		145	152	160								
Corrective Actions/Special Projects		280	120	80								
Program Management/Development		240	40	42	42	42	262	42	42	42	42	42
TOTAL EXPENSE		665	312	282	282	282	502	282	282	282	282	282
TOTAL CAPITAL EQUIPMENT		50			55			55			55	

Program management support is listed as a separate item. Cost estimates are given in year of expenditure through FY 1989, and in constant FY 1989 dollars for outyear projections.

The M&S program is structured to provide adequate control over facilities until they enter active decommissioning. In cases where decommissioning will be a multi-year effort requiring extensive characterization and planning, M&S support will be provided for the first few years until the decommissioning effort is established at which time this function will be provided through the decommissioning project budget. A long-range plan for the SCFP is scheduled to be developed in FY 1987 which will assess priorities for decommissioning and thus affect the schedule of M&S support as indicated in Table 3. As now presented, the table indicates M&S support continuing for an indefinite period. Following the long-range planning effort, this table will be revised to reflect the expected initiation of decommissioning efforts.

Special project funds are included in each of the planning years to provide adequate support for nonroutine facility maintenance or other special needs. Identification of specific tasks which need this form of funding has been addressed in Sect. 2.2.2.2. Schedules for special projects will be determined each year as funding is allocated to address priority needs. Provision for capital equipment requirements has also been included in this category, primarily for upgrading surveillance instrumentation or improving containment features.

6. REFERENCES

1. B. M. Eisenhower, et al., Current Waste Management Practices and Operations at Oak Ridge National Laboratory - 1982, ORNL-5917 (September 1982).
2. T. W. Oakes, et al, Methods and Procedures Utilized on Environmental Management Activities at Oak Ridge National Laboratory, ORNL/TM-7212 (March 1981).
3. Oak Ridge National Laboratory, "Procedures and Practices for Radiation Protection - Health Physics Manual," prepared by the Environmental and Occupational Safety Division, Revised 1986.
4. Oak Ridge National Laboratory, "Safety Manual," prepared by the Environmental and Occupational Safety Division, Revised 1986.
5. Oak Ridge National Laboratory, "Plant and Equipment Division Procedures Manual," prepared by the Plant and Equipment Division, Revised 1984.

6. B. S. Houser and D. R. Simpson, Facility Scoping Surveys for the Surplus Contaminated Facilities Program, ONRL/CF-86/94 (May 1986).

7. T. E. Myrick, The ORNL Surplus Facilities Management Program Maintenance and Surveillance Plan FY 1985-1994, ONRL/CF-85/4 (March 1985).

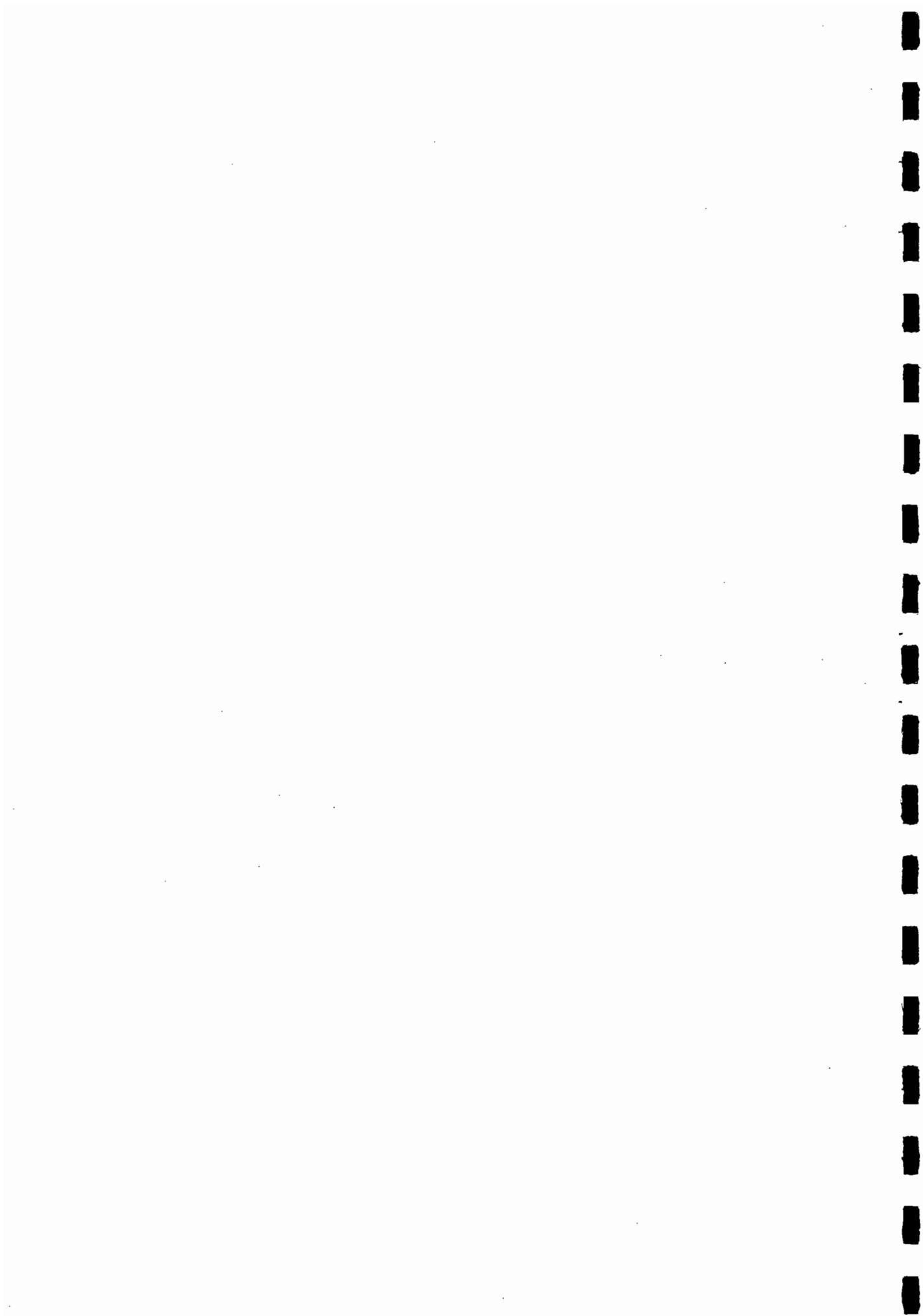
APPENDIX A

PROJECT M&S ACTIVITY SUMMARIES



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A.1 RESEARCH SUPPORT FACILITIES



RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Oil Storage Tank
2. LOCATION: New Hydrofracture Facility (NHF) - Site 7860 (Melton Valley)
3. SERVICE DATES: 1981-1985
4. FACILITY STATUS:

The tank is inactive and has been so since hydrofracture operations were curtailed in 1985. No operations are currently conducted at the site, although the facilities may be reactivated when a new liquid LLW disposal process comes on-line. The tank and NHF are controlled by the Operations Division (T. F. Scanlan).

5. FACILITY DESCRIPTION:

- (a) Operating History - The Oil Storage Tank was installed during construction of the New Hydrofracture Facility (NHF) as an interim repository for contaminated oils. It was used during the years of hydrofracture at the NHF to accept contaminated waste oils from vacuum pumps, pressure pumps, cooling systems, and other hydraulic systems which produced contaminated lubricants.
- (b) Physical Description - The tank is constructed of mild steel, has capacity for 4,000 gal, and rests on a concrete pad. The entire structure is below grade with three pipes extending to the surface. It is located on an upslope south of the main hydrofracture building, adjacent to the Gunite Tank mock-up.
- (c) Current Condition - The tank is currently full with a mixture of oils and water, and estimated to contain about 5 μ Ci/gal. The tank is believed to be structurally sound with no apparent leaks. A radiological survey of the surface in the vicinity of the tank indicated no activity which would have resulted from past spills.⁶ Based on the materials believed to be in the tank, it is highly likely that some stratification has taken place.
- (d) Radiological and Chemical Hazards - Based on the estimated level of contamination of the contents, about 20 mCi reside in the tank. Until tank sampling is completed, this estimate should be considered extremely gross, without benefit of knowledge of radionuclides present. The presence of hazardous chemical waste will likely be confirmed after sampling due to existing knowledge of materials placed in the tank.

- (e) Occupancy - The site is currently unoccupied in a remote location of the ORNL site, with minimal routine personnel access.

6. SECURITY/PROTECTION SYSTEMS:

The Oil Storage Tank at the New Hydrofracture Facility is in the ORNL Melton Valley restricted area. The NHF and surrounding facilities are posted with respect to access restrictions and radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

The NHF is under daily surveillance. No additional surveillance is provided for the abandoned tank.

8. ROUTINE MAINTENANCE:

The NHF site is maintained by the ORNL Waste Management Program. No additional maintenance is provided for the abandoned tank.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No repairs or improvements are anticipated prior to decommissioning. In the event routine surveillance indicates a problem has developed with the integrity of the tank, appropriate action will be taken and would likely involve removal of tank contents and stabilization of the tank interior.

RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: FPD L LLW Transfer Line
2. LOCATION: Between FPD L (Bldg. 3517) and Central Avenue collection header (Bethel Valley)
3. SERVICE DATES: 1958 to 1986
4. FACILITY STATUS:

The line was removed from service in 1986 and replaced by a doubly-contained system. Prior to that it had been an active part of the ORNL liquid LLW system and was used for transfer of waste from the Fission Product Development Laboratory (FPDL) for handling and disposal. Transfers through the line were coordinated by Operations Division (T. F. Scanlan) which controls activities in the area of the surplus line.

5. FACILITY DESCRIPTION:

- (a) Operating History - The FPD L LLW Transfer Line was installed in 1958 for transporting low level radioactive waste from FPD L to the South Tank Farm for storage subsequent to volume reduction by evaporation and final disposal by hydrofracture. In more recent years, the evaporated waste was retained in tankage after volume reduction.
- (b) Physical Description - The line consists of approximately 317 ft of 1.5 in. singly-contained stainless steel pipe. It runs underground from the east end of FPD L, north and west around Bldg. 3505 to a collection header along Central Avenue.
- (c) Current Condition - The line is believed to be in sound physical condition with no known leaks having occurred.
- (d) Radiological and Chemical Hazards - Due to the usage of the line, it can be assumed the interior of the pipe is highly contaminated, primarily with Sr-90 and Cs-137. Transferable levels have been estimated to exceed 2.5×10^8 dpm/100 cm² β - γ ,⁶ and the interior radiation level on the order of 5 R/h. Nitric acid has also been transferred, but would not likely be present in significant quantities after a flushing operation.
- (e) Occupancy - The line is located in an area between active facilities (Bldgs. 3517 and 3505) and the South Tank Farm. This area is within the main ORNL complex and is currently the site of several waste related construction projects.

6. SECURITY/PROTECTION SYSTEMS:

The LLW Line is within the ORNL Bethel Valley secured area. The surface areas above and around the vicinity of the line are posted with respect to access restrictions and radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

Facilities at either end of the line are under continuous surveillance by Isotope Production personnel and Operations Division. No additional surveillance is provided for the transfer line.

8. ROUTINE MAINTENANCE:

Maintenance of the upstream generating facility (FPDL), and the LLW collection system are provided by the Isotope Production/Surplus Facilities Management Program and the ORNL Waste Management Program, respectively. No additional maintenance is provided for the line.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No repairs or improvements should be required prior to decommissioning and excavation.

RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: FPDL Filter Pit
2. LOCATION: Northeast of Fission Product Development Laboratory -
Bldg. 3517 (Bethel Valley)
3. SERVICE DATES: 1958 to present
4. FACILITY STATUS:

The Filter Pit is currently an active part of the ORNL Gaseous Radioactive Waste System. It houses the cell ventilation filters for the Fission Product Development Laboratory (FPDL) and is under the care of the Operations Division (C. L. Ottinger). The pit is scheduled to be replaced by a new aboveground filter house in FY 1987.

5. FACILITY DESCRIPTION:

- (a) Operating History - The Filter Pit has operated in conjunction with the FPDL since it began operation in 1958. FPDL has been involved in separation of megacurie quantities of Cs-137, Sr-90, and Ce-144 for use in auxiliary power sources. The pit has served as part of the building cell ventilation system throughout these operations.
- (b) Physical Description - The Filter Pit actually consists of three identifiable components: the actual underground concrete pit, a smaller bypass filter pit (also underground), and an aboveground steel filter house. The FPDL cells are connected to the pit by two 30" concrete ducts which enter near the floor of the pit. Ventilation flow passes through roughing filters in this pit before being ducted to the aboveground housing which contains the final HEPA filters. The flow is then ducted back underground to a large collection header which flows to the 3039 stack. The bypass pit was used to maintain ventilation when the larger pit was taken out of service for filter changes; however, the bypass duct has since been removed. The pit also contains active sump pumping capability to remove any accumulated groundwater as LLW.
- (c) Current Condition - The Filter Pit and cell ventilation system continue to function as designed providing adequate flow to support FPDL operations. However, the underground concrete pit and ductwork have been questioned as a possible source of gross soil contamination known to exist in the area.

- (d) Radiological and Chemical Hazards - Due to type of service and number of years in service, the interior of the pit is grossly contaminated. Much of the contamination probably resides on the filters themselves; however, the pit and housing interior are expected to retain 1×10^6 dpm/100 cm² β - γ . The field produced by the ductwork interior has been measured to be 10 R/h at three feet, and the roughing filters typically produce a field of 100 - 500 R/h at contact during changeout. The soil excavated from the site during the replacement construction has been measured as high as 10 R/h at contact⁶. No known chemical hazards are associated with any of the pit components to become surplus.
- (e) Occupancy - The Filter Pit is located between active facilities (Bldgs. 3517 and 3508) and Fourth Street. This area is within the main ORNL complex and as mentioned, is currently the site of a construction project.

6. SECURITY/PROTECTION SYSTEMS:

The Filter Pit is within the ORNL Bethel Valley secured area. The area in the vicinity of the above and below ground structures is posted with respect to access restrictions and radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

Routine surveillance is currently provided for the active cell ventilation system as part of the SFMP M&S Program⁷. However, when the pit becomes surplus, surveillance activities will be conducted as indicated in Table 1.

8. ROUTINE MAINTENANCE:

Similarly, routine maintenance will be carried out as shown in Table 2 after the replacement project has been completed.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

Following removal from service, the underground pits and short connected portions of abandoned ductwork will undergo some immediate upgrade to minimize groundwater intrusion and possible further contamination of the surrounding area. The actions required and cost estimate are currently being prepared by Engineering. In addition, needs for retaining or upgrading sump pumping will also be considered in this study. The cost and schedule for this effort will be defined following completion of the engineering evaluation.

Table 1. Surveillance Activities - FPDL Filter Pit

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Monthly	Operations	Facility Supervisor Records	10 mh/y
2. Radiological Surveillance	As Required	E&OS	Radiation Survey Data Sheets (UCN-9784)	4 mh/y

Table 2. Routine Maintenance Activities - FPDL Filter Pit

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Op/P&E	Facility Supervisor Records	10 mh/y
2. Sump Pump Maintenance	As Required	Op/P&E	Facility Supervisor Records	20 mh/y
3. Maintenance Materials	Annually	Op	Facility Supervisor Records	\$200



RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: LLW Tank W1-A
2. LOCATION: North Tank Farm - Site 3023 (Bethel Valley)
3. SERVICE DATES: 1955 - 1986
4. FACILITY STATUS:

Tank W1-A was formerly a part of the ORNL LLW system and was used for collecting and storage of liquid wastes from 3019 and 2026. All tanks in the North Tank Farm are controlled by Operations Division (T. F. Scanlan).

5. FACILITY DESCRIPTION:

- (a) Operating History - Tank W1-A was the last of the tanks in the North Tank Farm to remain active. It was used as a collection and stabilization tank for waste solutions from the Radiochemical Processing Pilot Plant (3019-A) and the High Level Radiochemical Analytical Laboratories (2026 and 3019-B).
- (b) Physical Description - The tank is constructed of stainless steel, has a 4,000 gal capacity, and is located on the west side of the tank farm. It is connected to the buildings which it services and the rest of the LLW system through an array of inlet and outlet lines controlled by an adjacent valve pit.
- (c) Current Condition - The tank is believed to be structurally sound despite having been exposed to strong acidic solutions during its operation. However, surveillance records have indicated past leakage into the system resulting in a collection of groundwater. Recent investigations seem to indicate this inleakage is a result of poor integrity in the drain lines upstream of the tank.
- (d) Radiological and Chemical Hazards - The radiological condition of the tank cannot be precisely determined without sampling the contents. However, based on the buildings which it serves it can be assumed it contains curie quantities of fission products, with lesser quantities of transuranic materials. It has been estimated that the tank and connecting lines inner surfaces would retain 1×10^6 dpm/100 cm² and would likely produce direct radiation in excess of 100 R/h⁶. Nitric acid has been used during the tank's operation but would not likely be retained after proper stabilization of the tank contents.

- (e) Occupancy - Periodic access to the tank farm area is required by operating personnel. In addition, the immediate area of Tank W1-A has been the site of recent construction activities. The farm is centrally located in the main ORNL complex, adjacent to several active facilities, and in close proximity to a primary vehicle and pedestrian thoroughfare.

6. SECURITY/PROTECTION SYSTEMS:

The north tank farm is within the ORNL Bethel Valley secured area. The tank farm is posted with respect to access restrictions and radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No repairs or improvements are anticipated prior to decommissioning. In the event routine surveillance indicates a problem has developed with the integrity of the tank, appropriate action will be taken and would likely involve removal of tank contents and stabilization of the tank interior.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.050	\$6.3K
Routine Maintenance	0.005	0.6K
	<hr/>	<hr/>
TOTAL	0.055	\$6.9K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
None	-

Anticipated Major Repairs/Improvements

None -

Table 1. Surveillance Activities - LLW Tank W1-A

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Waste Tank Monitoring				100mh/y
(a) Liquid level monitored	Continuous	Op	WOCC Records	
(b) Dry wells sampled and analyzed	Monthly	Op/ACh	WOCC Records	
(c) pH monitored	Monthly	Op	WOCC Records	
2. Radiological Surveillance	As Required	E&OS	Radiation Survey Data Sheets (UCN-9784)	4 mh/y
(a) Personnel monitoring during maintenance operations				

Table 2. Routine Maintenance Activities - LLW Tank W1-A

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Maintenance	As Required	Op/P&E	Facility Supervisor Records	5 mh/y
2. Transfer of inleakage to LLW system	As Required	Op	WOCC Records	5 mh/y



RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Decontamination Facility
2. LOCATION: Building 7819 (Melton Valley)
Intersection of Chemical Waste Access and Lagoon Roads
3. SERVICE DATES: 1960's to 1971
4. FACILITY STATUS:

The facility is currently inactive and unoccupied, and under the control of the Operations Division (T. F. Scanlan).

5. FACILITY DESCRIPTION:

- (a) Operating History - This facility was used to decontaminate various forms of operating equipment and materials used by the Laboratory. Decontamination was accomplished by acid baths, as well as abrasive blasting.
- (b) Physical Description - The facility consists of a 32 ft by 48 ft butler building with an acid-resistant concrete floor and two open pits for acid cleaning. A four ton monorail crane is positioned above the pit area. Two small rooms are partitioned within and were used for a change room and monitoring room. Adjacent to the building on the north side is a concrete pad measuring approximately 20 ft by 40 ft.
- (c) Current Condition - The structure is basically sound with no obvious signs of deterioration. The building has been used for indoor storage of some contaminated equipment, with some drums and other equipment stored outdoors as well. Utility service is no longer provided to the building.
- (d) Radiological and Chemical Hazards - The interiors of the facility is classified as a Contamination Zone with significant levels of transferable contamination throughout, producing direct radiation levels up to 20 mR/h. Some alpha-emitting contamination is also found on equipment and storage shelves. The outdoor area behind the building is also contaminated around the concrete pad, and in an area formerly used for sandblasting. Equipment located there is also contaminated producing radiation fields up to 160 mR/h at contact⁶. No known chemical hazards currently exist at the facility.
- (e) Occupancy - The facility is unoccupied with personnel access only on an occasional basis. The site is located in a remote area of the Laboratory.

6. SECURITY/PROTECTION SYSTEMS:

The Decontamination Facility is located in the patrolled area of Melton Valley. Building exterior doors are normally locked and the building and grounds are posted with respect to access restrictions and radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No repairs or improvements are anticipated prior to decommissioning. In the event routine surveillance indicates a problem has developed with the integrity of the structure, appropriate action will be planned, estimated, and scheduled.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.014	\$1.8K
Routine Maintenance	0.010	1.3K
	<hr/>	<hr/>
TOTAL	0.024	\$3.1K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
Miscellaneous materials	\$200

Anticipated Major Repairs/Improvements

None

Table 1. Surveillance Activities - Decontamination Facility (7819)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Semi-annually	Operations	Facility Supervisor Records	20 mh/y
2. Radiological Surveillance	As Required	E&OS	Radiation Survey Data Sheets (UCN-9784)	10 mh/y
3. Routine Security Patrol	Daily	LP	Daily Security Report	*

* Costs are included in ORNL overhead charges. No direct SCFP funding is required.

Table 2. Routine Maintenance Activities - Decontamination Facility (7819)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Op/P&E	Facility Supervisor Records	20 mh/y
2. Maintenance Materials	Annually	Op	Facility Supervisor Records	\$200



RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Storage Pad
2. LOCATION: Southwest of High-Radiation-Level Chemical Engineering Laboratory - Bldg. 3503 (Bethel Valley)
3. SERVICE DATES: 1950's to 1982
4. FACILITY STATUS:

The pad is currently inactive and has not been used for storage for several years. The facility is currently under the control of the Chemical Technology Division (V. L. Fowler).

5. FACILITY DESCRIPTION:

- (a) Operating History - The pad was used as a storage location for nuclear material containers, special equipment, and scrap materials in support of metal recovery operations conducted during its period of use.
- (b) Physical Description - The facility consists of a concrete pad measuring approximately 40 ft by 50 ft. A storage building was once located on part of the pad, but has since been removed along with the portion of the pad where it stood. A small shed is now standing on the western side and covers about 25% of the surface. This covered portion also has large metal trays for spill control. Past operation resulted in contamination of the concrete surface and necessitated a second pouring of concrete around the late 1970's.
- (c) Current Condition - The surface of the pad is in good condition. The shed structure also appears to be in fair condition although it was not designed for nor does it provide any containment of materials which should spill onto the surface.
- (d) Radiological and Chemical Hazards - The surface of the pad is mostly contamination free except in the area under the shed. The surface in the vicinity of the metal trays is contaminated and produces radiation up to 1 mR/h at contact. The soil surrounding the pad on the south and west sides is also contaminated to levels producing up to 3 mR/h within a three foot area from the edge of the pad. The contamination on the original concrete surface was estimated to be on the order of 1×10^5 dpm/100 cm² from U-233 and Pu-239. The pad had been used as a storage site for drummed chemical waste, but those containers were removed in late FY 1986. No other known chemical hazards exist at the facility.

- (e) Occupancy - The pad is an unoccupied storage site located between active facilities (Bldgs. 3503 and 3504) and Southside Drive. This area is within the main ORNL complex.

6. SECURITY/PROTECTION SYSTEMS:

The Storage Pad is within the ORNL Bethel Valley Secured area.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted at this facility.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No major repairs or improvements are anticipated at the site prior to decommissioning.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost.</u>
Surveillance Activities	0.007	\$0.9K
Routine Maintenance	0.000	-
	<hr/>	<hr/>
TOTAL	0.007	\$0.9K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
------------------------------------------	-------------

None	-
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<u>Anticipated Major Repairs/Improvements</u>

None	-
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Table 1. Surveillance Activities - Storage Pad

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Semi-annually	Chem. Tech.	Facility Supervisor Records	10 mh/y
2. Radiological Surveillance	As Required	E&OS	Radiation Survey Data Sheets (UCN-9784)	4 mh/y

RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Offgas Filter House
2. LOCATION: Building 3121 (Bethel Valley)
3. SERVICE DATES: 1966 - 1986
4. FACILITY STATUS:

The Offgas Filter House was an active part of the ORNL Gaseous Radioactive Waste System until it was bypassed and removed from service in late FY 1986. During operation, it housed HEPA filter banks for the offgas system serving the Radiochemical Processing Pilot Plant. This facility is under the care of the Chemical Technology Division (D. W. Holladay).

5. FACILITY DESCRIPTION:

- (a) Operating History - The filter house operated for 20 years serving as a prefilter station for process offgas from building 3019 prior to going to the 3039 caustic scrubber. Activities in the 3019 facility support development and operation of various chemical processes for nuclear fuel reprocessing.
- (b) Physical Description - The house consists of a small concrete block building constructed on a concrete pad and measures approximately 12 ft by 12 ft by 10 ft high. It contains two parallel HEPA filter banks with dampers which allow flow through either or both banks. The house was operated without filters since 1985, after their use was judged perfunctory to the filtration provided by the 3039 scrubber. The house has been fitted with a gable roof above the original flat roof to improve containment and retard degradation of previously exposed ductwork. The building also has a floor drain which is connected to the LLW system.
- (c) Current Condition - The structure is in good condition and has recently undergone an upgrade campaign to seal potential leaks and improve negative pressure maintained by the 3019 cell ventilation system. The interior of the house has also undergone a recent cursory cleanup and decontamination, but remains a Contamination Zone as does the area enclosed by the second roof. Negative pressure is maintained in both spaces by the 3019 cell ventilation system.
- (d) Radiological and Chemical Hazards - As mentioned, the interior of the building and enclosed roof space are both contaminated, primarily with transuranic materials (U-232, U-233 and daughter

products). The level of contamination ranges from 1×10^3 dpm/100 cm² to less than 1×10^6 dpm/100 cm² alpha. Radon is also known to be present as a result of decay of these materials. No significant chemical hazards exist in the facility.

- (e) Occupancy - The filter house requires periodic access for routine maintenance. The building is within the 3019 exclusion area, immediately adjacent to active facilities, and in close proximity to a primary vehicle and pedestrian thoroughfare.

6. SECURITY/PROTECTION SYSTEMS:

The filter house is within the ORNL Bethel Valley secured area. It is further protected by the exclusion barriers and continuous surveillance provided for the 3019 complex. The house is posted with respect to access restrictions and radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No repairs or improvements are anticipated prior to decommissioning. In the event routine surveillance indicates a problem has developed with the integrity of the facility, appropriate action will be taken.

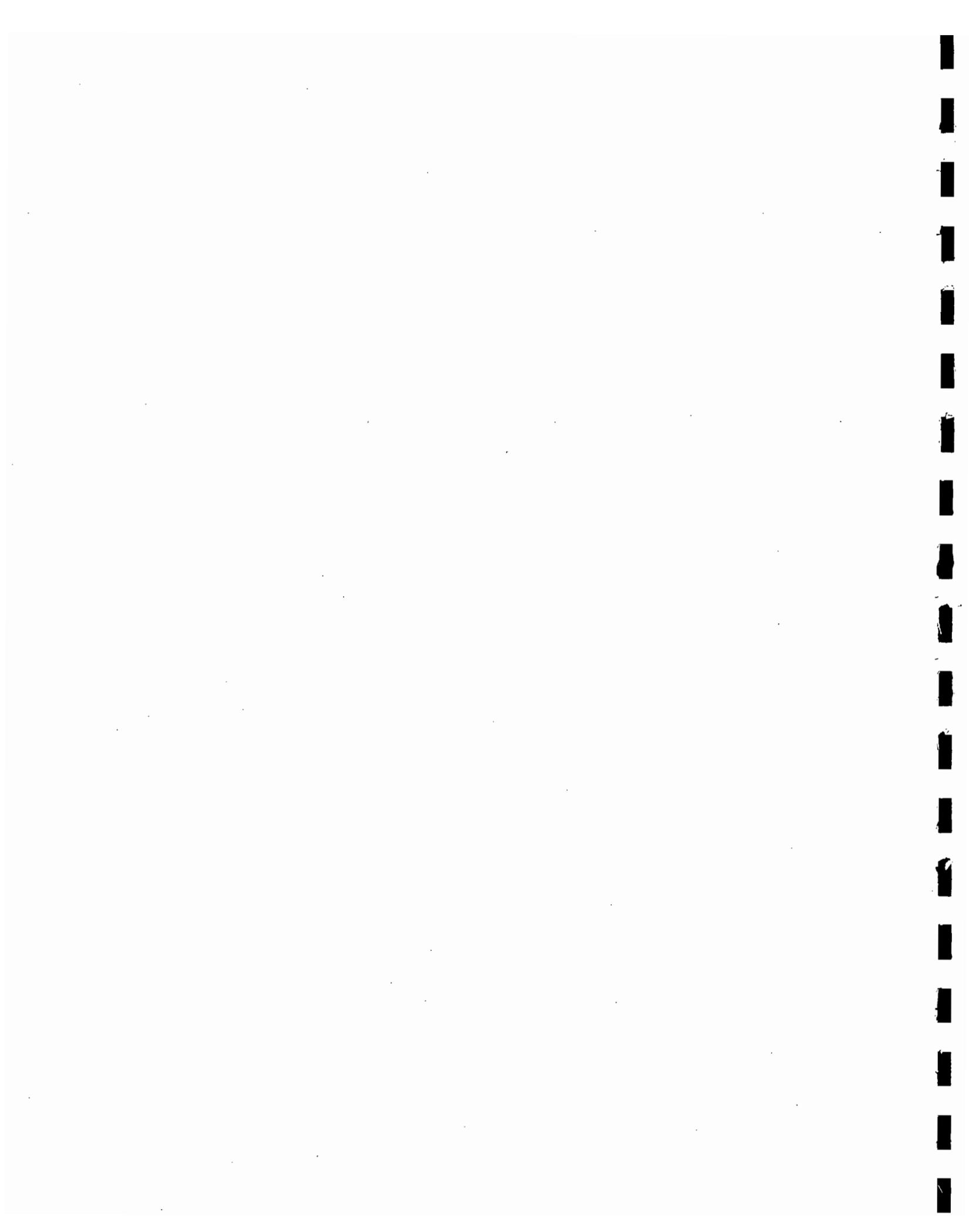
Table 1. Surveillance Activities - Offgas Filter House (3121)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Chem Tech	Facility Supervisor Records	24 mh/y
(a) Visual of site	Monthly			
(b) Negative pressure in building and roof space	Monthly			
2. Radiological Surveillance	Quarterly	E&OS	Radiation Survey Data Sheets (UCN-9784)	20 mh/y
3. Routine Security Patrol	Continuous	LP	Daily Security Report	*

* Costs are included in ORNL overcharges. No direct SCFP funding is required.

Table 2. Routine Maintenance Activities - Offgas Filter House (3121)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Op/P&E	Facility Supervisor Records	20 mh/y
2. Instrument Calibration	Annually	I&C	I&C Printout	4 mh/y
3. Maintenance Materials	Annually	Op	Facility Supervisor Records	\$200



RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Tower Shielding Facility Equipment
2. LOCATION: 7700 Area (Copper Ridge)
3. SERVICE DATES: 1954 - 1986
4. FACILITY STATUS:

The Tower Shielding Facility is currently an active research area for a variety of shielding experiments, and occasionally for mechanical drop testing of containment vessels. Much of the equipment used for past experiments is now surplus and stored in several locations at the site. The area is under the control of the Operations Division (L. B. Holland).

Research
Reactors

5. FACILITY DESCRIPTION:
 - (a) Operating History - The facility has been used to conduct shielding research for the Aircraft Nuclear Propulsion project, nuclear weapons research, and reactor research programs through the use of partially shielded reactors. The surplus equipment has been used for a variety of functions including specially designed reactors, shields, collimators, and other miscellaneous support functions.
 - (b) Physical Description - The equipment consists of several large structural shapes including a spherical reactor, large tanks, and specialty apparatus mostly constructed of stainless and carbon steels. Several large rectangular welded-aluminum tanks are sodium filled shields which along with several larger shield tanks house approximately 16,000 gal of sodium. Slabs of depleted uranium are also stored on-site.
 - (c) Current Condition - Much of the surplus equipment is stored outdoors in an area designated for this purpose. Despite exposure to the elements, the components which contain radioactive materials are presently in good condition but will gradually degrade in time. The smaller aluminum sodium tanks are housed in a storage building which provides adequate protection. The larger sodium containers are located outdoors. The uranium slabs are housed in a covered container located outdoors adjacent to the storage building.
 - (d) Radiological and Chemical Hazards - Several components at the facility contain radioactive materials (fission products and other radioisotopes) which are estimated to produce internal radiation levels up to 10 R/h⁶. However, due to containment and shielding external radiation levels are less than 5 mR/h.

Some of the equipment has also experienced high flux neutron irradiation and has become slightly activated. None of the equipment was found to have any transferable surface contamination⁶. The stored sodium is adequately contained with the exception of one tank which has indications of past leakage.

- (e) Occupancy - The facility is located in a remote area of the Oak Ridge reservation and operated by a limited number of personnel. The storage areas are entered periodically in the course of normal facility activities.

6. SECURITY/PROTECTION SYSTEMS:

The Tower Shielding Facility has its own perimeter fencing and continuously manned guard gate. The storage areas are all located within this secured area.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted at the storage sites.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

Due to the large volume of stored sodium and its reactive properties, attention will be given to removal and disposal of the surplus quantity. This is currently planned for FY 1987. No other major improvements are anticipated for the near term.

Table 1. Surveillance Activities - Tower Shielding Facility Equipment

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Quarterly	Research Reactors	Facility Supervisor Records	10 mh/y
		QD	Computer Printout	20 mh/y
2. Radiological Surveillance	Semi-annually	E&OS	Radiation Survey Data Sheets (UCN-9784)	10 mh/y
3. Routine Security Patrol	Continuous	LP	Daily Security Report	*

* Costs are included in ORNL overhead charges. No direct SCFP funding is required.

RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: High Level Chemical Development Laboratory
2. LOCATION: Building 4507 (Bethel Valley)
3. SERVICE DATES: 1957 - 1980
4. FACILITY STATUS:

The facility is currently inactive and unoccupied, and under the control of the Chemical Technology Division (R. G. Stacy).

5. FACILITY DESCRIPTION:

- (a) Operating History - The facility was designed and operated as a laboratory and small-scale pilot plant for development studies of reactor fuel processing, separation and recovery of transuranic materials, and separation of fission products from aqueous wastes.
- (b) Physical Description - The building consists of four shielded hot cells equipped with master-slave manipulators and associated support equipment in the cell operating area. Chemical makeup and cell charging areas are located behind the cell bank, with a penthouse area above the cells containing a shielded manipulator cave, maintenance glovebox, and a 10-ton gantry crane for handling shielded casks. An underground tank pit is located immediately south of the building and contains two tanks formerly used for storage of radioactive solutions used in the facility operations. The building cell ventilation system is routed through a below grade filter pit before connecting to underground ducts going to the 3039 stack.
- (c) Current Condition - The facility is currently inactive but has been maintained in good condition. The building is structurally sound with no obvious signs of degradation. Negative pressure is maintained in the cells and all accessible areas by the cell ventilation system. The cells still contain materials from past operations, and instrumentation and other support equipment remain in all areas of the facility. Air monitoring capability has been maintained and provides continuous surveillance from a centrally located panel in the operating area.
- (d) Radiological and Chemical Hazards - With the exception of the interior of the hot cells and the glovebox and shielded cave in the penthouse, the facility is relatively contamination-free. External surfaces of the cells and operating equipment have less than 200 dpm 100 cm² β-γ and less than 20 dpm 100 cm² alpha.

The interior of the cells are contaminated with an estimated 2.5×10^8 dpm 100 cm^2 alpha. The cell charging area and penthouse are contaminated with alpha emitters from past operations but are covered with paint and have not revealed any exposed contamination in recent years⁶. The penthouse is the only accessible area of the building which is retained as a C-Zone. Internals of some valves and service piping are also slightly contaminated. No significant chemical hazards currently exist in the facility.

- (e) Occupancy - The facility is unoccupied, but requires periodic access for health physics surveillance and routine maintenance. The site is located in a central area of the main ORNL complex, adjacent to several active facilities, and in close proximity to a primary vehicle and pedestrian thoroughfare.

6. SECURITY/PROTECTION SYSTEMS:

Building 4507 is within the ORNL Bethel Valley complex. The building is posted with respect to access restrictions and contamination/radiation zones, and is maintained in a locked and secured condition. A centralized control and alarm station is in continuous operation for radiation and airborne contamination detection. The facility is also protected by an automatic sprinkler system, heat detection alarms, and in-cell fire fighting capability.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

The facility is structurally sound and providing adequate containment. No major repairs or improvements are foreseen for the near future.

Table 1. Surveillance Activities - High Level Chemical Development Laboratory

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Chem Tech	Facility Supervisor Records	64 mh/y
(a) Visual of site	Monthly			
(b) Negative pressure in hot cells and building areas	Weekly			
(c) HEPA filter pressure drop	Monthly			
(d) Alarm panel operability	Weekly			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	50 mh/y 20 mh/y
(a) Routine smear surveys	Monthly			
(b) Surveillance of maintenance activities	As required			
3. Safety Inspection	Semi-annually	Chem Tech	Chem Tech Memo	*
4. Fire Safety Inspection	Quarterly	LP	Inspection and Protection Report	*
5. Fire Sprinkler System Test	Annually	LP	Inspection Report of Sprinkler Systems	*
6. HEPA Filter DOP Testing	Semi-annually (or after replacement)	QD	QD Printout	*
7. Routine Security Patrol	Continuous	LP	Daily Security Report	*

* Costs are included in ORNL overhead charges. No direct SCFP funding is required.

Table 2. Routine Maintenance Activities - High Level Chemical Development Laboratory

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Chem Tech/P&E	Facility Supervisor Records	60 mh/y
2. Health Physics Instrumentation Maintenance/Calibration	Quarterly	I&C	I&C Printout	*
3. Cell Ventilation Filter Replacement	Annually (or as required)	QD/P&E	QD Printout/P&E Report 1216	40 mh/y
4. Maintenance Materials	Annually	Chem Tech	Facility Supervisor Records	\$500
5. Building Utilities	Annually	Chem Tech	Facility Supervisor Records	\$4,000

* Costs are included in ORNL overhead charges. No direct SCFP funding is required.



RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: High Level Radiation Analytical Facility
2. LOCATION: Building 3019-B (Bethel Valley)
3. SERVICE DATES: 1955 - 1980
4. FACILITY STATUS:

The facility is currently inactive and unoccupied except for maintenance and surveillance activity. Building operations are controlled by the Chemical Technology Division (D. W. Holladay).

5. FACILITY DESCRIPTION:

- (a) Operating History - The building was constructed in 1955 as a state-of-the-art high radiation level analytical facility. It was used for separating, processing, and analyzing highly radioactive samples from many ongoing ORNL programs. These included fission products, activation products, uranium, plutonium, and other transuranic materials.
- (b) Physical Description - The facility was constructed adjacent to the west end of the Radiochemical Processing Pilot Plant (3019) and is interconnected to that facility such that the boundaries between the two are not immediately obvious. The analytical facility consists of a hot cell bank with seven cells equipped with master-slave manipulators, and a central storage cell from which materials were transferred into, out of, or between the cells. The cell operating area contained chemical fume hoods, storage cabinets, and other support equipment which have recently been removed during a facility upgrade campaign. The cells are also serviced by a rear access area providing entry to the back of the cells. Ventilation is provided by the 3019 cell ventilation system which discharges to the 3020 stack after passing through roughing and HEPA filters.
- (c) Current Condition - The facility has degraded significantly in the years following its retirement from service. The vinyl lining of the cells interior is spalling and allowing contamination to pervade the concrete block walls. The cell viewing windows are leaking due to corrosion of the steel frames by zinc bromide, the window fluid. The fluid itself has become almost opaque due to suspension of corrosion and hydrolysis products. The cells still contain considerable quantities of analytical and mechanical equipment as well as significant

quantities of highly radioactive materials. The cell ventilation ductwork is continuing to corrode, in addition to the LLW drain line which has already been removed from service due to loss of structural integrity.

- (d) Radiological and Chemical Hazards - The interior of the cells are grossly contaminated with fission products and transuranic materials to levels estimated at greater than 1×10^6 dpm/100 cm² β - γ . The stored materials are estimated to produce in-cell radiation levels in excess of 100 R/h⁰. The cell operating area and especially the cell access area are subject to slow but continual migration of contamination from within the cells. The primary chemical hazards are the zinc bromide retained in the cell viewing windows, and asbestos insulation used on utility piping.
- (e) Occupancy - The facility is unoccupied but is currently the site of considerable maintenance activity to cleanup and improve the containment features of the laboratory. As discussed, the analytical facility is an integral part of the 3019 building structure which is currently occupied and operated by the Chemical Technology Division. The laboratory is within the 3019 exclusion area, and is in close proximity to a primary vehicle and pedestrian thoroughfare.

6. SECURITY/PROTECTION SYSTEMS:

The facility is within the ORNL Bethel Valley secured area. It is further protected by the exclusion barriers and continuous surveillance provided for the 3019 complex. The laboratory is posted with respect to access restrictions and radiation/contamination zones. Air monitoring and radiation detection are maintained in continuous operation, and the facility is further protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

The 3019-B laboratory is currently undergoing an upgrade campaign to eliminate the immediate problems identified in Section 5(c). This includes removal of the surplus contaminated equipment found in the cell operating area, refurbishment of the manipulators and cell

Table 1. Surveillance Activities - High Level Radiation Analytical Facility

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Chem Tech	Facility Supervisor Records	100 mh/y
(a) Visual of site	Weekly			
(b) Negative pressure in hot cells and laboratory areas	Weekly			
(c) HEPA filter pressure drop	Weekly			
(d) Alarm panel operability	Weekly			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	50 mh/y 120 mh/y
(a) Routine rad. & smear surveys	Monthly			
(b) Surveillance of maintenance activities and rad. monitors	As required			
3. Safety Inspection	Quarterly	Chem Tech	Chem Tech Memo	*
4. Fire Safety Inspection	Quarterly	LP	Inspection and Protection Report	*
5. Fire Sprinkler System Test	Annually	LP	Inspection Report of Sprinkler Systems	*
6. HEPA Filter DOP Testing	Semi-annually (or after replacement)	QD	QD Printout	*
7. Routine Security Patrol	Continuous	LP	Daily Security Report	*

*Costs are included in ORNL overhead charges. No direct SCFP funding is required.

Table 2. Routine Maintenance Activities - High Level Radiation Analytical Facility

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Anal Chem/P&E	Facility Supervisor Records	200 mh/y
2. Health Physics Instrumentation Maintenance/Calibration	Quarterly (or as required)	I&C	I&C Printout	*
3. Maintenance Materials	Annually	Anal Chem	Facility Supervisor Records	\$2000
4. Building Utilities	Annually	Anal Chem	Facility Supervisor Records	\$4,000

*Costs are included in ORNL overhead charges. No direct SCFP funding is required.

support equipment, cleanup of the zinc bromide in the viewing windows, and a general cleanup and decontamination of the cell blank operating and access areas. In addition, improvements to the cell ventilation ductwork are planned in conjunction with a GPP to upgrade the 3019 ductwork. The continuous surveillance instrumentation is also being replaced with new equipment which will be tied in with the 3019 central monitoring panel. These activities are expected to be completed by the end of FY 1987, at which time the facility will be in a condition suitable for routine maintenance and surveillance. The problem of the LLW drain line will have to be addressed prior to planning further in-cell decontamination or decommissioning. This could be done in conjunction with the larger plan for decommissioning of 3019 after it completes its mission in the FY 1989 time frame.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.092	\$11.4K
Routine Maintenance	0.116	14.6K
	<hr/>	<hr/>
TOTAL	0.208	\$26.0K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
Miscellaneous materials/filters	\$2,000
Utilities	4,000
	<hr/>
TOTAL	\$6,000

Anticipated Major Repairs/Improvements

None

RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Remote Coating Furnace Loop
2. LOCATION: Building 4508, Room 265A (Bethel Valley)
3. SERVICE DATES: 1969 - 1980
4. FACILITY STATUS:

The facility is inactive but is located in an active laboratory complex operated by the Metals and Ceramics Division (W. H. Miller, Jr.).

5. FACILITY DESCRIPTION:

- (a) Operating History - The coating furnace loop was constructed and began operation in the late 1960's in support of the High Temperature Gas Cooled Reactor program. The fluidized-bed coating furnace was used to apply dense pyrolytic carbon and silicon carbide coatings to microspheres containing uranium or thorium. This process was used for refabrication of gas-cooled reactor fuel.
- (b) Physical Description - The facility consists of a furnace and associated particle handling equipment contained in a large (12 ft by 20 ft by 16 ft high) plexiglass enclosure. The furnace and material handling operations were performed remotely at an adjacent control panel. The equipment is all located within room 265A which is part of an active suite of laboratories.
- (c) Current Condition - The equipment and controls are in good condition, with no apparent degradation having taken place over the years of inactivity. The furnace and coating equipment within the plexiglas enclosure are maintained under continuous negative pressure.
- (d) Radiological and Chemical Hazards - The interior of the enclosure is slightly contaminated with highest transferable levels of 5,000 dpm/100 cm² alpha. Background radiation levels are less than 10 mR/h. The internals of the equipment are still contaminated producing radiation no greater than 6,000 dpm/100 cm² alpha⁶. No known chemical hazards are associated with the facility.

- (e) Occupancy - The adjacent rooms in the laboratory complex where the equipment is located are active research areas, with continuous access by M&C personnel. Building 4508 is located in a central area of the main ORNL complex.

6. SECURITY/PROTECTION SYSTEMS:

Building 4508 is within the ORNL Bethel Valley complex. The laboratories within are posted with respect to access restrictions and contamination/radiation zones. The facility is protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

The facility is structurally sound and providing adequate containment. No major repairs or improvements are foreseen prior to decommissioning.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.013	\$1.7K
Routine Maintenance	0.005	0.6K
	<hr/>	<hr/>
TOTAL	0.018	\$2.3K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
Miscellaneous materials	\$100

Anticipated Major Repairs/Improvements

None

Table 1. Surveillance Activities - Remote Coating Furnace Loop

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		M&C	Facility Supervisor Records	12 mh/y
(a) Visual of site	Monthly			
(b) Negative pressure in enclosure	Monthly			
2. Radiological Surveillance	Quarterly	E&OS	Radiation Survey Data Sheets (UCN-9784)	16 mh/y

Table 2. Routine Maintenance Activities - Remote Coating Furnace Loop

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	M&C/P&E	Facility Supervisor Records	10 mh/y
2. Maintenance Materials	Annually	M&C	Facility Supervisor Records	\$100



RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Ceramic Processing Laboratory
2. LOCATION: Building 4508, Room 139 (Bethel Valley)
3. SERVICE DATES: 1960 - present
4. FACILITY STATUS:

The facility is currently active and used intermittently, however the research activities centered here will be relocated to the High Temperature Materials Laboratory upon its completion in FY 1987. The area is under the control of the Metals and Ceramics Division (W. H. Miller).

5. FACILITY DESCRIPTION:

- (a) Operating History - This facility was used primarily in the 1960's to support the High Temperature Gas Cooled Reactor program. Equipment contained in the laboratory was used for chemical vapor deposition of uranium impregnated graphite onto various types of fuel elements. Current activities in the area do not involve the use of radioactive materials.
- (b) Physical Description - The facility consists of a suite of laboratories in Room 139 which have been marked as a Contamination Zone. Other areas of the Room 139 complex are not contaminated and are used extensively on a daily basis. The area consists of several connected laboratories including part of room 139, and all of rooms 138, 139-A, 139-B, and room 162. This area is located in the southwest corner of the first floor of Building 4508. The laboratories contain various types of equipment for handling and processing graphite such as balances, presses, furnaces, ovens, etc. The area is also equipped with typical research laboratory furnishings such as benches, hoods, and cabinetry.
- (c) Current Condition - The laboratory area has been maintained in good condition as a semi-active facility. Utilities, services, and maintenance has been provided since the area is an integral part of Building 4508.
- (d) Radiological and Chemical Hazards - Past operations in the area have resulted in low levels of contamination, primarily U-233. Residual levels are less than 1,000 dpm/100 cm² alpha and 5,000 dpm/100 cm² β-γ,⁶. Periodic decontamination of equipment has helped to control and maintain these low levels. One of the fume hoods contains several small lead pigs housing thorium/uranium impregnated graphite sources. The maximum unshielded radiation from these sources is less than 2 R/h⁶.

One of the furnace power supplies has PCB-containing transformers and is appropriately placarded as such. The laboratory also contains polynuclear aromatic contamination (PNA), as well as the possibility of graphite dust in existing ductwork.

- (e) Occupancy - The adjacent rooms in the laboratory suite are active research areas, with continuous access by M&C personnel. Building 4508 is located in a central area of the main ORNL complex.

6. SECURITY/PROTECTION SYSTEMS:

Building 4508 is within the ORNL Bethel Valley complex. The laboratories within are posted with respect to access restrictions and contamination/radiation zones. The facility is protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

The laboratory area and support equipment are structurally sound and providing adequate containment. No major repairs or improvements are foreseen prior to decommissioning.

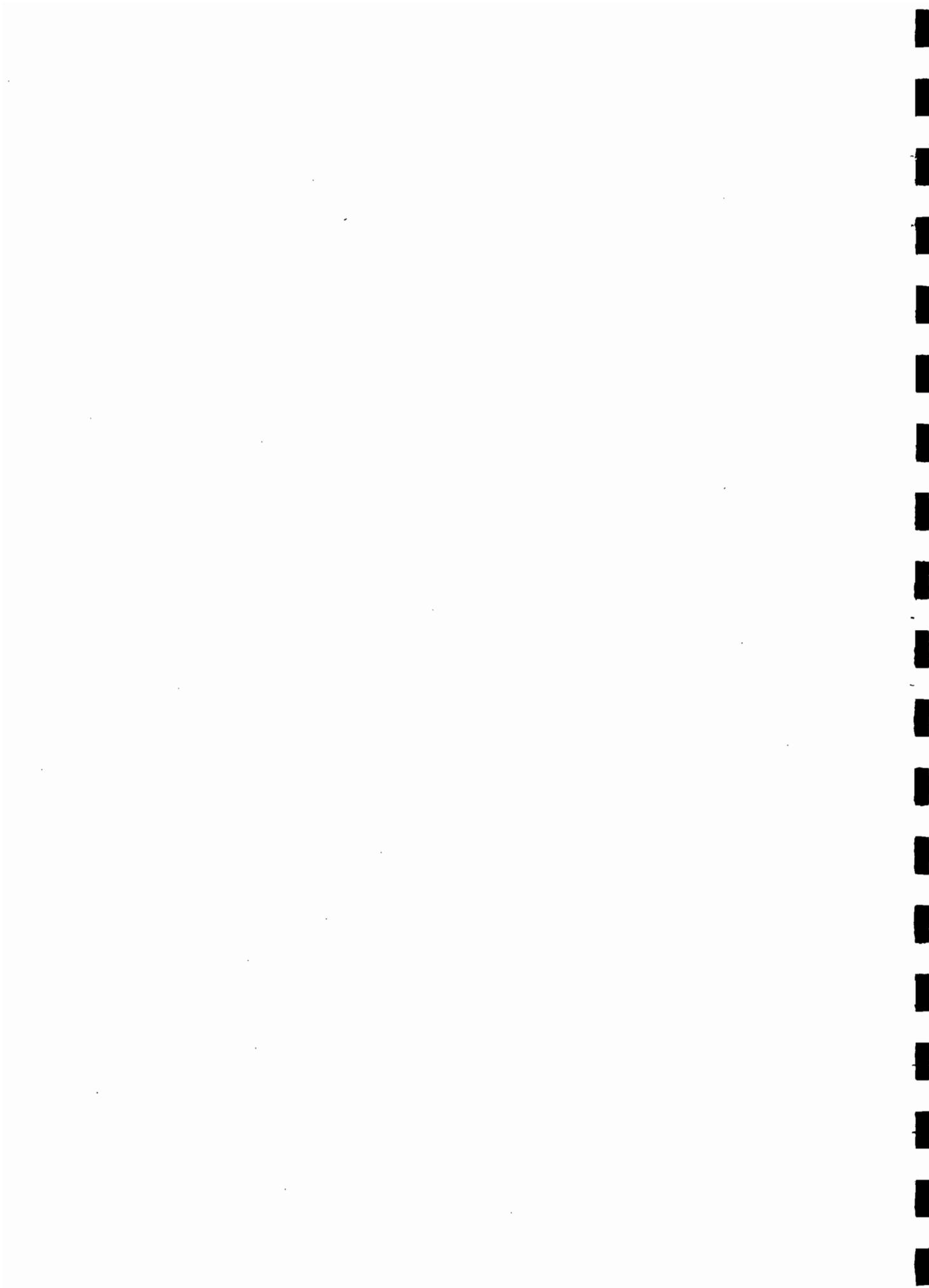
Table 1. Surveillance Activities - Ceramic Processing Laboratory

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Monthly	M&C	Facility Supervisor Records	12 mh/y
2. Radiological Surveillance	Quarterly	E&OS	Radiation Survey Data Sheets (UCN-9784)	16 mh/y
3. Industrial Hygiene Surveillance	As required	E&OS	E&OS Memo	6 mh/y

Table 2. Routine Maintenance Activities - Ceramic Processing Laboratory

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	M&C/P&E	Facility Supervisor Records	20 mh/y
2. Maintenance Materials	Annually	M&C	Facility Supervisor Records	\$200

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RESEARCH SUPPORT FACILITIES

1. FACILITY NAME: Transuranium Research Laboratory 45
2. LOCATION: Building 5505, Room 45 (Bethel Valley)
3. SERVICE DATES: 1967 - present
4. FACILITY STATUS:

Room 45 is basically inactive and used for idle equipment storage. The rest of building 5505 is an active research center and under the control of the Chemistry Division (O. L. Keller, Jr.).

5. FACILITY DESCRIPTION:

- (a) Operating History - Room 45 was originally used to house two concrete shielded manipulator boxes for work with Cf-252. It is currently used primarily for idle and surplus equipment storage.
- (b) Physical Description - Room 45 is a large high-bay area measuring approximately 50 ft by 20 ft, located in the southeast corner of the building. The surplus portion of the facility consists of 13 portable glove boxes, and a hood converted to a glovebox.
- (c) Current Condition - The facility has been maintained in good condition and receives periodic inspection and radiological surveys. The building has an active ventilation system which services the area, and the surplus gloveboxes are maintained under constant negative pressure.
- (d) Radiological and Chemical Hazards - The gloveboxes in Room 45 are also free of external contamination, but contain variable levels of internal contamination up to 1×10^6 dpm/100 cm² alpha. In addition to the radiological contamination, the gloveboxes also contain several bottles of uncataloged chemicals and reagents.
- (e) Occupancy - The adjacent areas in the building are active research sites, with continuous access by Chemistry Division personnel. The building is located at the eastern end of the main ORNL complex.

6. SECURITY/PROTECTION SYSTEMS:

Building 5505 is within the ORNL Bethel Valley complex. The laboratories within are posted with respect to access restrictions and contamination/radiation zones. The facilities are protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

The laboratory areas and support equipment are structurally sound and providing adequate containment. No major repairs or improvements are foreseen prior to decommissioning.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost.</u>
Surveillance Activities	0.033	\$4.1K
Routine Maintenance	0.010	1.2K
	<hr/>	<hr/>
TOTAL	0.043	\$5.3K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
Miscellaneous materials	\$100

Anticipated Major Repairs/Improvements

None

Table 1. Surveillance Activities - Transuranium Research Laboratory 45

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		E&OS	HP & Facility Safety Officer Records	36 mh/y
(a) Visual of laboratory	Monthly			
(b) Negative pressure in laboratory and gloveboxes	Weekly			
(c) Inspect gloves & O-rings	Semi-annually			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	24 mh/y 8 mh/y
(a) Routine smear surveys	Monthly			
(b) Surveillance of maintenance activities	As required			
3. Safety Inspection	Semi-annually	Chemistry	Chem Div Memo	*
4. Fire Safety Inspection	Quarterly	LP	Inspection and Protection Report	*
5. Fire Sprinkler System Test	Annually	LP	Inspection Report of Sprinkler Systems	*

* Costs are included in ORNL overhead

Table 2. Routine Maintenance Activities - Transuranium Research Laboratory 45

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Chemistry/P&E	P&E Bldg. Engineer Records	20 mh/y
2. Maintenance Materials	Annually	Chemistry	P&E Bldg. Engineer Records	\$100



A.2 ISOTOPE PRODUCTION FACILITIES



ISOTOPE PRODUCTION FACILITIES

1. FACILITY NAME: Cobalt-60 Storage Garden
2. LOCATION: Building 3029, Cell Charging Area-East Wing
(Bethel Valley)
3. SERVICE DATES: Late 1950's - 1970's
4. FACILITY STATUS:

The facility is currently inactive but is located in the cell charging area of an active isotope production facility. The facility is under the control of the Operations Division (C. L. Ottinger).

5. FACILITY DESCRIPTION:

- (a) Operating History - The Co-60 Storage Garden was used as an irradiation facility for high-flux gamma exposure of a wide variety of specimens. It operated in this capacity for approximately 20 years, and has been used only infrequently for this purpose for the last ten years.
- (b) Physical Description - The facility consists of a subterranean chamber approximately 6 ft square and 8.5 ft deep. The cavity contains 92 stainless steel tubes which house Co-60 pellets in the lower ends of the tubes. The tubes are arranged around a cubical irradiation chamber which may receive gamma irradiation up to 1.5×10^6 rem/h. The facility contains considerable quantities of lead and concrete to adequately shield operating personnel. The thermal energy of the facility is dissipated by an air flow through the storage tube plenum into the hot offgas system of the building.
- (c) Current Condition - The facility is inactive but has been maintained in standby condition. An estimated 50,000 Ci of Co-60 still remain in the facility. The building is maintained in good condition as an active production support facility, and is structurally sound. Negative pressure is maintained in the building cells and all accessible areas by the cell ventilation system. Radiation and air monitoring are maintained in continuous operation.
- (d) Radiological and Chemical Hazards - The large quantity of stored Co-60 presents the only significant radiological hazard. The material is adequately contained however, and appropriate shielding is in place. The external surfaces of the shield have transferable contamination less than 500 dpm/100 cm² β - γ . No chemical hazards are associated with the storage garden.

- (e) Occupancy - The area which contains the storage garden is an active isotope-production support facility with continuous access by Operations Division personnel. Building 3029 is located in a central area of the main ORNL complex.

6. SECURITY/PROTECTION SYSTEMS:

Building 3029 is within the ORNL Bethel Valley complex. The facility is posted with respect to access restrictions and contamination/radiation zones. The facility is protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted at this facility.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

The facility is structurally sound and provides adequate containment. No major repairs or improvements are foreseen prior to decommissioning.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.029	\$3.6K
Routine Maintenance	0.000	-
	<hr/>	<hr/>
TOTAL	0.029	\$3.6K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
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None	-
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<u>Anticipated Major Repairs/Improvements</u>

None	-
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Table 1. Surveillance Activities - Cobalt-60 Storage Garden

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Operations	Facility Supervisor Records	26 mh/y
(a) Visual of facility and storage garden area	Weekly			
(b) Negative pressure in facility	Weekly			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	24 mh/y
(a) Routine smear surveys	Monthly			
3. Safety Inspection	Semi-annually	Operations	Op Div Memo	*
4. Fire Safety Inspection	Quarterly	LP	Inspection and Protection Report	*
5. Fire Sprinkler System Test	Annually	LP	Inspection Report of Sprinkler Systems	*

* Costs are included in ORNL overhead charges. No direct SCFP funding is required.

ISOTOPE PRODUCTION FACILITIES

1. FACILITY NAME: Strontium-90 Power Generators
2. LOCATION: Outdoor storage area east of Bldg. 3029; and Building 3001 (Bethel Valley)
3. SERVICE DATES: Early 1960's
4. FACILITY STATUS:

Three of the four Sr-90 Power Generators are surplus and stored in the active Isotope Production staging area east of Building 3029 and south of 3047. The area is under the control of the Operations Division (C. L. Ottinger). The fourth generator is currently on display in Building 3001 as part of the Graphite Reactor National Historic Landmark.

5. FACILITY DESCRIPTION:

- (a) Operating History - The Sr-90 Generators were built in the early 1960's as portable thermoelectric generators by commercial enterprises, and were sent to ORNL for fueling. They are all retired from service except the unit currently on exhibit at Building 3001.
- (b) Physical Description - The units are cylindrical stainless steel containers varying in size, but all are approximately 18 in. in dia. by 24 in. tall. They were constructed to meet rigid transportation regulations and to withstand harsh service environments, much beyond their current storage conditions. The units contain high-density strontium titanate pellets enclosed in welded "super alloy" containers. Two of the smallest generators contain approximately 9,000 and 20,000 Ci each, with the largest two units housing nearly 120,000 Ci each⁶.
- (c) Current Condition - The units are in good condition with no visible signs of damage or deterioration. As stated earlier, they were designed to provide their own containment for overland transportation and harsh service environments.
- (d) Radiological and Chemical Hazards - Considerable quantities of Sr-90 (approximately 266,000 Ci total) are stored safely in the generators. No transferable contamination is detectable on their surfaces. In addition, no chemical hazards are associated with these units.
- (e) Occupancy - The area housing three of the units is an active outdoor storage and staging area for similar isotope shipping

containers. The fourth unit is located in the Graphite Reactor public display area. All units are found in a central area of the main ORNL complex.

6. SECURITY/PROTECTION SYSTEMS:

All of the units are located in the ORNL Bethel Valley complex. The unit on display in Building 3001 is within an area protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted for the generators.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No major repairs or improvements are foreseen prior to decommissioning.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.010	\$1.2K
Routine Maintenance	0.000	-
	<hr/>	<hr/>
TOTAL	0.010	\$1.2K

<u>Annualized Materials Requirements</u>	<u>Cost</u>
None	-

Anticipated Major Repairs/Improvements

None -

Table 1. Surveillance Activities - Strontium-90 Power Generators

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Monthly	Operations	Facility Supervisor Records	12 mh/y
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets	
(a) Routine smear surveys	Semi-annually		(UCN 9784)	8 mh/y

ISOTOPE PRODUCTION FACILITIES

1. FACILITY NAME: Filter House (3110)/Isotopes Ductwork
2. LOCATION: Building 3110 and underground ductwork running south and east to Isotope Production facilities (Bethel Valley)
3. SERVICE DATES: 1940's - 1986
4. FACILITY STATUS:

The Filter House and connected underground ductwork are inactive and are sealed from active facilities and hot cells. The abandoned system is maintained under a slight negative pressure by the 3039 stack through controllable louvers, and is under the control of the Operations Division (J. A. Setaro).

5. FACILITY DESCRIPTION:

- (a) Operating History - The cell ventilation system was installed in the 1940's to serve the production and research facilities associated with radioisotope production. It served as the primary cell ventilation system until early 1986 when it was replaced by an overhead stainless steel system.
- (b) Physical Description - The filter house is a two-level concrete structure located partially below grade. Two exits from the filter house go to the 3039 stack which are blocked by controllable louvers. The underground concrete ductwork is blanked-off from hot cells in buildings 3028, 3029, 3030, 3031, 3032, 3033, 3033-A, 3038, and 3047. A sump pump is located at the low-point in the ductwork and is connected to the Laboratory's Process Waste system. An LLW drain also exists in the floor of the filter house, but was intentionally blocked-off.
- (c) Current Condition - The filter house is vented through controllable louvers to the 3039 stack, and is maintained under a slight negative pressure. Considerable radioactivity remains in the roughing and HEPA filters which are scheduled to be replaced in FY 1987. The integrity of the ductwork continues to degrade with time, and the sump pump is maintained operational to transfer inleakage of groundwater to the Process Waste Treatment Plant.
- (d) Radiological and Chemical Hazards - The interior of the inactive system is grossly contaminated with a variety of radionuclides, with an estimated radiation level of 17 R/h⁰. The materials present probably consist of the many isotopes processed in these facilities (Co-60, Eu-151, Ir-192, etc.). Much of the activity present in the system is likely located in the old filters;

however, the old ductwork probably contains considerable quantities of radionuclides especially in corners, at protrusions, and other turbulent locations. No significant chemical hazards are associated with the inactive system.

- (e) Occupancy - The ductwork requires only infrequent access for sump pump maintenance. After the next filter change in 3110, routine access to the filter house should not be needed. The system is located in the active Isotope Production area within the main ORNL complex.

6. SECURITY/PROTECTION SYSTEMS:

The filter house and ductwork are located within the ORNL Bethel Valley secured area. The accessible areas of the system are posted with respect to access restrictions and radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. MAINTENANCE ACTIVITIES:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

An upgrade project is planned for late FY 1986 which will increase the negative pressure maintained in the system; remove and replace the old filters; and install a second battery-powered sump pump. Upon completion of these activities, no major repairs or improvements are anticipated prior to decommissioning.

Table 1. Surveillance Activities - Filter House (3110)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Operations	Facility Supervisor Records	24 mh/y
(a) Visual of site	Monthly			
(b) Negative pressure in filter house	Monthly			
(c) Sump pumps check/run-time	Monthly			
2. Radiological Surveillance	As required	E&OS	Radiation Safety Data Sheets (UCN-9784)	8 mh/y

Table 2. Routine Maintenance Activities - Filter House (3110)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Op/P&E	Facility Supervisor Records	10 mh/y
2. Sump pumps maintenance	As required	Op/P&E	Facility Supervisor Records	20 mh/y
3. Maintenance Materials	Annually	Op	Facility Supervisor Records	\$200



ISOTOPE PRODUCTION FACILITIES

1. FACILITY NAME: ORNL 86-inch Cyclotron
2. LOCATION: Building 9201-2 (ORNL Facilities at Y-12)
3. SERVICE DATES: 1950 - 1983
4. FACILITY STATUS:

The Cyclotron is inactive but is located in an active building utilized by the Fusion Energy Division. The Cyclotron portion is under the control of the Operations Division (J. G. Tracy).

5. FACILITY DESCRIPTION:

- (a) Operating History - The Cyclotron was used for high-rate production of radionuclides for medical diagnostics and treatment, scanning of nuclear fuel elements, and as trace elements in coal liquefaction and gasification studies. The system produced the desired radionuclides by bombardment of water-cooled targets with a high-energy proton beam. Materials produced included Co-57, Ga-67, C-11, Ge-68, As-74, and Y-88.
- (b) Physical Description - The Cyclotron consists of a large multi-level facility which occupies approximately one third of the space in 9201-2. It includes a large steel magnet yoke (250 tons), four large oil-cooled magnetic coils surrounding several components which comprise the vacuum chamber for the cyclotron. A control room and power supply banks are located remotely from the main portion of the equipment. Other external support systems include a water system, vacuum system, and oil pumps. The lower reaches of the cyclotron itself are within a pit area which collects groundwater.
- (c) Current Condition - The facility is generally in good condition. The systems needed for safe standby have been maintained operational including the exhaust system and sump pump for the pit. The building is structurally sound and is maintained for other active research programs.
- (d) Radiological and Chemical Hazards - Most of the Cyclotron is free of transferable-external contamination. Measured levels were found to be less than 300 dpm/100 cm² β-γ and 20 dpm/100 cm² alpha⁶. The internals of the cyclotron are contaminated with residual quantities of radionuclides which it produced, and some activation of the internal materials of construction. These materials have been estimated to total no more than 100 Ci. In

addition, an estimated 10 Ci of similar materials are expected to remain in the vacuum pumps and oils. The maximum external radiation is on the order of 70 mR/h. Several used targets remain in storage in shielded shipping casks in the facility.

The oil used to cool the magnets during operation remains in the system. Total volume is on the order of 7,000 gal of Code AE transformer oil, containing a measured PCB content of less than 50 ppm.

- (e) Occupancy - The cyclotron area is inactive and unoccupied. The other portions of the building are occupied continuously by Fusion Energy Division personnel. Building 9201-2 is located in a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9201-2 is within the ORNL complex at Y-12. The cyclotron facility is posted with respect to access restrictions and contamination/radiation zones. The facility is protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

See Table 2 for details of routine maintenance activities.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No other major repairs or improvements are foreseen prior to decommissioning.

Table 1. Surveillance Activities - ORNL 86-Inch Cyclotron

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Operations	Facility Supervisor Records	250 mh/y
(a) Visual of facility and pit area; security checks	Weekly			
(b) Negative pressure in pit	Weekly			
(c) HEPA filter pressure drop	Weekly			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	100 mh/y 25 mh/y
(a) Routine rad. & smear surveys	Monthly			
(b) Surveillance of maintenance activities	As required			
3. Safety Inspection	Semi-annually	Operations	Op Div Memo	*
4. Fire Safety Inspection	Quarterly	LP	Inspection and Protection Report	*
5. Fire Sprinkler System Test	Annually	LP	Inspection Report of Sprinkler Systems	*
7. Routine Security Patrol	Continuous	LP	Daily Security Report	*

* Costs are included in ORNL overhead

Table 2. Routine Maintenance Activities - ORNL 86-Inch Cyclotron

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	Operations/P&E	Facility Supervisor Records	100 mh/y
2. Health Physics Instrumentation Maintenance/Calibration	Quarterly	I&C	I&C Printout	*
3. Cell Ventilation Filter Replacement	Annually (or as required)	QD/P&E	QD Printout/P&E Report 1216	50 mh/y
4. Maintenance Materials	Annually	Operations	Facility Supervisor Records	\$500
5. Building Utilities	Annually	Operations	Facility Supervisor Records	\$8,500

* Costs are included in ORNL overhead charges. No direct SCFP funding is required.



ISOTOPE PRODUCTION FACILITIES

1. FACILITY NAME: Plutonium Process Condensate Tank
2. LOCATION: Storage Yard south of Building 9720-8 (ORNL Facilities at Y-12)
3. SERVICE DATES: 1950 - 1960
4. FACILITY STATUS:

The tank is inactive but is located in an outdoor storage yard which is accessed periodically for material storage and handling. The tank is under the control of the Operations Division (J. G. Tracy).

5. FACILITY DESCRIPTION:

- (a) Operating History - The Pu Process Condensate Tank was used to transport condensate from a Y-12 plutonium process to ORNL for disposal. The tank has not been used since the Pu process was discontinued in the 1960's.
- (b) Physical Description - The tank is of steel construction, has capacity for 500 gal, and has a permanently attached stand for easy loading on a truck-bed.
- (c) Current Condition - The tank is believed to be in sound condition without obvious signs of corrosion or degradation. Tank openings are sealed and the exterior appears to be adequately covered with a protective layer of paint.
- (d) Radiological and Chemical Hazards - The interior of the tank is significantly alpha contaminated with an estimated 1×10^5 dpm/100 cm². The exterior of the tank may have been similarly contaminated at one time, but is presently shielded by a layer of paint. External transferable contamination is less than 30 dpm/100 cm² alpha and 200 dpm/100 cm² β-γ, with direct surface radiation of approximately 1 mR/h⁶. It is believed that no chemical hazards are associated with the tank.
- (e) Occupancy - The tank is located in an unoccupied but periodically accessed storage yard. The site is located at the eastern edge, but within the boundary of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS

The storage yard is within the ORNL complex at Y-12. The tank is properly tagged with respect to contamination/radiation hazards.

Table 1. Surveillance Activities - Plutonium Process Condensate Tank

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Semi-annually	Operations	Facility Supervisor Records	6 mh/y
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets	
(a) Routine smear surveys	Semi-annually		(UCN 9784)	8 mh/y



ISOTOPE PRODUCTION FACILITIES

1. FACILITY NAME: Plutonium Processing Facility
2. LOCATION: Building 9204-3, Room 116 (ORNL Facilities at Y-12)
3. SERVICE DATES: 1950 - 1960
4. FACILITY STATUS:

The facility is inactive but is located in an active building used by the Stable Isotope Enrichment department. The building and facility are under the control of that department within the Operations Division (J. G. Tracy).

5. FACILITY DESCRIPTION:

- (a) Operating History - The Pu Processing Facility was used solely for the generation of Pu-240 and Pu-242 during the 1950's. The isotopes were produced through chemical processing, part of which was performed within this facility.
- (b) Physical Description - The facility consists of a make-shift L-shaped glovebox with plexiglass glove ports on the front, and the walls, ceiling, and floor forming the other sides of the enclosure. The floor area enclosed is about 24 sq ft, with an approximate height of 12 ft. The enclosure contains two evaporator tanks measuring 2 ft in diameter by about 4 ft in height. Other miscellaneous valves and piping also remain in the glovebox.
- (c) Current Condition - The facility is generally in good condition with negative pressure maintained in the enclosure by a cell ventilation system servicing adjacent laboratories. The floor adjacent to the facility becomes flooded occasionally during severe rainy periods.
- (d) Radiological and Chemical Hazards - The interior of the enclosure as well as the tankage and piping are significantly alpha-contaminated. The level of transferable contamination is estimated to be up to 5×10^5 dpm/100 cm², with a measured radiation level of 2 mR/h at the base of the box⁶. No transferable contamination is evident on the outside surfaces. No chemical hazards are believed to be associated with this facility.
- (e) Occupancy - The processing facility is located in an active building and adjacent to laboratories and gloveboxes still in use. The building is located in a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9204-3 is within the ORNL complex at Y-12. The Pu Processing Facility is secured against casual access by a locked door, and is posted with respect to access restrictions and radiation/contamination zones. The facility is protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted at this facility.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No major repairs or improvements are foreseen at this facility prior to decommissioning.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.010	\$1.2K
Routine Maintenance	0.000	-
	<hr/>	<hr/>
TOTAL	0.010	\$1.2K

Annualized Materials Requirements

None	-
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Anticipated Major Repairs/Improvements

None	-
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Table 1. Surveillance Activities - Plutonium Processing Facility

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Quarterly	Operations	Facility Supervisor Records	8 mh/y
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets	
(a) Routine smear surveys	Quarterly		(UCN 9784)	12 mh/y

ISOTOPE PRODUCTION FACILITIES

1. FACILITY NAME: Curium Handling Glovebox
2. LOCATION: Building 9204-3, East end, Second floor (ORNL Facilities at Y-12)
3. SERVICE DATES: 1965 - 1975
4. FACILITY STATUS:

The glovebox is inactive but is located in an active building used by the Stable Isotope Enrichment department. The building and facility are under the control of that department within the Operations Division (J. G. Tracy).

5. FACILITY DESCRIPTION:

- (a) Operating History - The glovebox was used in support of curium isotopes production, primarily Cm-244 and Cm-246.
- (b) Physical Description - The facility consists of a small glovebox measuring approximately 3 ft by 5 ft.
- (c) Current Condition - The glovebox is in good condition, maintained under negative pressure, and located in a contaminated operating area which provides secondary containment. This operating area is plutonium contaminated and monitored with a continuous air monitor.
- (d) Radiological and Chemical Hazards - The interior of the glovebox is significantly alpha-contaminated with transferable levels greater than 5×10^5 dpm/100 cm². The exterior of the box is also contaminated due to its location, but only to a level of 5,000 dpm/100 cm². Direct radiation measured on the outside is less than 2 mR/h. No chemical hazards are believed to be associated with the glovebox.
- (e) Occupancy - The glovebox is located in an active building and within an active operating area which requires periodic access. The building is located in a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

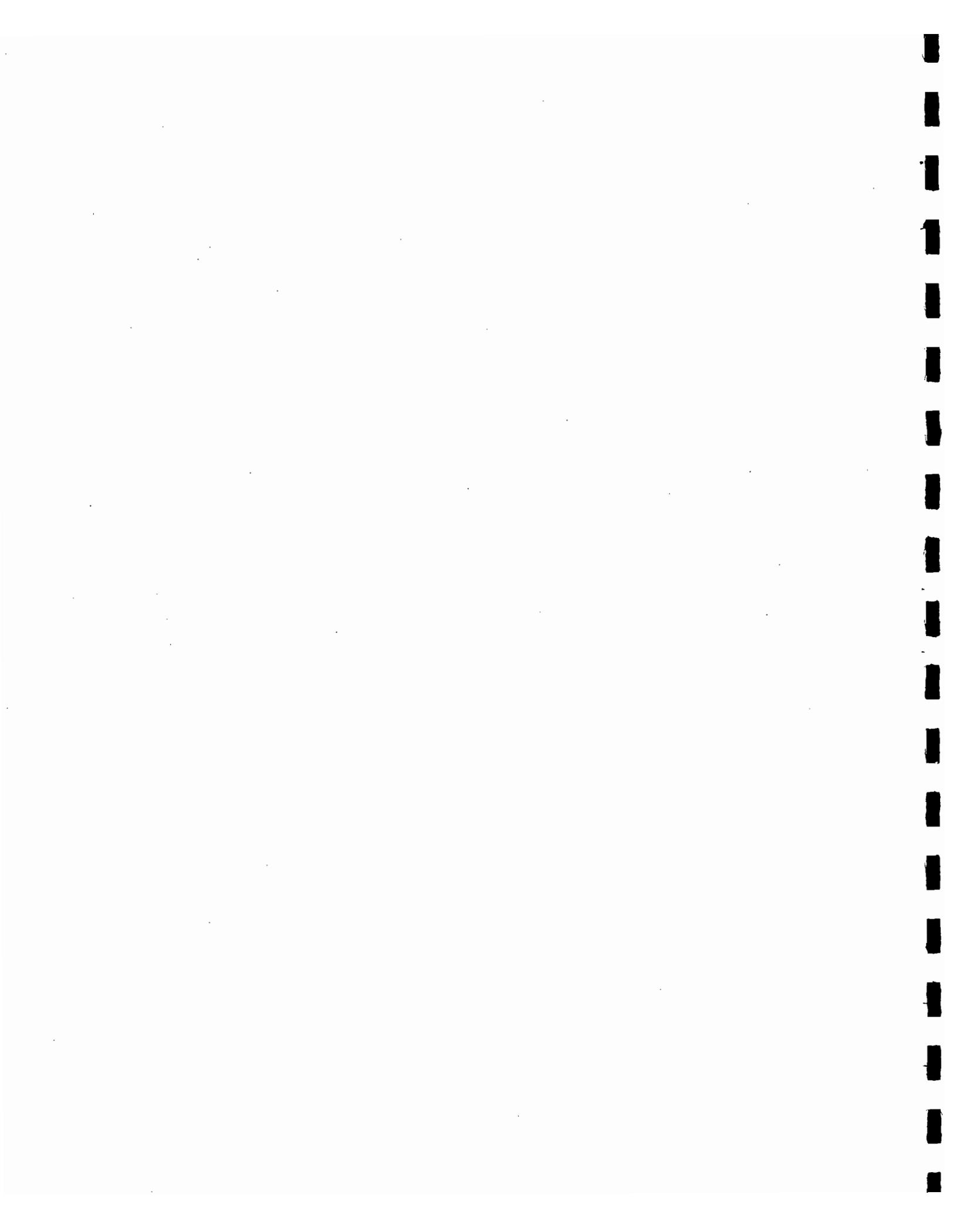
Building 9204-3 is within the ORNL complex at Y-12. The Cm Handling Glovebox is within an area posted with respect to access restrictions and radiation/contamination zones. The facility is protected by an automatic sprinkler system.

Table 1. Surveillance Activities - Curium Handling Glovebox

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Operations	Facility Supervisor Records	24 mh/y
(a) Visual of glovebox	Weekly			
(b) Negative pressure in glovebox and and facility	Weekly			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets	
(a) Routine rad. & smear surveys	Quarterly		(UCN 9784)	8 mh/y



A.3 TECHNOLOGY SUPPORT FACILITIES



TECHNOLOGY SUPPORT FACILITIES

1. FACILITY NAME: MSRE Fuel Handling Facility
2. LOCATION: Building 9201-3, Room 235 (ORNL Facilities at Y-12)
3. SERVICE DATES: 1958 - 1969
4. FACILITY STATUS:

The Fuel Handling Facility is inactive but located in an active building used by the Engineering Technology Division (F. W. Leon).

5. FACILITY DESCRIPTION:

- (a) Operating History - The facility was utilized for preparation and handling of fuel for molten salt reactor technology development and the Molten Salt Reactor Experiment which operated between 1965 and 1969.
- (b) Physical Description - The facility consists of a large cell of irregular dimensions but generally covering an area approximately 16 ft by 16 ft and three stories high. Within the cell are the remnants of chemical processing equipment, and within the surrounding laboratory are a contaminated sink and ductwork.
- (c) Current Condition - The fuel handling facility is generally in good condition, and is located in a structurally sound building and laboratory.
- (d) Radiological and Chemical Hazards - The interior of the fuel handling cell and support equipment are alpha-contaminated with U-233 and Th-228 at levels up to 50,000 dpm/100 cm². Transferable levels of contamination in the fuel batching area are on the order of 1,200 dpm/100 cm² alpha and 3,500 dpm/100 cm² β-γ,⁶. In addition, the facility is also contaminated with low levels of transferable beryllium. No other chemical hazards are believed to be associated with this facility.
- (e) Occupancy - The facility is located in an active building and within an active laboratory. The building is located in a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9201-3 is within the ORNL complex at Y-12. The fuel handling facility is secured against casual entry by locked accesses and is posted with respect to access restrictions and radiation/contamination zones.

Table 1. Surveillance Activities - MSRE Fuel Handling Facility

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Engineering Tech	Facility Supervisor Records	12 mh/y
(a) Visual of facility and security checks	Monthly			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	12 mh/y
(a) Routine rad. & smear surveys	Quarterly			

Table 2. Routine Maintenance Activities - MSRE Fuel Handling Facility

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	ETD/P&E	Facility Supervisor Records	16 mh/y

TECHNOLOGY SUPPORT FACILITIES

1. FACILITY NAME: Coolant Salt Technology Facility (Tritium Test Loop)
2. LOCATION: Building 9201-3, Second floor (ORNL Facilities at Y-12)
3. SERVICE DATES: 1958 - 1969
4. FACILITY STATUS:

The Coolant Salt Technology Facility is inactive but located in an active building used by the Engineering Technology Division (F. W. Leon).

5. FACILITY DESCRIPTION:

- (a) Operating History - This facility was used to support the development of molten salt reactor technology, and specifically for studying the effects of injecting tritium into a flow of boron trifluoride.
- (b) Physical Description - The facility consists of a loop flow system surrounded by a steel enclosure measuring approximately 24 ft by 8 ft by 10 ft tall. The system is comprised of pumps, tankage, valves, piping, and the remnants of a control system.
- (c) Current Condition - The facility is generally in good condition, and is located in a structurally sound building.
- (d) Radiological and Chemical Hazards - The inside of the flow system remains contaminated with radiation levels up to 40,000 dpm/100 cm² alpha, and transferable contamination of 1,000 dpm/100 cm² alpha and 3,500 dpm/100 cm² β-γ,⁶. No chemical hazards are believed to be associated with this facility.
- (e) Occupancy - The facility is located in an active building within a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9201-3 is within the ORNL complex at Y-12. The Coolant Salt Technology Facility is posted with respect to radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

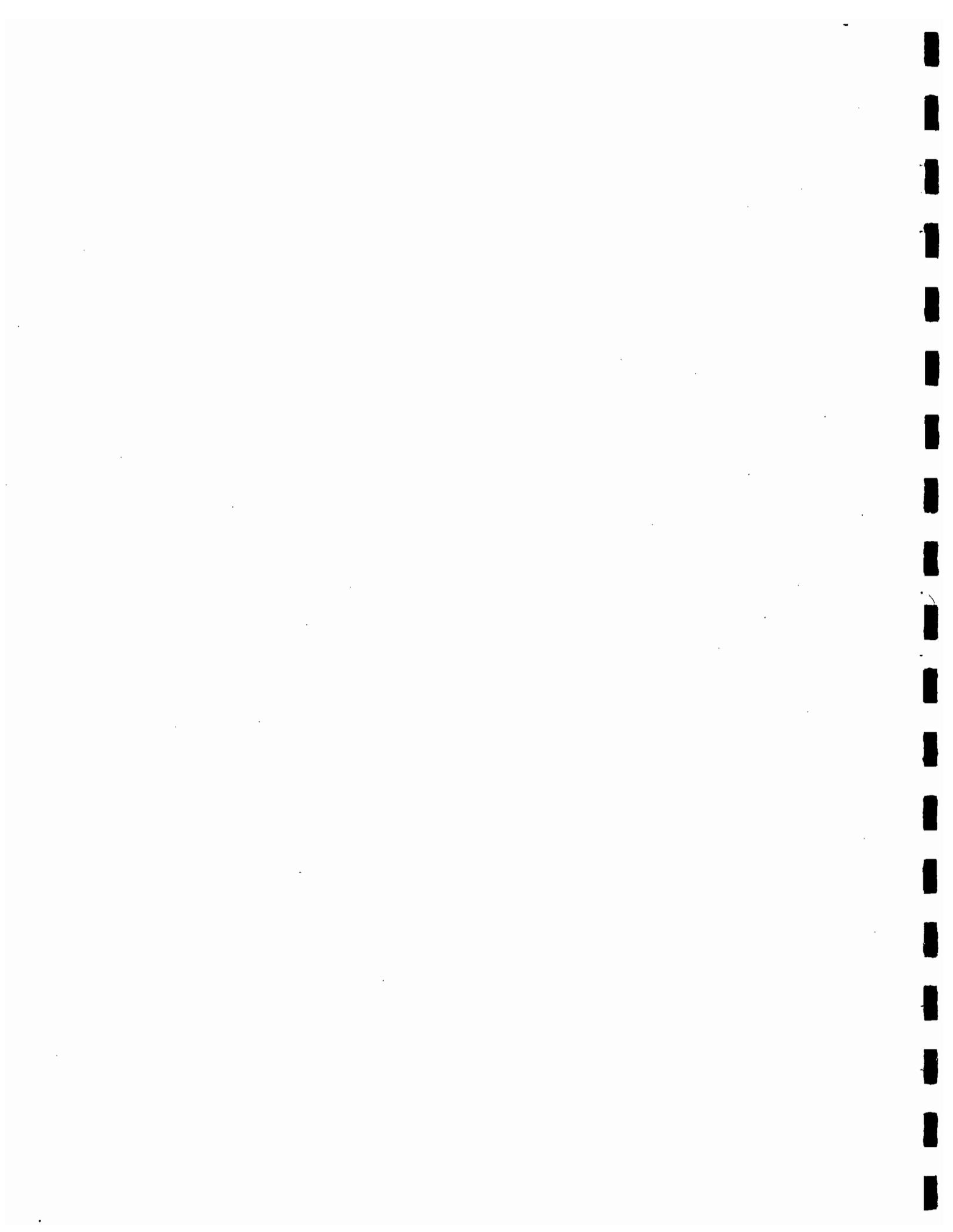
See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted at this facility.

Table 1. Surveillance Activities - Coolant Salt Technology Facility

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Engineering Tech	Facility Supervisor Records	12 mh/y
(a) Visual of facility	Monthly			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	6 mh/y
(a) Routine smear surveys	Semi-annually			



TECHNOLOGY SUPPORT FACILITIES

1. FACILITY NAME: Storage Tank
2. LOCATION: Building 9201-3, Mezzanine above Room 126 (ORNL Facilities at Y-12)
3. SERVICE DATES: 1858-1969
4. FACILITY STATUS:

The Storage Tank is inactive but located in an active building used by the Engineering Technology Division (F. W. Leon).

5. FACILITY DESCRIPTION:

- (a) Operating History - The tank was used as a reservoir for machine shop cutting oil during the years of development of molten salt reactor technology. The machine shop was located on the first floor of 9201-3 just below the mezzanine level.
- (b) Physical Description - This facility consists of a glass-lined steel tank with a 3,000 gal capacity. It is located in a room measuring approximately 20 ft by 40 ft, and occupies about half of the space. The tank is surrounded by a spill-containment dike.
- (c) Current Condition - The tank is empty and in good condition with no obvious signs of corrosion or degradation. It is located in a structurally sound building.
- (d) Radiological and Chemical Hazards - The tank and surrounding diked area are slightly contaminated with approximately 4,000 dpm/100 cm² alpha, but are both painted to fix the activity. No chemical hazards are believed to be associated with this facility.
- (e) Occupancy - The tank is located in a semi-remote area which can be accessed only by climbing a ladder. The only access required to the area is for infrequent maintenance. The mezzanine is located in an active building within a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9201-3 is within the ORNL complex at Y-12. The room where it is housed is posted with respect to radiation/contamination zones. The facility is protected by an automatic sprinkler system.

Table 1. Surveillance Activities - Storage Tank (9201-3)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Semi-annually	Engineering Tech	Facility Supervisor Records	4 mh/y
(a) Visual of facility				
2. Radiological Surveillance	As required	E&OS	Radiation Survey Data Sheets (UCN 9784)	4 mh/y
(a) Surveillance of area maintenance activities				



TECHNOLOGY SUPPORT FACILITIES

1. FACILITY NAME: Attic
2. LOCATION: Building 9204-1, Northeast attic section (ORNL Facilities at Y-12)
3. SERVICE DATES: 1940's - present
4. FACILITY STATUS:

The Attic is inactive but is located above an active office area in a building utilized by the Engineering Technology Division (F. W. Leon).

5. FACILITY DESCRIPTION:

- (a) Operating History - The attic has never performed any specific function, but at one time was above a washing operation which resulted in the contamination still present. Since that time, the building has been refurbished, and the area below the attic now houses offices.
- (b) Physical Description - The area involved is approximately 60 ft by 80 ft and consists of a ceiling and roof-supporting beams which have been painted to fix contamination, and a floor (false ceiling) which has become contaminated from flaking paint.
- (c) Current Condition - The building and attic area are structurally sound; however, paint continues to flake from the attic ceiling onto the attic floor (false ceiling).
- (d) Radiological and Chemical Hazards - The contamination of the area is low-level alpha measuring a maximum of 275 dpm/100 cm² and averaging only 20 dpm/100 cm². The maximum β - γ level is less than 1 mR/h⁶. The contamination is fixed in the flaking paint which is the mechanism for its dispersal. The entirety of the attic floor is not contaminated, nor has any contamination been found below the false ceiling. No chemical hazards are believed to be associated with this area.
- (e) Occupancy - The attic location is unoccupied and accessed only for maintenance of building utilities. The area below the attic is active office space. The building is otherwise occupied continuously and is located within a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9204-1 is within the ORNL complex at Y-12. The attic is posted with respect to radiation/contamination zones. The facility is protected by an automatic sprinkler system.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted for the attic area.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No major repairs or improvements are foreseen prior to decommissioning. In the event routine surveillance indicates significant spreading of contamination, appropriate action will be taken.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.009	\$1.1K
Routine Maintenance	0.000	-
	<hr/>	<hr/>
TOTAL	0.009	\$1.1K
<u>Annualized Materials Requirements</u>	<u>Cost</u>	
None	-	
<u>Anticipated Major Repairs/Improvements</u>		
None	-	

Table 1. Surveillance Activities - Attic (9204-1)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Engineering Tech	Facility Supervisor Records	4 mh/y
(a) Visual of facility	Semi-annually			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	
(a) Routine rad. & smear surveys	Semi-annually			6 mh/y
(b) Surveillance of area maintenance activities	As required			8 mh/y

TECHNOLOGY SUPPORT FACILITIES

1. FACILITY NAME: East End Basement
2. LOCATION: Building 9204-1, Basement under east end of Bay Area (ORNL Facilities at Y-12)
3. SERVICE DATES: 1940's - present
4. FACILITY STATUS:

This particular section of the basement is inactive, but is adjacent to active storage locations. The building is operated by the Engineering Technology Division (F. W. Leon).

5. FACILITY DESCRIPTION:

- (a) Operating History - This area of the basement has not had a specific use other than provide access for maintenance of building utilities. Past operations in the areas above the basement have resulted in the contamination present.
- (b) Physical Description - The area of concern is two dirt areas similar to a crawl space, one measuring approximately 20 ft by 50 ft and the other 15 ft by 20 ft. The areas are immediately adjacent to and separated from each other by a concrete walkway.
- (c) Current Condition - The basement is within a structurally sound building; however, the area is subject to flooding during sustained heavy rains and hence has the potential for spreading contamination to other areas.
- (d) Radiological and Chemical Hazards - The ground is slightly alpha contaminated with average values of 2,000 dpm/100 cm² and no measurable β - γ (<1 mR/h)⁶. Isolated spots may read as high as 30,000 dpm/100 cm². No chemical hazards are believed to be associated with this area.
- (e) Occupancy - This area of the basement is unoccupied and accessed only for maintenance of building utilities. Other nearby areas are occasionally accessed for storage of idle equipment and supplies. The building is otherwise occupied continuously and is located within a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9204-1 is within the ORNL complex at Y-12. The contaminated basement area is posted with respect to radiation/contamination zones.

7. SURVEILLANCE ACTIVITIES:

See Table 1 for details of surveillance activities.

8. ROUTINE MAINTENANCE ACTIVITIES:

No routine maintenance activities are conducted for this area of the basement.

9. ANTICIPATED REPAIRS/IMPROVEMENTS:

No major repairs or improvements are foreseen prior to decommissioning. In the event routine surveillance indicates significant spreading of contamination, appropriate action will be taken.

10. COST AND SCHEDULE:

(a) Annualized Costs

<u>Annual Manpower Requirements</u>	<u>Man-Years</u>	<u>Cost</u>
Surveillance Activities	0.009	\$1.1K
Routine Maintenance	0.000	-
	<hr/>	<hr/>
TOTAL	0.009	\$1.1K

Annualized Materials Requirements

None

-

Anticipated Major Repairs/Improvements

None

-

Table 1. Surveillance Activities - East End Basement (9204-1)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection		Engineering Tech	Facility Supervisor Records	4 mh/y
(a) Visual of facility	Semi-annually			
2. Radiological Surveillance		E&OS	Radiation Survey Data Sheets (UCN 9784)	6 mh/y
(a) Routine rad. & smear surveys	Semi-annually			
(b) Surveillance of area maintenance activities	As required			8 mh/y

TECHNOLOGY SUPPORT FACILITIES

1. FACILITY NAME: Decontamination Facility
2. LOCATION: Building 9419-1 (ORNL Facilities at Y-12)
3. SERVICE DATES: 1958 - 1969
4. FACILITY STATUS:

The Decontamination Facility is currently inactive and unoccupied, and under the control of the Engineering Technology Division (F. W. Leon).

5. FACILITY DESCRIPTION:

- (a) Operating History - This facility was used to decontaminate equipment and materials associated with the development of molten salt reactor technology.
- (b) Physical Description - The facility consists of a building with transite siding and roof constructed on a concrete pad. The building measures roughly 25 ft by 50 ft and is about 18 ft high. A floor drain in the building flows by gravity to an open concrete pit about 60 ft east of the building. The pit is still utilized by Y-12 for hold-up of water accumulation from an adjacent waste oil tank farm. An exit pipe from the pit also flows by gravity to the East Fork of Poplar Creek (monitoring point #43). The pit is not included as part of this facility.
- (c) Current Condition - The structure appears to be basically sound with no obvious signs of severe deterioration. The building has become a storage site for idle equipment and miscellaneous junk. The open pit appears to be free of gross leaks and collects rainwater. Excess collection is automatically drained to the creek. The level of water in the pit fluctuates significantly.
- (d) Radiological and Chemical Hazards - The interior of the building is designated as a Regulated Zone and possibly contains low levels of alpha contamination which has not been confirmed by a recent survey⁶. No other radiological or chemical hazards are believed to be associated with this facility.
- (e) Occupancy - The facility is unoccupied with personnel access only on an infrequent basis. The site is located within a central area of the ORNL facilities at Y-12.

6. SECURITY/PROTECTION SYSTEMS:

Building 9419-1 is within the ORNL complex at Y-12. The building is posted with respect to radiation/contamination zones.

Table 1. Surveillance Activities - Decontamination Facility (9419-1)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. Routine Inspection	Semi-annually	Engineering Tech	Facility Supervisor Records	20 mh/y
2. Radiological Surveillance	As Required	E&OS	Radiation Survey Data Sheets (UCN-9784)	10 mh/y
3. Routine Security Patrol	Daily	LP	Daily Security Report	*

* Costs are included in ORNL overhead charges. No direct SCFP funding is required.

Table 2. Routine Maintenance Activities - Decontamination Facility (9419-1)

Activity	Frequency	Responsibility	Documentation	Manpower/ Resource Requirement
1. General Maintenance and Repair	As Required	ETD/P&E	Facility Supervisor Records	20 mh/y
2. Maintenance Materials	Annually	ETD	Facility Supervisor Records	\$200

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