LOCKHEED MARTIN

ORNL/ER-419

**ENVIRONMENTAL
RESTORATION
PROGRAM**

**Final Deactivation Report
on the Radioactive Gas Processing
Facility, Building 3033, and the Actinide
Fabrication Facility, Building 3033A,
at Oak Ridge National Laboratory,
Oak Ridge, Tennessee**

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MANAGED BY
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

**Final Deactivation Report
on the Radioactive Gas Processing
Facility, Building 3033, and the Actinide
Fabrication Facility, Building 3033A,
at Oak Ridge National Laboratory,
Oak Ridge, Tennessee**

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OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831
managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

PREFACE

This is the Final Deactivation Project Report on the on the *Radioactive Gas Processing Facility, Building 3033, and the Actinide Fabrication Facility, Building 3033A, at Oak Ridge National Laboratory, Oak Ridge, Tennessee* (ORNL/ER-419). Although this element of work is not part of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, it was accomplished in accordance with the substantive requirements of the Act. This work was performed under Work Breakdown Structure 1.6.6.2.10.02, Activity Data Sheet 6504IS, "Isotopes Facilities Deactivation Project." This document provides the Environmental Management and Enrichment Facilities Program with the final report on the deactivation of Bldgs. 3033 and 3033A.

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EXECUTIVE SUMMARY

The purpose of this report is to document the condition of Buildings 3033 and 3033A, after completion of deactivation activities as outlined by the Department of Energy Office of Nuclear Materials and Facility Stabilization Program (EM-60) guidance documentation. This report outlines the activities conducted to place the facility in a safe and environmentally sound condition for transfer to the Department of Energy Office of Environmental Restoration Program (EM-40).

This report provides a history and profile of Buildings 3033 and 3033A prior to commencing deactivation activities and a profile of the building after completion of deactivation activities. Turnover items, such as the Post-Deactivation Surveillance & Maintenance Plan, remaining hazardous materials, radiological controls, Safeguards and Security, quality assurance, facility operations, and supporting documentation provided in the Office of Nuclear Materials and Facility Stabilization Program (EM-60) Turnover package are discussed.

Buildings 3033 and 3033A will require access to facilitate required S&M activities to maintain the building safety envelope. Buildings 3033 and 3033A were stabilized during deactivation so that when transferred to the EM-40 program, only a minimal S&M effort would be required to maintain the building safety envelope. Other than the minimal S&M activities the building will be unoccupied and the exterior doors locked to prevent unauthorized access. The building will be entered only to perform the required S&M.

All materials have been removed from the building, and all utility systems, piping, and alarms have been deactivated.

ABBREVIATIONS

Term	Definition
ALARA	As Low As Reasonably Achievable
CTD	Chemical Technology Division (ORNL)
D&D	Decontamination and Decommissioning
DOE	US Department of Energy
EM	DOE Office of Environmental Restoration and Waste Management
EM-40	Department of Energy Office of Environmental Restoration
EM-60	Department of Energy Office of Nuclear Materials and Facility Stabilization
ER	Environmental Restoration
FAB	Facility Authorization Basis
FDPR	Final Deactivation Project Report
IFDP	Isotopes Facilities Deactivation Project
LCD	Limiting Condition Document
LCO	Limiting Condition for Operation
LMES	Lockheed Martin Energy Systems, Inc.
MOA	Memorandum of Agreement
ORNL	Oak Ridge National Laboratory
RP	Radiation Protection
S&M	Surveillance and Maintenance

DEFINITIONS

Term	Definition
Commitments	Tasks required to be accomplished to meet non-regulatory requirements. (site, stakeholders, etc.)
Deactivation	The process of placing a facility in a safe and stable condition to minimize the long-term cost of a surveillance and maintenance program that is protective of workers, the public, and the environment until decommissioning is completed.
Decommissioning	Refers to the ultimate disposition of a facility. Also substitutes for previously used "D&D."
Decontamination	The removal or reduction of radioactive or hazardous contamination from facilities, equipment, or soils by washing, heating, chemical or electro-chemical action, mechanical cleaning or other techniques to achieve a stated objective or end condition.
Defense-in-Depth	Achieving required levels of safety and protection there is more than one layer of protection between the hazard and that which is being protected.
End Point	A detailed specification for the final deactivation condition of areas and hardware within a facility and related documentation. An individual milestone towards the deactivation and/or the decommissioning of a facility.
End Point Technical Information	A compilation of documents to support end point conclusions.
Stakeholder	Individuals and organizations (i.e. regulators, local municipalities, the public, etc.) who may be directly or indirectly impacted by activities associated with the IFDP.
Turnover Package	A compilation of project related documents to be given to a post-deactivation organization.

1. INTRODUCTION

1.1 PURPOSE

This report documents the condition of Buildings 3033 and 3033A after completion of deactivation activities as outlined by the Department of Energy Office of Nuclear Materials and Facility Stabilization (EM-60) Program guidance documentation. This report outlines the activities conducted to place the facility in a safe and environmentally sound condition for transfer to the Department of Energy Office of Environmental Restoration (EM-40) Program.

This report provides a history and profile of the facility prior to commencing deactivation activities and a profile of the building after completion of deactivation activities. Turnover items, such as the Post-Deactivation Surveillance & Maintenance Plan, remaining hazardous materials, radiological controls, Safeguards and Security, quality assurance, facility operations, and supporting documentation provided in the Office of Nuclear Materials and Facility Stabilization Program (EM-60) Turnover package are discussed.

1.2 SCOPE

This report addresses the activities performed during deactivation associated with Buildings 3033 and 3033A, to place the facilities in a safe and environmentally sound condition to await decommissioning, the status of the facilities, and the activities required to maintain them following deactivation. Attachment 1, "Buildings 3033 and 3033A Floor Plan," provides a floor plan of Buildings 3033 and 3033A which illustrate the physical boundaries and scope of this Final Deactivation Project Report (FDPR). The scope of this FDPR is limited to Buildings 3033 and 3033A.

2. BACKGROUND

2.1 FACILITY DESCRIPTION

Buildings 3033 and 3033A are steel-frame structures covered by corrugated aluminum siding. The single-story facilities have a total floor area of 1442 ft².

The tritium and krypton production facilities were housed in Bldg. 3033, which is located in the central area of the Isotopes Circle, northeast of Building 3038. This building contained two separate radioisotopes processing systems for handling gaseous ³H and ⁸⁵Kr.

The building is a steel-frame structure covered with aluminum siding. The floor space is about 1200 ft² with a total volume of about 20,000 ft³. The outer surface of the building has been sealed by a cocooning process to make it as airtight as possible. Personnel and equipment entrances are gasketed. The three areas of the building -- the krypton process cell, the tritium process room, and the utility area as shown in the facility floor plan in Attachment 1.

The krypton process cell consists of a composite shielded enclosure made of 2.25-in. thick steel plate overlaid with 1 in. of lead, supported by a 8-in.-thick by 2-ft-high concrete wall at the bottom. Part of the enclosure houses the in-process storage tanks and is made of stacked 4-in.-thick lead bricks. The main enclosure pressure is maintained at -1 in. w.g. relative to the room pressure.

The separation columns and carbon reactor are housed in a separate enclosure, which consists of a steel frame overlaid with 4 in. of lead brick. The permanent storage cubicle (designated as Bldg. 3093), which contains four charcoal-filled storage tanks, is located outside the building. It consists of a nonventilated 2-ft-thick reinforced-concrete enclosure. The krypton feed gas is located inside a 1-in.-thick steel plate enclosure, which is also outside the building. Process components contained in the enclosure are connected with 3/8-in. copper tubing shielded by 1-in. lead. Each of these enclosures (with the exception of the permanent storage which is not in service) is connected to the isotopes area cell ventilation system.

Tritium radiation consists of a relatively soft beta emission, which produces essentially no penetrating radiation hazard. The tritium is handled in a hood inside the tritium room. The hood is connected to the isotopes area cell ventilation system and is maintained at a nominal -0.5-in. w.g. relative to the tritium room.

Building 3033A (Annex) was used to house and contain the facilities for the production, loading, welding, and decontamination of neutron dosimeter materials as well as the weighing and packaging of milligram to gram quantities of actinide materials for research applications. The building does not contain a hot cell and was used only for low-level radioactive operations in glove boxes and one hood. Special nuclear materials were, at one time, stored in the building.

Building 3033A is located in the central portion of the Isotopes Circle, south of Building 3047. It is a metal structure erected by bridging the space between Buildings 3033 and 3034 and using their walls for support. Floor space is about 242 ft², with a free-space volume of about 718 ft³. Personnel access is through gasketed, airlock entries. The building floor plan is presented in Attachment 1.

The exhaust discharges to the 3039 stack via the isotopes area cell ventilation system. The air leaving Building 3033A passes through roughing and HEPA filters, which are routinely tested.

2.2 FACILITY HISTORY

Building 3033 was used to process ¹⁴C, ⁸⁵Kr, and ³H. Processing of ¹⁴C was discontinued in 1975. The last operations in Bldg. 3033 consisted of two separate radioactive gas processing systems. Tritium operations involved the receiving of bulk tritium shipments from the Savannah River Plant, followed by purification, loading of shipping containers, and shipment to numerous customers worldwide. Krypton operations included the purification of ⁸⁵Kr (as received from the Idaho National Engineering Laboratory) in preparation for direct sale or as feed to the thermal diffusion columns in Building 3026C. The processing of ³H for sale to private industry was discontinued in 1990. The last ⁸⁵Kr campaign was conducted in September 1989.

Building 3033A, which was constructed in approximately 1960, included two operating areas: a small one for ¹⁴C production at the south end of the building and the larger, main operating area for research materials preparations. In the early 1980s, the ¹⁴C room was decontaminated and

decommissioned, including removal of the underground dissolver tank, and the area converted for storage.

This building has been used almost exclusively for the preparation and distribution of highly enriched actinide isotopes (and for a period, ^{14}C) for the Isotopes Program. Among the operations performed were

- fabrication of ceramic oxide wires;
- loading of ceramic oxide wires, oxide powder, or metal into small metal capsules for use as in-core reactor neutron dosimeters;
- fabrication of monoenergetic gamma sources;
- weighing and packaging of milligram to gram quantities of actinide materials;
- preparation of nanogram to milligram actinide samples for alpha counting;
- decontamination of nuclear material shipping containers; and
- storage of radioactive materials.

Over the years, many other small special projects have been performed in this facility, including, for example, the packaging of actinide materials for disposal or shipment.

3. FACILITY STATUS

3.1 PRE-DEACTIVATION FACILITY STATUS

Following approximately 40 years of operations and processing Buildings 3033 and 3033A were surplus and many of the process systems were abandoned in place. General housekeeping was not maintained and the building structural integrity was allowed to lapse.

The pre-deactivation facility status of Bldg. 3033 is given in Table 1.

All production operations in Bldg. 3033A were halted in January 1990 because of funding problems. All special nuclear materials once stored in this facility were transferred to other ORNL or DOE sites or disposed of as waste. All glove boxes were removed, and a general (first cut) decontamination of the building was completed.

The general status of this facility is summarized in Table 2.

Attachment 2, "Pre-Deactivation Facility Photographs," contains photographs of the building conditions prior to deactivation activities.

3.1.1 Hazards Analysis

A detailed hazards analysis was performed for the operations in both Buildings 3033 and 3033A and was presented in an approved Safety Analysis Report (SAR) and Operational Safety Requirements (OSR) for each building. These safety documents have since been retired with the removal of the disposition of the radioactive materials inventories.

3.1.2 Internal Spaces

The general area contained furniture, cabinets, hazardous waste, radioactive waste, and various miscellaneous items used when the facility was in operation. The lead-based paint is chipping and peeling, providing a means of transferring contamination and endangering personnel and the environment.

Pre-deactivation radioactive contamination levels and radiation levels for the general area are listed in Tables 3 and 4, respectively.

Table 1. Bldg. 3033, Pre-Deactivation General Status of Facility

Facility/area	Comments
Building	General condition good, considering age of facility
Type	Metal shed on concrete pad
Roof	Replaced in 1988
Exterior walls	Cocooned with polyurethane foam; need maintenance every 2 to 6 years
Building containment and ventilation	Building sealed; building operates in a "contained" state to maintain a >0.3 in. w.g. negative pressure relative to the outside environment. (In practice, building operates at about 0.45 in. negative pressure)
	Both building ventilation and cell ventilation are on the isotopes area cell ventilation system and exhaust to the 3039 stack. No HEPA filters are present because only radioactive gases are handled in the building
Liquid waste systems	Processes do not generate liquid wastes
	Cell drains to tanks WC-10; drain kept open but has not been used in 17 years (or longer)
Cells and Hoods	
North hood system in tritium room	Uncontaminated; tritium has never been introduced to system; the two uranium traps have never been activated (i.e., never used for tritium storage)
South hood system in tritium room	All bulk tritium has been removed from the uranium traps. Tritium processing equipment remains highly contaminated with tritium. Tritium exchanges with water-oxide coating (HTO) on surface of the metal. Elemental tritium is also contained within the metal matrix of all metal parts of the system
	Three uranium traps used for storing and purifying tritium. One trap was poisoned by an inleakage of air and taken out of service. All three traps are pyrophoric
Krypton cell/system	Minimal contamination of deactivation equipment due to inert nature of krypton. Relatively new system

Table 2. Bldg. 3033A, Pre-deactivation General Status of Facility

Facility/Area	Comments
Type	Steel frame with metal siding; shares common load-bearing wall columns with adjacent buildings
Roof	Leaks
Exterior walls	Cocooned; need maintenance to seal leaks
Building containment and ventilation	Building cocooned; air locks; leakage problems; building is maintained at a nominal negative pressure of 0.25 in. w.g. relative to the outside atmosphere Building ventilation: roughing and HEPA filters (filter house inside building); exhaust to isotopes area cell ventilation system and 3039 stack A contaminated off-gas manifold that once serviced the glove boxes in this facility still exists. The remaining system consists of an in-house filter box with dual series of HEPA filters valved so that one set may be isolated and bypassed during change-out; exhaust to isotopes area cell ventilation system and 3039 stack Hood: HEPA filter, exhaust to isotopes area cell ventilation system and 3039 stack
Liquid waste systems	Drain in hood, west wall (normally sealed): drains to tank WC-10 Laboratory sink, one hood drain, building floor drain: process waste treatment system
Security	Facility locked when personnel are not present

Table 5 lists pre-deactivation hazardous materials and waste located in the general area.

3.1.3 Building Structure and External Spaces

The structure and roof of Buildings 3033 and 3033A were inspected and found to be in generally good condition, with the exception of water in-leakage through various paths.

3.1.4 Process, Utility, and Support Systems

3.1.4.1 Electrical power system

Prior to deactivation the Electrical Power System provided power distribution for the electrical service to Buildings 3033 and 3033A. Typical electrical loads were the lighting, heaters, and exhaust fans.

3.1.4.2 Fire protection system

The Fire Protection System is a dry pipe fire suppression system for Buildings 3033 and 3033A and is available for use. The general area was equipped with sprinkler heads and alarms as required

by the local fire code. In addition, fire extinguishers were placed strategically in and around both buildings. The fire protection system is not believed to be contaminated.

3.1.4.3 Building steam system

The Building Steam System provided steam for use in heating the general area of Buildings 3033 and 3033A. A single heat exchanger is located in each building to provide space heating for personnel.

The building steam system is not believed to be contaminated. However, the majority of the steam piping within both buildings is lagged with asbestos insulation materials.

3.1.4.4 Potable water system

Prior to deactivation the Potable Water System provided water to the Buildings 3033 and 3033A safety shower, hot water heater, and sink. The potable water system is not believed to be contaminated.

3.1.4.5 Hot drain system

Prior to deactivation the Hot Drain System provided a means of discharging liquid process wastes from the hoods to the LLLW system. The hot drain system is a gravity drain system to the WC-10 tank in the Low Level Liquid Waste (LLLW) system. There were no hot drains in Building 3033. Building 3033A had one hot drain in the hood in that building.

The hot drain system was determined to be highly contaminated from the process and cleaning activities performed prior to deactivation.

3.1.4.6 Process drain system

Prior to deactivation the Process Drain System provided a means of removing liquids from the building floors to the ORNL process waste system and treatment facility. The process drain system is a gravity drain system.

The process drain system was determined to be contaminated from the process and cleaning activities performed prior to deactivation.

3.1.4.7 Natural gas system

The Natural Gas System to Buildings 3033 and 3033A was never used. The system has remained isolated from the building since the time of its installation and is not believed to be contaminated.

3.1.4.8 Plant air system

Prior to deactivation the Plant Air System provided 110 psig air to Buildings 3033 and 3033A. The plant air system was regulated and used for process activities and instrumentation throughout the facility.

The plant air system is not believed to be contaminated.

3.1.4.9 Central ventilation system

Prior to deactivation the central ventilation system provided exhaust ventilation services to the hot cell in Buildings 3033 and 3033A. The central ventilation system for both buildings was filtered through HEPA filters prior to discharge to the 3039 stack.

The Central Ventilation System was determined to be contaminated from the process activities performed prior to deactivation.

3.1.5 Radioactive Material, Contamination, and Waste

Table 3 lists the radioactive contamination levels identified on radiation surveys conducted prior to deactivation.

Table 3. Pre-Deactivation Radioactive Contamination Levels

Location	Description	Quantity
3033 entire building	alpha smear - transferable contamination	None detected
3033 general area	beta/gamma smear - transferable contamination	<1000 dpm/100 cm ² (³ H)
3033 tritium room and hoods	beta/gamma smear - transferable contamination	Very high
3033A	alpha smear - transferable contamination	21 to 100 dpm/100 cm ²
3033A	beta/gamma smear - transferable contamination	217 to 5400 dpm/1000 cm ²

Table 4, "Pre-Deactivation Radiation Levels," lists radiation levels identified on radiation surveys conducted prior to deactivation:

Table 4. Pre-Deactivation Radiation Levels

Location	Description	Quantity
3033	General area	<0.1 mr/hr
3033	Tritium room	<0.1 mr/hr
3033A	General area	<0.1 mr/hr

3.1.6 Hazardous Materials and Waste

Table 5, "Buildings 3033 and 3033A Pre-Deactivation Hazardous Materials and Waste," lists the hazardous materials and waste identified during facility walkdowns prior to deactivation:

Table 5. Buildings 3033 and 3033A Pre-Deactivation Hazardous Materials and Waste

Identification	Description	Quantity
Lead based paint	Used as wall covering throughout building.	indeterminate
Asbestos Floor Tiles	Used as floor covering throughout the building.	approx. 1400 ft ²
Asbestos Lagging	Used as pipe lagging throughout the building	indeterminate
PCBs	Electrical devices and transformers	indeterminate
Lead Shielding	Used in Hot Cell walls and window	indeterminate
Mineral Oil	Used in Hot Cell window	indeterminate

3.2 POST DEACTIVATION FACILITY STATUS

Attachment 3, "Post-Deactivation Facility Photographs," contains photographs of the building conditions following deactivation activities.

3.2.1 Deactivation End Point Completion

End point criteria for deactivation activities and end point completion documentation are not applicable for Buildings 3033 and 3033A. The requirement and guidance for these program elements were not developed prior to deactivation of the buildings.

3.2.2 Hazards Analysis

A post-deactivation hazards screening was performed. This hazards screening placed the facilities in the "other industrial" category.

3.2.3 Internal Spaces

The miscellaneous items abandoned when the facility was no longer in use have been removed from the general area. No significant combustibles remain in the general area and the general areas of Buildings 3033 and 3033A have been decontaminated to remove transferable contamination from access-required spaces. The lead-based paint is chipping and peeling, providing a means of transferring the lead and endangering personnel and the environment.

Post-deactivation radioactive contamination levels and radiation levels for this area are listed in Tables 4, "Post-Deactivation Radioactive Contamination Levels," and Table 5, "Post-Deactivation Radiation Levels"; respectively.

Post-deactivation hazardous materials and waste located in this area are listed in Table 6, "Buildings 3033 and 3033A Post-Deactivation Hazardous Materials and Waste."

3.2.4 Building Structure and External Spaces

The structure and roof of Buildings 3033 and 3033A were inspected and found to be in generally good condition, with the exception of some water in-leakage through various paths.

3.2.5 Process, Utility, and Support Systems

3.2.5.1 Electrical power system

All electrical services, with the exception of lighting, have been disconnected or de-energized at the main breaker box.

3.2.5.2 Fire protection system

The fire protection system is a dry system and remains available for use if there is a fire in the building.

3.2.5.3 Steam system

The Steam System has been isolated, drained, and abandoned in place.

3.2.5.4 Potable water system

The Potable Water System has been isolated, drained, and abandoned in place.

3.2.5.5 Hot drain system

The Hot Drain System has been abandoned in place. All hot drains have been plugged to isolate the drains and to prevent the potential spread of contamination.

The hot drain system remains highly contaminated from the process and cleaning activities performed prior to deactivation.

3.2.5.6 Process drain system

The Process Drain System has been abandoned in place. However, the process drain system remains connected to the ORNL process waste system.

The process drain system remains contaminated from the process and cleaning activities performed prior to deactivation.

3.2.5.7 Natural gas system

The Natural Gas System has been isolated, vented, and abandoned in place.

3.2.5.8 Plant air system

The Plant Air System has been isolated, vented, and abandoned in place.

3.2.5.10 Central ventilation system

The Central Ventilation System remains in operation to provide negative pressure for contamination control for the hot cell. All controls associated with the central ventilation system remain in operation as well.

The central ventilation system remains highly contaminated from the process activities performed prior to deactivation.

3.2.6 Radioactive Material, Contamination, and Waste

Table 6, "Post-Deactivation Radioactive Contamination Levels," lists the radioactive contamination levels identified on radiation surveys conducted following deactivation:

Table 6. Post-Deactivation Radioactive Contamination Levels

Location	Description	Quantity
3033 entire building	alpha smear - transferable contamination	None detected
3033 general area	beta/gamma smear - transferable contamination	<1000 dpm/100 cm ² (³ H)
3033 tritium room	beta/gamma smear - transferable contamination	1217 dpm to 25,982 dpm/100 cm ² (³ H)
3033A	alpha smear - transferable contamination	2 smears exceed 20 dpm/100 cm ² (25 and 36 dpm south wall)
3033A	beta/gamma smear - transferable contamination	<200 dpm/100 cm ²

Table 7, "Post-Deactivation Radiation Levels," lists radiation levels identified on radiation surveys conducted prior to deactivation:

Table 7. Post-Deactivation Radiation Levels

Location	Description	Quantity
3033	General area	<0.1 mr/hr
3033	Tritium room	<0.1 mr/hr
3033A	General area	<0.1 mr/hr

3.2.7 Hazardous Materials and Waste

Table 8 lists the hazardous materials and waste identified during facility walkdowns following deactivation.

Table 8. Bldg. 3033 Post-Deactivation Hazardous Materials and Waste

Identification	Description	Quantity
Lead based paint	Used as wall covering throughout building.	indeterminate
Asbestos Floor Tiles	Used as floor covering throughout the building.	approx. 1400 sq.ft.
Asbestos Lagging	Used as pipe lagging throughout the building	indeterminate
PCB's	Electrical devices and transformers	indeterminate
Lead Shielding	Used in Hot Cell walls and window	indeterminate
Mineral Oil	Used in Hot Cell window	indeterminate

4. BUILDINGS 3033 AND 3033A DEACTIVATION ACTIVITIES

The following section addresses the major activities performed during the deactivation of Buildings 3033 and 3033A. The objectives of the deactivation process were to place the facility in a passively safe and environmentally stable configuration which can be efficiently and cost effectively maintained indefinitely. The major deactivation issues regarding the buildings are listed below:

4.1 INTERNAL SPACES; ACCESS REQUIRED

4.1.1 General Areas

All storage cabinets, desks, file cabinets and miscellaneous office materials were removed from the building. Some were green-tagged for reuse. The remaining items were size reduced and disposed of.

The asbestos floor tiles were not removed and are not intended to be removed until facility decontamination and decommissioning.

Lead based paint exists throughout the building as wall covering. The areas which were peeling and flaking have been repaired, the remainder of the paint will remain as is. Paint condition is an inspection item in the S&M plan for Buildings 3033 and 3033A.

4.2 INTERNAL SPACES; NO ACCESS REQUIRED

4.2.1 Building 3033 Tritium Hoods

The following deactivation activities were performed in the tritium hoods.

- pumped down and purged the system to remove free tritium
- cut out all uranium traps and dispose of them
- all monitors removed
- ventilation remains on hoods
- all other equipment remains in the hoods
- all service lines were identified, labeled, and tagged
- access to the area is secured

4.2.2 Building 3033 Krypton Enclosure

The following deactivation activities were performed in the krypton enclosure

- pumped down and purged the system to remove free krypton
- removed external cylinder and disposed of them
- ventilation on enclosure remains
- all other equipment remains in the enclosure
- all service lines were identified, labeled, and tagged
- access to the area is secured

4.3 EXTERNAL SPACES

4.3.1 Buildings 3033 and 3033A Structure

The exterior of Buildings 3033 and 3033A were inspected and found to be in generally good structural condition. The building exterior has been cocooned to eliminate air and water in-leakage and to provide an effective containment for the building.

4.3.2 Buildings 3033 and 3033A Roof

The roofs of Buildings 3033 and 3033A were repaired/inspected and found to be in generally good structural condition.

4.4 OPERATIONAL SYSTEMS

4.4.1 Electrical Power System

All electrical services that were not essential to the basic surveillance and maintenance operations were disconnected at the main breaker box.

4.4.2 Fire Protection System

The fire protection is a dry pipe delivery system available for use if there is a fire in the building.

4.4.3 Hot Drain System

The Hot drains from the hot cells were plugged with screw on caps to isolate the hot drains and prevent the spread of contamination.

No decontamination of the hot drain system has been performed.

4.4.4 Process Drain System

The process floor drains remain in operation to direct any roof in-leakage to the ORNL process waste system and prevent any uncontrolled contamination from leaving the building.

No decontamination of the process drain system has been performed.

4.4.5 Central Ventilation System

The Central Ventilation System remains in operation to provide negative pressure for contamination control for the tritium hood and krypton enclosure. All controls associated with the central ventilation system remain in operation as well.

No decontamination of the central ventilation system has been performed.

4.5 MOTHBALLED SYSTEMS

4.5.1 Tritium Hoods

The following deactivation activities were performed in the tritium hoods.

- pumped down and purged the system to remove free tritium
- cut out all uranium traps and dispose of them
- all monitors removed
- ventilation remains on hoods
- all other equipment remains in the hoods
- all service lines were identified, labeled, and tagged
- access to the area is secured

4.5.2 Krypton Enclosure

The following deactivation activities were performed in the krypton enclosure

- pumped down and purged the system to remove free krypton
- removed external cylinder and disposed of them
- ventilation on enclosure remains
- all other equipment remains in the enclosure
- all service lines were identified, labeled, and tagged
- access to the area is secured

4.6 ABANDONED SYSTEMS

4.6.1 Building Steam System

The Building Steam System supply was drained and valved off.

4.6.2 Potable Water System

Potable water has been isolated from Buildings 3033 and 3033A by capping the incoming line.

4.6.4 Natural Gas System

Natural gas was vented and valved off.

4.6.5 Plant Air System

The plant air system has been depressurized and valved off.

5. TRANSITION ACTIVITIES

Buildings 3033 and 3033A will be officially transferred from the DOE EM-60 program to the EM-40 program by a Memorandum of Agreement (MOA). The building will be accepted "as is" by EM-40 at the time of transfer.

5.1 MEMORANDUM OF AGREEMENT

The Memorandum of Agreement (MOA) documents the requirements agreed upon between Office of Environmental Restoration (EM-40) and Office of Facility Transition and Management (EM-60). The signed MOA indicates acceptance by EM-40 that the criteria outlined in the MOA have been completed satisfactorily, with the exception of post-transition punchlist items, and that the level of deactivation of the facility is acceptable for transition to the EM-40 program.

Post-Transition punchlist items will be finished after deactivation is complete. The details of how the punchlist items will be completed and documented will be addressed in the MOA.

5.2 POST-TRANSITION ACTIVITIES

No Post-Transition punchlist items have been identified for Buildings 3033 and 3033A. All deactivation activities have been completed prior to transfer to EM-40.

6. POST-DEACTIVATION S&M

The "Post-Deactivation S&M Plan for Buildings 3033 and 3033A" covers S&M activities associated with the interior spaces, operational and mothballed systems, and external areas related to the buildings.

The specific objectives of the S&M program for Buildings 3033 and 3033A are as follows:

1. Ensure adequate containment of contamination,
2. Provide physical safety and security control,
3. Maintain the facility in a manner that will minimize potential hazards to the public, and
4. Provide a mechanism for the identification and compliance with applicable environmental, safety, and health requirements.

The "Post-Deactivation S&M Plan for Buildings 3033 and 3033A" details the specific S&M items to be performed and estimates the annual cost of performance. The S&M cost estimates are based on previous operational costs associated with similar S&M activities at ORNL.

The S&M activities associated with Buildings 3033 and 3033A include the following types of activities:

- Walkdowns and inspections for structural integrity, safety, radioactive contamination, and hazardous material conditions;
- General housekeeping of the interior and exterior of the building as needed; and
- Maintenance activities required to maintain the security and safety envelop of the facility.

7. ABNORMAL ACTIVITIES/CONDITIONS

No Abnormal Activities/Conditions have been identified for Buildings 3033 and 3033A.

8. TURNOVER PACKAGE DOCUMENTATION

8.1 ADMINISTRATIVE TURNOVER PACKAGE

Administrative turnover consists of a collection of administrative documents. This includes procedures, agreements, and other documents not directly related to the physical facility. The level of detail depends on the conditions, requirements, and agreements specific to the facility.

Attachment 4, "Administrative Turnover Package Checklist" reflects the documents required for this facility with respect to administrative turnover. The following sections detail the contents of the applicable sections required for Buildings 3033 and 3033A.

8.1.1 Final Deactivation Project Report

A management summary of the facility deactivation completion, general status and conditions, demonstrating conformance with DOE's specification of the overall end point. It identifies management actions needed that are not routine. Unresolved issues are also described.

8.1.2 Regulatory Compliance Documentation

The status/compliance of all regulatory commitments; for example, status of compliance with applicable regulations promulgated pursuant to statutes, such as Occupational Safety and Health Administration (OSHA), RCRA, CERCLA, and NEPA and the remediation process in the National Contingency Plan.

8.1.3 Interagency Agreements Documentation

Interagency Agreements which identify the terms and milestones of agreements pending and entered into by DOE with Federal, state, and local agencies and the status of compliance. This includes settlement agreements, administrative or consent orders, and compliance plans to settle outstanding notices of violation.

8.1.4 Existing Permit Documentation

The status of existing permits, including National Pollutant Discharge Elimination System (NPDES), air permits, RCRA, and others associated with the facility.

8.1.5 Corrective Action Documentation

The status of Corrective Actions completed and outstanding, from previous audits, inspections, and other similar activities (e.g., Tiger Team, Technical Safety Appraisal, Defense Nuclear Facility Safety Board, regulatory agencies, self assessments, business systems review), including identification of those items that need to be reevaluated and reviewed with respect to the facility's surplus condition.

8.1.6 Deactivation Locks Log and Keys

All deactivation lock and keys for facility access, isolation of electrical components, chaining of valves, and other situations where physical access is to be controlled will be turned over to EM-40 at the time of transfer.

8.2 TECHNICAL TURNOVER PACKAGE

Technical turnover consists of a collection of technical documents that describe the facility, its equipment, and the conditions at the completion of all deactivation activities. The level of detail depends on the conditions, requirements, and agreements specific to the facility. Attachment 5, "Technical Turnover Package Checklist" reflects the documents required for this facility with respect to technical turnover. The following sections detail the contents of the applicable sections required for Bldg. 3033.

8.2.1 Updated Facility Drawings (arrangement, PID, Loop, etc.)

Facility, room, and cell arrangement drawings - to the extent they exist. However, except in unique circumstances, as-builts of the deactivated conditions within the facility are not provided.

Provides current status (including drawings) of the deactivation/safe shutdown (if applicable). The documentation addresses systems, such as the water, sewer, air, electric, gas, process (mechanical and chemical) and fire protection systems.

Table 9. Buildings 3033 and 3033A Updated Drawings

Number	Rev.	Title
H203369EG-002-D	001	A/C Elec. Roof Plan A/C Units Isotope Area
D-51926	A	Enclosure Buildings 3030 and 3033 - Ventilation
D-51926		Piping, Htg. & Vent.

8.2.2 "As Left" Photos of Spaces and Major Equipment

Description/photos of spaces for which access is not anticipated during S&M.

8.2.3 Hazardous Material Inventory and Survey

Location of fixed hazardous materials, wastes, and contamination with characterization information.

8.2.4 Safeguards and Security Documentation

Inventory and Safeguards and Security provisions for nuclear or other material remaining in the facility for which there is a requirement for accountability or protection from diversion.

8.2.5 Chemical Substance Inventory and Survey

Inventory of chemical and hazardous substances remaining, if any, and characterization information.

8.2.6 Radioactive Materials Inventory and Survey

Inventory of radioactive and fissile material remaining as contamination with characterization information.

The final radiological/hazardous materials survey records, final configuration and surveillance and maintenance requirements, available drawings, specifications, procedures, manuals, and unplanned occurrences records applicable to the facility.

8.2.7 Facility Soil, Surface Water, and Groundwater Condition Report

For soil, surface water, and groundwater conditions at the facility, provide all available data and reports that describe those conditions and the nature and extent of contamination therein. Also identifies any known assessment requirements.

8.3 S&M TURNOVER PACKAGE

S&M turnover consists of a collection of documents required to support Post-Deactivation S&M activities. The level of detail depends on the S&M specific to the facility. Attachment 6, "S&M Turnover Package Checklist" reflects the documents required for this facility with respect to S&M turnover. The following sections detail the contents of the applicable sections required for Buildings 3033 and 3033A.

8.3.1 Post-Deactivation S&M Plan

This document describes the S&M plan for the facility after deactivation is complete, up to the initiation of decommissioning. The S&M activities will be integrated into the decommissioning work and phased out as decommissioning is completed.

8.3.2 Post-Deactivation S&M Updated Safety Equipment List

This document describes the safety equipment which will remain in the facility during the post-deactivation S&M period.

8.3.3 Post-Deactivation S&M Procedures

Table 8 contains a list of procedures required during the post-deactivation S&M period. These procedures outline the maintenance activities and special surveillances required to ensure that the facility conditions and safety envelop remain consistent until decommissioning can take place.

Table 10. Buildings 3033 and 3033A S&M Procedures

Number	Procedure Title
IP-605	Bldg. 3033 Check Sheets
IP-409	Bldg. 3033A Check Sheets

9. ASSOCIATED LITERATURE

Document Number	Document Title
Draft	Facility Deactivation End Points Handbook; Volume 1: Method and Examples.
Draft	Facility Deactivation End Points Handbook; Volume 2: Deactivation Practices.
DOE/EM-0246	Decommissioning Resource Manual. August 1995
ORNL/ER-249/R2	Martin Marietta Environmental Restoration Program; Work Plan for the Isotopes Facilities Deactivation Project at Oak Ridge National Laboratory, August 1995
	Oak Ridge National Laboratory; Local Emergency Manual, Isotope Area, Revision 94-1, January 1994

10. ATTACHMENTS

1. Buildings 3033 and 3033A Floor Plans
2. Buildings 3033 and 3033A Pre-Deactivation Facility Photographs
3. Buildings 3033 and 3033A Post-Deactivation Facility Photographs
4. Administrative Turnover Package Checklist
5. Technical Turnover Package Checklist
6. S&M Turnover Package Checklist
7. Buildings 3033 and 3033A Drawing List
8. Buildings 3033 and 3033A Radiological Survey Data

ATTACHMENT 1
BUILDINGS 3033 AND 3033A
FLOOR PLANS

ORNL DWG 97C-253

Building 3033-A

ATTACHMENT 2
BUILDINGS 3033 AND 3033A
PRE-DEACTIVATION FACILITY PHOTOGRAPHS

Fig. 2.1. Bldg. 3033: Operating area (looking east).

Fig. 2.2. Bldg. 3033: Operating area Kr system (looking southwest).

Fig. 2.3. Bldg. 3033A: predeactivation.

ATTACHMENT 3
BUILDINGS 3033 AND 3033A
POST-DEACTIVATION FACILITY PHOTOGRAPHS

Fig. 3.1. Bldg. 3033 postdeactivation: Operating area Kr system (looking southwest).

Fig. 3.2. Bldg. 3033 postdeactivation: Operating area (looking east).

Fig. 3.3. Bldg. 3033A: postdeactivation.

ATTACHMENT 4
ADMINISTRATIVE TURNOVER
PACKAGE CHECKLIST

Administrative Turnover Package Checklist

Item Number	Document	Applicable ?
1	Final Deactivation Project Report	Yes
2	Emergency Response Plan	No
3	Safety Documentation (Category III or greater)	No
4	Regulatory Compliance Documentation	No
5	Interagency Agreements Documentation	No
6	Existing Permit Documentation	No
7	Corrective Action Documentation	No
8	Post-Deactivation Punchlist	No
9	Deactivation Locks and Keys	Yes

ATTACHMENT 5
TECHNICAL TURNOVER
PACKAGE CHECKLIST

Technical Turnover Package Checklist

Item Number	Document	Applicable ?
1	End Point Determination Report	No
2	End Points Completion Report	No
3	End Point Technical Information	No
4	Deactivation Work Plans	No
5	Updated Facility Drawings (arrangement, PID, Loop, etc.)	Yes
6	"As Left" Photos of Spaces and Major Equipment	Yes
7	Hazardous Material Inventory and Survey	No
8	Safeguards and Security Documentation	No
9	Chemical Substance Inventory and Survey	No
10	Radioactive Materials Inventory and Survey	No
11	Facility Soil, Surface Water, and Groundwater Condition Report	Yes

**ATTACHMENT 6
S&M TURNOVER
PACKAGE CHECKLIST**

S&M Turnover Package Checklist

Item Number	Document	Applicable ?
1	Post-Deactivation Surveillance and Maintenance Plan	Yes
2	Post-Deactivation Surveillance and Maintenance Updated Effluent Monitoring Plan	No
3	Post-Deactivation Surveillance and Maintenance Updated Safety Equipment List	No
4	Post-Deactivation Surveillance and Maintenance Procedures	Yes
5	Post-Deactivation Surveillance and Maintenance Recommendations	No
6	Mothballed Systems Lay-up and Restart Documentation	No

ATTACHMENT 7
BUILDINGS 3033 AND 3033A
DRAWING LIST

Document Number	Revision	Title
02D101408		Installation & interconnection opt. 'G' 36x30x12
130001081	C	36x30x12 - NEMA enclosure
13D-2037-5001	B	Instru flow diag
40535	B	MB 601 pump - double containment
A-36613		Floor plan
A-36614		Sect A-A improvements to bldg
A-5551		Electrical det lab eqpt
C-35347		Extension to bldg 3033 flr pln and sect
C-43249		Drop door on hood sects and dets
C-8657		Crusher assy alt hammer dt
D-18652		Lighting & pwr plan
D-19726		Krypton gas hood foundation & canopy dets
D-19727		Krypton gas hood struc plan & sect
D-19728		Krypton gas hood serv piping
D-19729		Krypton gas hood drainage & hot off-gas
D-19730		Krypton gas hood ductwork
D-27399		Elec plan, elev & sects
D-29175		Krypton col
D-29176		Krypton col container
D-29177		Krypton col piping
D-29178		Krypton col shielding
D-29179		Krypton col shielding exh
D-29180		Krypton col coolant container
D-30370		Engineering flowsheet
D-30371		C14 scrubber assy & dets
D-30372		Drifrite bed modif & combustion dets
D-30373		Gas hood C14 equip layout
D-30474		Krypton cold trap assy & dets
D-30486		HE 3 storage container - 40 liter - dets
D-30487		HE 3 storage fac assy
D-31379	003	Flow dia
D-31380		Krypton & xenon & carbon trap dets
D-31381		Krypton & xenon traps assy & dets
D-31382	A	Heating elements for traps

Document Number	Revision	Title
D-31383		Carbon trap assy & dets
D-31388		Litium reactor assy & dets
D-32058		Piping layout inside storage cubicle
D-32059		Piping hook inside bldg
D-3451-1		Worcester controls
D-34925		Piping arrgmt from reactor to gas hood
D-34982		Flexible wrench bolt remover assy
D-34983		Flexible wrench bolt remover det sht 1
D-34984		Flexible wrench bolt remover det sht 2
D-34985		Flexible wrench bolt remover det sht 3
D-34988		Hopper assy det sht 1
D-34989		Hopper assy det sht 2
D-34991		Ball socket manip det sht 1
D-34992		Ball socket manip det sht 2
D-34993		Ball socket manip det sht 3
D-34994		Ball socket manip det sht 4
D-34995		Dissolver tank top flanges & tank location
D-35298	001	Reactor tank enclosure plan sect det
D-35299	001	Reactor tank enclosure misc dets
D-35829		Plot plan
D-35830		Sects
D-35841		Fast burst facility plot plan
D-36551		Slug carrier assy
D-36552		Slug carrier assy views & sects
D-36553		Slug carrier det sht 1
D-36554		Slug carrier det sht 2
D-36555		Slug carrier det sht 3
D-36556		Slug carrier det sht 4
D-36557		Slug carrier det sht 4 view & sect
D-36558		Equip instal
D-37909		HTG & vent
D-37916	001	Service piping drainage
D-38010		Improvements to bldg arch plans
D-38011		Improvements to bldg arch dets

Document Number	Revision	Title
D-38012		Improvements to bldg foundation plan & det
D-38013		Improvements to bldg struct plan & det
D-38022		Improvements to building - door schedule & notes
D-38406	001	Lighting receptable plan
D-38430		Elec plan & elev
D-39056		Piping arrgmt for reactor & to gas hood
D-39060		Misc dets & flow diag
D-39061		Hopper assy & dets
D-39072		Krypton 85 absorber
D-39084		Administration laboratory & control rm plan
D-39130		Krypton 85 absorber
D-43180		Door hood closure elec elev & wiring
D-51067		CO2 absorber assy
D-51068		CO2 absorber det sht 1
D-51069		CO2 absorber det sht 2
D-51070		C14 precip. assy
D-51071		C14 precip. det sht 1
D-51072		C14 precip. det sht 2
D-5405		Structural floor lab
D-5510		Key plan of duct dets
D-5541		20 ft hot barricade process drainage
D-5542		20 ft hot barricade process piping
D-5560		Drainage ser piping sect dets
D-5640		Bldgs A,B,C,D,E,F, exhaust damper ctrl
D-5647		Hot barrier exh hinged cover dets
D-5648		Hot barrier exh showing riser ducts
D-5649		Hot barrier exh R113 dets
D-5651		Hot barrier exh isometric dwg
D-5710		Hot barricade exh main exhaust duct
D-5731		Attic walkways plans dets
D-6609		Bldg A,B,C,D, lighting plan
D-6610	A	Isotope process. Area Bldg. 3032 & 3033 - heating & exhaust system
D-6612		Bldg. A,B,C,D,E foundation plan dets

Document Number	Revision	Title
D-6616		Bldg. C,D,E, drainage plans
D-6617		Bldg. A,B,C,D,E framing PL elev dets
D-6619		Bldg. A,B,C,D,E architectural floor wall sect
D-6621	A	Isotope process. Area - process bldg. "D" heating & exhaust system
D-6622		A,B bldgs service piping plan sect det
D-6623		Bldgs A,B,C,D,E ceiling framing plan dets
D-6629		Process bldg column bldg foundation plan dets
D-6631		Serv bldg lighting F alm
D-6637		C bldg service piping plan sect dets
D-6639		Conduit dets sh 1
D-6648		Off gas lines plans sects
D-6889		Service requirement at 1st floor cell block
D-6890		1st floor plan
D-6891		2nd floor plan
D-6892		3rd floor plan
D-6893		Sects A-A B-B
D-6895		Proposed cell block dets for Austin Co
D-7159		Hot hood & equip detailed assy
D-7161		Outside tongs rotary table & misc dets
D-7162		Inside tongs assy & dets
D-1763		Furnace parts
E20005D-002-D		Emer remote oper nat gas mn valve schem conn diag
E-34987		Hopper assy
E-34990		Ball socket manip assy
E-34996		Equip instl dets
E3D-20375-D004	A	Tritium hood bldg. 3033-electrical demolition-eqpt plans & details
E3D-20375-D005	C	Tritium hood bldg. 3033-electrical schematics and details
E3D-20375-Z002		Study - tritium hood for bldg. 3033 - plan & one line diagram
E3E-20375-D008		Elec plan & wiring
E3E-20375-D009		Krypton 85 process equip PWR plan
E3E-20375-D010		Krypton 85 equip misc sect & dets
E3E-20375-D011		Krypton 85 PWR & control intercon. wiring diag.

Document Number	Revision	Title
E3E-20375-D012		Krypton 85 misc dets & wiring diags
E3E-20375-D014		Bldg. 3033 and 3034 - floor plan - equipment layout
E3E-20375-D015		Lighting & receptacle pl.
E3E-20375-D016		PWR & safe sys. 120/208 vac
E3E-20375-D017		480V one line diag.
E3E-20375-D018		Crusher assy & det
E-7160		A/C struc elec plan sect & schem
H20375EG-001-D		A/C elec roof plan A/C units isotope area
H20375EG-004-D	001	Tritium handling sys process flowsht
H3D-20375-G008	B	Tritium handling sys process flowsht
H3D-20375-G009	B	Tritium handling sys process flowsht
H3D-20375-G010	B	Tritium handling sys process flowsht
H3D-20375-G011	B	Tritium handling sys process flowsht
H3D-20375-G012	B	Tritium handling sys process flowsht
H3E-20011-G027	A	RWFI-isotope area - roof plan, cell vent & off-gas
H3E-20011-G036	A	RWFI-isotope area - Bldg. 3033 attice plan, cell vent & off-gas
H3E-20011-SK6	002	3033, 3028, 3118 demo CL vnt
H3E-20011-SK6	002	3033, 3033A, 3029 demo CV & OG
H3E-20375-G005	A	Assy plan, elevs & sects
H3E-20375-G006	A	Sects & dets
H3E-20375-G007	B	Tritium hood exh sys plan
I2B-20375-0316		Krypton 85 process fac. flow control FCV-1
I3B-020375-0250	A	Krypton 85 process fac. manual/auto switching
I3B-020375-0251	A	Krypton 85 process fac.hand control valve HCV-2
I3B-020375-0252	A	Krypton 85 process fac.hand control valve HCV-2
I3B-020375-0253	A	Krypton 85 process fac.hand control valve HCV-3
I3B-020375-0254	A	Krypton 85 process fac.hand control valve HCV-4
I3B-020375-0255	A	Krypton 85 process fac.hand control valve HCV-5
I3B-020375-0256	A	Krypton 85 process fac.hand control valve HCV-6
I3B-020375-0257	A	Krypton 85 process fac.hand control valve HCV-7
I3B-020375-0258	A	Krypton 85 process fac.hand control valve HCV-8
I3B-020375-0259	A	Krypton 85 process fac.hand control valve HCV-9
I3B-020375-0260	A	Krypton 85 process fac.hand control valve HCV-10
I3B-020375-0261	A	Krypton 85 process fac.hand control valve HCV-11

Document Number	Revision	Title
I3B-020375-0262	A	Krypton 85 process fac.hand control valve HCV-12
I3B-020375-0263	A	Krypton 85 process fac.hand control valve HCV-13
I3B-020375-0264	A	Krypton 85 process fac.hand control valve HCV-14
I3B-020375-0265	A	Krypton 85 process fac.hand control valve HCV-15
I3B-020375-0266	A	Krypton 85 process fac.hand control valve HCV-17
I3B-020375-0267	A	Krypton 85 process fac.hand control valve HCV-18
I3B-020375-0268	A	Krypton 85 process fac.hand control valve HCV-19
I3B-020375-0269	A	Krypton 85 process fac.hand control valve HCV-20
I3B-020375-0270	A	Krypton 85 process fac.hand control valve HCV-0G1
I3B-020375-0271	A	Krypton 85 process fac.hand control valve HCV-0G2
I3B-020375-0272	A	Krypton 85 process fac.hand control valve HCV-SB
I3B-020375-0273	A	Krypton 85 process fac.hand control valve HCV-ST1
I3B-020375-0274	A	Krypton 85 process fac.hand control valve HCV-ST2
I3B-020375-0275	A	Krypton 85 process fac.hand control valve HCV-ST3
I3B-020375-0276	A	Krypton 85 process fac.hand control valve HCV-LN5
I3B-020375-0277	A	Krypton 85 process fac.hand control valve HCV-LN6
I3B-020375-0278	A	Krypton 85 process fac.hand control valve HCV-LN7
I3B-020375-0279	A	Krypton 85 process fac.hand control valve HCV-23
I3B-020375-0280	B	Krypton 85 process fac.liq N2 level cntl LCV-1
I3B-020375-0281	B	Krypton 85 process fac.liq N2 level cntl LCV-2
I3B-020375-0282	B	Krypton 85 process fac.liq N2 level cntl LCV-3
I3B-020375-0283		Krypton 85 process fac.J1 pump control
I3B-020375-0284		Krypton 85 process fac.J2 pump control
I3B-020375-0285	A	Krypton 85 process fac.heater/carbon trap F-1 TIC-3
I3B-020375-0286	A	Krypton 85 process fac.heater/krypton trap F-2 TIC-6
I3B-020375-0287	A	Krypton 85 process fac.heater/transfer trap F-3 TIC-8
I3B-020375-0288	A	Krypton 85 process fac.E-1 separation column TIC-16
I3B-020375-0289	A	Krypton 85 process fac.RF generator TIC-9
I3B-020375-0290	A	Krypton 85 process fac.temp indicator TI-10
I3B-020375-0291	A	Krypton 85 process fac.temp indicator TI-11
I3B-020375-0292	A	Krypton 85 process fac.temp indicator TI-12
I3B-020375-0293	A	Krypton 85 process fac.temp indicator TI-13
I3B-020375-0294	A	Krypton 85 process fac.temp indicator TI-14
I3B-020375-0295	A	Krypton 85 process fac.temp indicator TI-15

Document Number	Revision	Title
I3B-020375-0296	A	Krypton 85 process fac.temp indicator TI-1
I3B-020375-0297	B	Krypton 85 process fac.radiation recorder AR-3
I3B-020375-0298	B	Krypton 85 process fac.L-1 thrm cond cham AR-1
I3B-020375-0299	B	Krypton 85 process fac.ion chamber vent AR-4
I3B-020375-0300		Krypton 85 process fac.flow control PCV-1
I3B-020375-0301		Krypton 85 process fac.pressure XMTR PI-2
I3B-020375-0302		Krypton 85 process fac.pressure XMTR PI-3
I3B-020375-0303		Krypton 85 process fac.pressure XMTR PI-4
I3B-020375-0304		Krypton 85 process fac.pressure XMTR PI-5
I3B-020375-0305		Krypton 85 process fac.pressure XMTR PI-6
I3B-020375-0306		Krypton 85 process fac.pressure XMTR PI-7
I3B-020375-0307		Krypton 85 process fac.pressure XMTR PI-8
I3B-020375-0308		Krypton 85 process fac.pressure XMTR PI-9
I3B-020375-0309		Krypton 85 process fac.pressure XMTR PI-10
I3B-020375-0310		Krypton 85 process fac.pressure XMTR PI-13
I3B-020375-0311		Krypton 85 process fac.pressure XMTR PI-14
I3B-020375-0312		Krypton 85 process fac.pressure XMTR PI-15
I3B-020375-0313		Krypton 85 process fac.pressure XMTR PI-16
I3B-020375-0314		Krypton 85 process fac.pressure XMTR PI-17
I3B-020375-0315		Krypton 85 process fac.pressure XMTR PIS-18
I3B-020375-0316		Krypton 85 process fac.fac flow control FCV-1
I3B-020375-0317		Krypton 85 process fac.fac flow indicator FI-2
I3B-020375-0318		Krypton 85 process fac.fac flow indicator FI-3
I3B-020375-0319		Krypton 85 process fac.pressure XMTR PI-11
I3C-020375-0247	A	Krypton 85 ILD-cover/approval sheet
I3C-020375-0248	A	Krypton 85 ILD List 1
I3C-020375-0249	A	Krypton 85 ILD List 2
I3D-20375-001	B	Instrumental flow diagram
I3D-20375-006		Instr panel name tag layout
I3D-20375-011		North tritium handling sys instr flow diag
I3D-20375-016		North tritium handling system inst. panel name tags
I3E-020375-0201	A	Krypton 85 process fac. rack 2 (transmitter rack)
I3E-020375-0202	A	Krypton 85 process fac. rack 3 (misc. instr.)
I3E-020375-0210	B	Krypton 85 process fac. wiring diag. rack 1,2,3

Document Number	Revision	Title
I3E-020375-0211	B	Krypton 85 process fac. bristol wiring diagram
I3E-020375-0220	B	Krypton 85 process fac. schedules/misc details
I3E-020375-002	B	Instr panel fabr dets
I3E-020375-003	C	Instr panel wiring diag
I3E-020375-004	B	Control wiring schematic
I3E-020375-005	B	Instr location & assy dets
I3E-020375-0100		Instr sys diag
I3E-020375-0101		Krypton and xenon separation process instrument system diagram
I3E-020375-0102		Instr sys diag
I3E-020375-012		Instr panel fabr dets
I3E-020375-013		Instr panel wiring diag
I3E-020375-014		Control wiring schematic
I3E-020375-015		Inst. location & assy dets
I3E-020375-200		Krypton 85 rack 1 solenoid valves
I3E-020375-221		Krypton 85 manual valve pnl/dets
J3D-11592-E003		Krypton and xenon separation process equipment layout plan
J3D-11592-E005		Krypton and xenon separation process
J3D-20375-E002		Liq nitrogen sys P&CD
J3E-11592-E001	D	Krypton xenon process P, ID as built
J3E-11592-E002		Improvements to krypton process
J3E-11592-E004		Krypton & xenon separation process P & CD
J3E-20375-E001	A	KE & XE separ proc P & CD
M10286F-001-E		Assy button arc melt furnace 6 in
M10286F-002-D		Dets button arc melt furnace 6 in target equip sht 1
M10286F-003-D		Dets button arc melt furnace 6 in target equip sht 2
M10286F-004-D		Dets button arc melt furnace 6 in target equip sht 3
M10286F-005-D		Dets button arc melt furnace 6 in target equip sht 4
M10286F-006-D		Dets button arc melt furnace 6 in target equip sht 5
M10286F-007-D		Dets button arc melt furnace 6 in target equip sht 6
N3E-020375-A001		Radioactive gas proc fac 3033 manipulator rack hanger assembly
P3B-20375-C001	A	Expansion impure storage & surge tank
P3E-20011-C002	001	Partial CV & OG drain pl.

Document Number	Revision	Title
P3E-20375-C002	B	Kr 85 proc fac piping L.O.
P3E-20375-C003		Kr 85 proc fac cell piping sect
P3E-20375-C004	A	Kr 85 proc fac CA&ASC. trap det
P3E-20375-C005		Kr 85 dets
P3E-20375-C006	B	Kr 85 proc fac cold traps
P3E-20375-C007	A	Kr 85 proc fac cryo dewars
S3E-20375-B002		Process equip design, plan & dets
SD3451-2		Worcester controls
SD3451-3		Worcester controls
X3D-11592-0010		Gas BTL handling device form modif
X3E-11592-0011		Gas BTL handling device cubicle mod
X3E-11592-0012		Gas BTL handling device dets
X3E-11592-0013		Gas cylinder valve actuator assy & dets
X3E-11592-0014		Ampole sld & VLV actuator assy & det
X3E-11592-0015		Motorized valve actuator assy & det
X3E-11592-0016		Motorized VLV actuator dets
X3E-20375-0001	C	Tritium hood for Bldg 3033

**ATTACHMENT 8
BUILDINGS 3033 AND 3033A
RADIOLOGICAL SURVEY DATA**

ORNL Radiological Survey Data

Survey Number: 3038-97-0327

3038 Field Office

Date: 5/15/97

Time: 13:30

		Boundary Designations	
④	- Smear Location	RA - Radiation Area	BA - Radiological Buffer Area
④-④	- Large Area Smear	HR - High Radiation Area	CA - Contamination Area
#	- Contact Dose Rate	VR - Very High Radiation Area	HC - High Contamination Area
#	- 30 cm Dose Rate	AR - Airborne Radioactivity Area	FC - Fixed Contamination Area
#	- General Area Dose Rate	RM - Radioactive Materials Area	SC - Soil Contamination Area
SOP	- Step-off Pad	UM - Underground Radioactive Materials Area	
AS	- Air Sample Location		

Default units are in mR/hr and are for open window beta/gamma readings. Letter suffixes with the number indicate specific radiations: B - Beta (mRad/hr), G - Gamma (mR/hr), N - Neutron (mRem/hr). Boundary designations are looking from the designations into the zoned area.

S#	TIME	CPMA	DPM1	A:2S%	CPMB	SIS	tSIE	LUM	FLAG
1	1.00	4.00	10.20	36.51	29.00	8.800	380.	30	
2	1.00	0.00	0.00	40.00	24.00	8.089	369.	40	
3	1.00	0.00	0.00	40.82	23.00	7.423	320.	63	
4	1.00	1.00	3.03	38.49	24.00	8.679	305.	56	
5	1.00	3.00	9.13	37.14	27.00	8.855	303.	34	
6	1.00	0.00	0.00	40.00	24.00	9.351	316.	32	
7	1.00	5.00	18.05	35.92	30.00	6.099	251.	39	
8	1.00	0.00	0.00	44.72	19.00	9.469	344.	20	
9	1.00	10.00	33.50	33.33	34.00	7.312	272.	42	
10	1.00	3.00	8.10	37.14	28.00	10.239	352.	24	
11	1.00	0.00	0.00	53.45	14.00	13.872	355.	7	
12	1.00	0.00	0.00	66.67	9.00	14.445	360.	44	
13	1.00	0.00	0.00	55.47	13.00	12.717	352.	0	
14	1.00	0.00	0.00	66.67	8.00	9.987	352.	22	
15	1.00	0.00	0.00	60.30	10.00	10.522	335.	0	
16	1.00	0.00	0.00	60.30	11.00	11.527	362.	0	
17	1.00	0.00	0.00	50.00	16.00	12.238	359.	6	
18	1.00	0.00	0.00	55.47	12.00	13.828	393.	8	
19	1.00	0.00	0.00	47.14	18.00	15.106	342.	6	
20	1.00	105398.	164264.	0.62	95263.0	19.974	1008	0	E
21	1.00	0.00	0.00	50.00	9.00	12.038	1007	19	E

E H-3 Standard
E Bkgd

Deborah Crossen
626079
Packard 1900 TR
Bldg 3033

ORNL Radiological Survey Data
 Survey Number: 3038-97-
 3038 Field Office
 Date: 3-4-97 Time: 10:15
 Rockland 1900TR
 Tritium Room Bldg. 3033
 626079

Give any DTD on back of
 1000 gpm/100 cm² x 1.5H

1	1
2	2
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100	100

Remarks:

Boundary Designations	Boundary Designations
AS - Air Sample Location	UM - Underground Radioactive Materials Area
AS - Step-off Pad	RM - Radioactive Materials Area
AS - General Area Dose Rate	AR - Airborne Radioactivity Area
AS - 30 cm Dose Rate	VR - Very High Radiation Area
AS - Contact Dose Rate	HR - High Radiation Area
AS - Large Area Smear	CA - Contamination Area
	BA - Radiological Buffer Area

Default units are in mR/hr and are for open window beta/gamma readings. Letter suffixes with the number indicate specific radiation: B - Beta (mR/hr), G - Gamma (mR/hr), N - Neutron (mR/hr). Boundary designations are looking from the designated into the zoned area.

SMEAR SAMPLE DATA

Page #1

NAME (HP&S) <i>McWhee / Slater</i>	PHONE <i>4-6704</i>	BLOG. NO. (HP&S) <i>3038</i>	LOCATION (SMEARS TAKEN) <i>3033-Annex</i>	DATE <i>1/20/93 : 1/21/93</i>
SMEARS NUMBERED: From <i>1</i> To <i>112</i>	RESULTS REQUIRED: Date _____ Time _____		DATE COUNTED <i>1/21/93</i>	COUNTER OPERATOR <i>KJM / JS</i>
GIVE D/M ONLY ON SMEARS OVER: <i>20</i> d/m α <i>200</i> d/m β		REMARKS: <i>CTA-041</i> <i>CTB-047</i>		

α	β	LOCATION (*)	α	β	LOCATION (*)	α	β	LOCATION (*)
1 25	—		34 —	—		67 —	—	
2 38	—		35 —	—		68 —	—	
3 40	—		36 —	—		69 —	—	
4 —	—		37 38	—		70 32	—	
5 —	—		38 —	—		71 100	—	
6 —	—		39 —	—		72 —	—	
7 —	—		40 —	—		73 63	—	
8 —	—		41 —	—		74 33	—	
9 —	—		42 48	—		75 —	—	
10 —	—		43 —	—		76 35	—	
11 —	—		44 —	—		77 30	—	
12 —	—		45 —	—		78 200	250	
13 —	—		46 —	—		79 —	—	
14 —	—		47 40	—		80 270	217	
15 —	—		48 —	—		81 35	—	
16 —	—		49 21	—		82 30	—	
17 —	—		50 —	—		83 35	—	
18 —	—		51 —	—		84 28	—	
19 —	—		52 —	—		85 1000	630	
20 —	—		53 21	—		86 —	—	
21 23	—		54 —	—		87 33	—	
22 —	—		55 —	—		88 48	392	
23 —	—		56 78	—		89 —	—	
24 —	—		57 70	—		90 —	—	
25 —	—		58 —	—		91 55	—	
26 21	—		59 —	—		92 —	—	
27 —	—		60 80	—		93 —	—	
28 —	—		61 215	—		94 —	—	
29 —	—		62 210	—		95 —	—	
30 —	—		63 28	—		96 —	—	
31 —	—		64 125	—		97 685	5400	
32 —	—		65 —	—		98 260	—	
33 —	—		66 —	—		99 43	—	

SMEAR SAMPLE DATA

Page #2

NAME (HP&S) <i>McWhorter</i>	PHONE <i>46704</i>	BLOG. NO. (HP&S)	LOCATION (SMEARS TAKEN) <i>3033-Annex</i>	DATE
SMEARS NUMBERED: From _____ To _____	RESULTS REQUIRED: Date _____ Time _____	DATE COUNTED		COUNTER OPERATOR
GIVE D/M ONLY ON SMEARS OVER: <i>20</i> d/m α <i>200</i> d/m β		REMARKS:		

α	β	LOCATION (*)	α	β	LOCATION (*)	α	β	LOCATION (*)
101 <i>60</i>	—		34			67		
102 —	—		35			68		
103 —	—		36			69		
104 —	—		37			70		
105 —	—		38			71		
106 —	—		39			72		
107 —	—		40			73		
108 —	—		41			74		
109 —	—		42			75		
110 —	—		43			76		
111 —	—		44			77		
112 <i>55</i>	—		45			78		
113			46			79		
114			47			80		
115			48			81		
116			49			82		
117			50			83		
118			51			84		
119			52			85		
120			53			86		
121			54			87		
122			55			88		
123			56			89		
124			57			90		
125			58			91		
126			59			92		
127			60			93		
128			61			94		
129			62			95		
130			63			96		
131			64			97		
132			65			98		
133			66			99		

ORNL Radiological Survey Data

Survey Number: 3038-95-0831

3038 Field Office

Date: 8/20/95

Time: 11:30

Surveyor Badge Number: 34657

☒ Routine Survey

RWP Number: NONE

Building: 3033 AX

Specific Location: FLOORS, WALLS

Description:

THIS SURVEY WAS COMPLETED BY: C.G. GRAINGER, D.A. CRAFT, S.K. BURNETTE, D.E. CROSSNO, E.W. ADKISON, G.B. BENNETT III AND T.W. DAVIS. THIS SURVEY WAS PERFORMED OVER SEVERAL DAYS AND MANY DIFFERENT PORTABLE INSTRUMENTS WERE USED. THE ENTIRE FLOOR IN BOTH 3033 ANNEX AS WELL AS THE AIR LOCK JUST OUTSIDE OF THE ANNEX. WERE PROBED AND SMEARED. ALL SERVICE LINES AS WELL AS ANY FLAT SURFACES ON THE WALLS WERE PROBED AND SMEARED.

Instruments Used and Calibration Due Date:

CTA-041 2/20/96

CTB-047 2/20/96

CTA-032 3/1/96

CTB-001 3/1/96

General Description of Radiological Conditions:

FLOOR (REGULATED AREA): THE HIGHEST DIRECT PROBE READING WAS 60,000 DPM ALPHA, (THIS WAS IN THE SOUTHWEST CORNER OF THE ANNEX AS WELL AS SOUTHWEST AREA OF THE AIR LOCK). THE AIR LOCK ALSO PROBED 60,000 DPM BETA-GAMMA. THE HIGHEST TRANSFERABLE CONTAMINATION LEVEL FOUND WAS 48,000 DPM ALPHA & 16,500 DPM BETA-GAMMA, THIS WAS ALSO FOUND IN THE AIR LOCK. FLOOR(CONTAMINATION AREA): THE HIGHEST DIRECT PROBE READING IN THE CONTAMINATION WAS 60,000 DPM ALPHA, THE HIGHEST TRANSFERABLE READING WAS 150 DPM ALPHA. EAST WALL: HIGHEST DIRECT PROBE READING WAS 2,200 DPM ALPHA WITH THE HIGHEST TRANSFERABLE LEVELS BEING 60 DPM ALPHA. WEST WALL: THE HIGHEST PROBE READING WAS 2,700 DPM ALPHA, WITH NO TRANSFERABLE CONTAMINATION BEING FOUND. NORTH WALL: THE HIGHEST DIRECT PROBE READING WAS 2,500 DPM ALPHA WITH NO TRANSFERABLE CONTAMINATION BEING FOUND. SOUTH WALL (OUTSIDE CONTAMINATION AREA): THE HIGHEST DIRECT PROBE READING WAS 7,500 DPM ALPHA, WITH THE HIGHEST TRANSFERABLE READINGS BEING 32 DPM ALPHA.... SOUTH WALL(INSIDE THE CONTAMINATION AREA) :HIGHEST DIRECT PROBE READINGS WERE FOUND TO BE 7,500 DPM ALPHA WITH THE HIGHEST TRANSFERABLE LEVELS BEING 25 DPM ALPHA..... PLEASE SEE MAP FOR MORE DETAILED INFORMATION. IF GRID SQUARE ON MAP HAS ONLY A CHECK WITH INITIALS THEN NO DIRECT OR TRANSFERABLE CONTAMINATION WAS FOUND IN THAT SQUARE. IF GRID SQUARE HAS A CHECK WITH INITIALS AND A NUMBER THEN THAT NUMBER IS THE DIRECT READINGS FOUND IN THAT GRID SQUARE. IF THE GRID SQUARE HAS INITIALS, A CHECK AND TWO NUMBERS THEN THE NUMBERS ARE THE HIGHEST DIRECT READINGS AS WELL AS THE HIGHEST TRANSFERABLE CONTAMINATION LEVELS FOUND IN THAT GRID SQUARE. ALL CONTAMINATION THAT WAS FOUND WAS ALPHA UNLESS OTHERWISE NOTED.

Division or Group Nearing the Survey: CT

Person-hours spent on the survey: 85

of Pages: 5

Completed By: *W. J. ...*

34657

Reviewed by: *Slater*

Date: 6-21-95

Smear Results (dpm/100 cm² unless noted)

Smear Number	α	β	Location	Smear Number	α	β	Location	Smear Number	α	β	Location
1			See various smear sheets								

ORNL Radiological Survey Data

 Survey Number: 3038-95-45

3038 Field Office

 Date: 6/15/75 Time: 1300

Give only Data on bottom sheet
20
200

A	B
1 L20	1 L200
2 L20	2 L200
3 L20	3 L200
4 L20	4 L200
5 L20	5 L200
6 L20	6 L200
7 L20	7 L200
8 L20	8 L200
9 L20	9 L200
10 L20	10 L200
11 L20	11 L200
12 L20	12 L200
13 L20	13 L200
14 L20	14 L200
15 L20	15 L200
16 L20	16 L200
17 L20	17 L200
18 L20	18 L200
19 L20	19 L200
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 CTA-041
 CTB-047

FLOOR

BLDG 3033 AX

 CTA-041
 CTB-047

 1110 WHILE 1110 BEAR 1110 WHILE
 EAST WALL
 C.G. Johnson
 S.K. Runnette

Symbol	Smear Location	Boundary Designations
(e)	- Large Area Smear	RA - Radiation Area
(#)	- Contact Dose Rate	HR - High Radiation Area
(#)	- 30 cm Dose Rate	VR - Very High Radiation Area
(#)	- General Area Dose Rate	AR - Airborne Radioactivity Area
(SOP)	- Step-off Pad	RM - Radioactive Materials Area
AS	- Air Sample Location	UM - Underground Radioactive Materials Area
		BA - Radiological Buffer Area
		CA - Contamination Area
		HC - High Contamination Area
		FC - Fixed Contamination Area
		SC - Soil Contamination Area

Default units are in mR/hr and are for open window beta/gamma readings. Letter suffixes with the number indicate specific radiations: B - Beta (mRad/hr), G - Gamma (mR/hr), N - Neutron (mRem/hr). Boundary designations are looking from the designations into the zoned area.

ORNL Radiological Survey Data

Survey Number: 3038-95-083 | 3038 Field Office

Date: Time:

Give only D44 on forms over	
20	400/100 m ² s
100	400/100 m ² s

A	B
1	120
2	1200
3	
4	
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CTA-041
 CTB-047
 CCA-048 (3465)
 DCA-049 (740165)

BLDG 3033 AX

FLOOR

N

(S)	Smear Location	Boundary Designations	
(S)	Large Area Smear	RA - Radiation Area	BA - Radiological Buffer Area
#	Contact Dose Rate	HR - High Radiation Area	CA - Contamination Area
#	30 cm Dose Rate	VR - Very High Radiation Area	HC - High Contamination Area
#	General Area Dose Rate	AR - Airborne Radioactivity Area	FC - Fixed Contamination Area
[SOP]	Stop-off Pad	RM - Radioactive Materials Area	SC - Soil Contamination Area
AS	Air Sample Location	UM - Underground Radioactive Materials Area	

Default units are in mR/hr and are for open window beta/gamma readings. Letter suffixes with the number indicate specific radiations: B - Beta (mRad/hr), G - Gamma (mR/hr), N - Neutron (mRem/hr). Boundary designations are looking from the designations into the zoned area.

ORNL Radiological Survey Data

Survey Number: 3038-95-0831

3038 Field Office

Date: 6/20/95 Time: 9:30 am

Give away Gold on various sizes	
200g approx 1000 cal ±	
200g approx 1500 cal ±	
A	B
1 220	1 2200
2 220	2 2200
3 220	3 2200
4 220	4 2200
5 220	5 2200
6 25	6 2200
7 220	7 2200
8 220	8 2200
9 220	9 2200
10 220	10 2200
11 220	11 2200
12 220	12 2200
13 220	13 2200
14 220	14 2200
15 32	15 2200
16 220	16 2200
17 220	17 2200
18 220	18 2200
19 220	19 2200
20 25	20 2200
21 36	21 2200
22	22
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32	32
33	33

3033 AX SOUTH WALL

⑤ - Smear Location		Boundary Designations	
⑤ - ⑥	- Large Area Smear	RA - Radiation Area	BA - Radiological Buffer Area
⑤	- Contact Dose Rate	HR - High Radiation Area	CA - Contamination Area
⑤	- 30 cm Dose Rate	VR - Very High Radiation Area	HC - High Contamination Area
⑤	- General Area Dose Rate	AR - Airborne Radioactivity Area	FC - Fixed Contamination Area
⑤OP	- Step-Off Pad	RM - Radioactive Materials Area	SC - Self Contamination Area
AS	- Air Sample Location	URA - Underground Radioactive Materials Area	

Default units are in mR/hr and are for open window beta/gamma readings. Letter suffixes with the number indicate specific radiations: B - Beta (mRad/hr), G - Gamma (mR/hr), N - Neutron (mRem/hr). Boundary designations are looking from the designations into the zoned area.

ORNL Radiological Survey Data

Survey Number: 3038-95-0631 3038 Field Office

Date: 6/15/95 Time: 1600

 Give only DM as shown over
 20 dpm/100 cm² e
 200 dpm/100 cm² e

B	B
1 220	11 220
2 7	12 35
3 7	13 36
4 7	14 37
5 7	15 38
6 7	16 39
7 40	17 40
8 41	18 41
9 42	19 42
10 43	20 43
11 44	21 44
12 45	22 45
13 46	23 46
14 47	24 47
15 48	25 48
16 49	26 49
17 50	27 50
18 51	28 51
19 52	29 52
20 53	30 53
21 54	31 54
22 220	32 220
23 56	33 56
24 57	
25 58	
26 59	
27 60	
28 61	
29 62	
30 63	
31 64	
32 65	
33 66	

CTA-0411

CTB-0417

 3465
 70165

3033 AX NORTH WALL

Smear Location		Boundary Designations	
(S)	- Smear Location	RA - Radiation Area	BA - Radiological Buffer Area
(L)	- Large Area Smear	HR - High Radiation Area	CA - Contamination Area
(C)	- Contact Dose Rate	VR - Very High Radiation Area	HC - High Contamination Area
(30)	- 30 cm Dose Rate	AR - Airborne Radioactivity Area	FC - Fixed Contamination Area
(G)	- General Area Dose Rate	RM - Radioactive Materials Area	SC - Soil Contamination Area
(SOP)	- Step-off Pad	UM - Underground Radioactive Materials Area	
(AS)	- Air Sample Location		

Default units are in mR/hr and are for open window beta/gamma readings. Letter suffixes with the number indicate specific radiations: B - Beta (mRad/hr), G - Gamma (mR/hr), N - Neutron (mRem/hr). Boundary designations are looking from the designations into the zoned area.

3033 AX

WATER
HEATER

C. H. Chaffin 34657
 Dalal Hamilton 740968
 En. B. B. 740918
 J. V. 626444
 J. B. 740165

I N T E R O F F I C E M E M O R A N D U M

Date: 21-Jun-1995 06:09pm EDT
 From: John R Slaten
 SLATENJR
 Dept: 3175
 Tel No:

TO: PHILLIPSHX

CC: ARMENTOWJ SLATENJR

Subject: Building 3033AX Survey
 File: OUTBOX 002495

A radiological survey of building 3033AX was completed last friday. This survey included the four walls and floor in the lab area. The open ceiling area, carbon-14 room, and the north airlock was not included in the survey.

Due to the past transuramic isotope usage in this lab we first probed for alpha activity, and followed with a beta/gamma probe of any activity found. We then smeared the spot checking for transferable activity. Last we took general area smears.

A total probe of the floor was done, but for the walls only items attached to the wall were surveyed. From the activity found on the tops of items attached to the walls and the lack of transferable contamination it appears past releases were cleaned but only to a point of not smearing.

The following information is condensed from the survey maps on file in BLDG 3038 field office, copies available at your request.

WEST WALL (LAB)- 7 AREAS OF ALPHA ACTIVITY
 MAX PROBE ALPHA - 2700dpm/100cm2
 BETA/G- NONE
 NO TRANSFERABLE ACTIVITY

EAST WALL (LAB)- 9 AREAS OF ALPHA ACTIVITY
 MAX PROBE ALPHA - 2200dpm/100cm2
 BETA/G- NONE
 60dpm/100cm2 - MAX TRANSFERABLE ALPHA

NORTH WALL (LAB)- 3 AREAS OF ALPHA ACTIVITY
 MAX PROBE ALPHA - 2500dpm/100cm2
 BETA/G- NONE
 NO TRANSFERABLE ACTIVITY

SOUTH WALL (LAB)- 2 CONTAMINATION AREAS
 MAX PROBE ALPHA - 7507dpm/100cm2
 BETA/G- NONE
 32dpm/100cm2 - MAX TRANSFERABLE ALPHA

- 5 AREAS OF ALPHA ACTIVITY
 MAX PROBE ALPHA - 1570dpm/100cm2
 BETA/G- NONE
 NO TRANSFERABLE ACTIVITY

FLOOR (AIRLOCK) - 1 CONTAMINATION AREA <100cm2
 MAX PROBE ALPHA - 10,000dpm/100cm2
 BETA/G- 60,000dpm/100cm2
 16,000dpm/100cm2 - MAX TRANSFERABLE ALPHA
 48,000dpm/100cm2 - " " BETA/G

FLOOR (LAB) - 1 CONTAMINATION AREA 12 sq meters
 MAX PROBE ALPHA - 60,000dpm/100cm2
 BETA/G- NONE
 150dpm/100cm2 - MAX TRANSFERABLE ALPHA

4 CONTAMINATION AREAS <100cm2
 MAX PROBE ALPHA - 17426dpm/100cm2
 BETA/G- NONE
 NO TRANSFERABLE ACTIVITY

43 AREAS OF ACTIVITY <100cm2
 MAX PROBE ALPHA - 2794dpm/100cm2
 BETA/G- NONE
 NO TRANSFERABLE ACTIVITY

MAX PROBE ALPHA - 10,000dpm/100cm2
 BETA/G- 60,000dpm/100cm2
 48,000dpm/100cm2 - MAX TRANSFERABLE BETA/G

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