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Richland, Washington 99352

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108-F PROJECT MANAGEMENT PLAN

Author

R. A. Paasch, E. W. Powers

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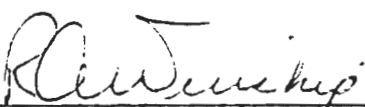
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
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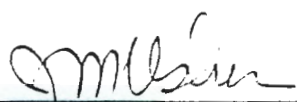

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108-F PROJECT MANAGEMENT PLAN

APPROVED BY:  Date: 3/23/83
R. A. Paasch, Manager
Decommissioning Operations

APPROVED BY:  Date: 3/24/83
R. A. Winship, Manager
Decommissioning Services Section
Decommissioning Programs Department

APPROVED BY:  Date: _____
T. E. Dabrowski, Director
Decommissioning Programs Department
Operations Division

APPROVED BY:  Date: 3/29/83
 J. D. White, Director
Surplus Facilities Management
Program Office
U.S. Department of Energy

PREFACE

Revision 1 to UNI-1005 was written to update the 108-F Project Decommissioning Plan to reflect necessary changes since the original plan was written. Changes to the plan are briefly describe below:

Page

- i REV1 Approvals Added
 - ii Preface to UNI-1007 REV1 Added
 - iii Index Added
 - iv List of Tables and Figures Added
-
- 1 Reference to performing 108-F work in FY 1980-81 removed. Reference to work on 105-F removed.
 - 15 8.5 Readiness Review changed to reflect work start approval by the CNRB rather than DOE-RL.
 - 16 10.0 reference to date for completion of planning and site preparation activities removed.
 - 16 9.0 "will be" removed before "issued."
 - 17 Schedule updated.
 - 18 Revised to reflect current cost estimate.
 - 19 Organization updated.
 - 20 Organization chart updated.
 - 21 Added RHO function to "Provide D&D Workers."
 - 22 11.3 Manager, 100 Area Decommissioning changed to Manager, Decommissioning Operations.
 - 22 11.4, 11.5 and 11.6 REV2 noted for UNI-1006 to reflect current revision.
 - 23 Removed reference to UNI-1240, "General Safety Assessment Document Non Reactor Nuclear Facilities Managed by UNC Hanford Site."

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Figure 2-4, 108-F Bldg. - Typical Laboratory Showing Hood and Sink

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Figure 6.1, Contaminated Waste Volume Estimates

1.0 INTRODUCTION

The 108-F Decommissioning Project Management Plan identifies the administrative controls, and technical direction used to plan and execute the project.

Decontamination work on the 108-F Building will be performed during FY 1983. This work marks the start of significant decommissioning activities in the Hanford 100 Areas.

2.0 FACILITY DESCRIPTION

2.1 History

The 108-F Building was part of the original area construction and was intended to provide facilities for the mixing and addition of chemicals used in the treatment of the reactor cooling water. Shortly after the reactor began operation in 1945, it was determined that such treatment of the reactor coolant was not required or that mixing and addition function could be better performed elsewhere in the systems. The 108-F Building was then converted to use as a biology laboratory in which programs to determine the effects of radiation and contamination resulting from the Hanford Operations on plant and animal life could be pursued.

Subsequent to the construction of the Biological Laboratory Facility in 300 Area, the 108-F Facility was declared surplus.

2.2 Facility Description

The original 108-F Building was a four-story, steel frame and concrete block structure with reinforced concrete foundation and floors. The building is located approximately 100 yards (91.4 M) due east of the 105-F Building. The original building had a floor area of about 20,000 ft² (1858m²). This was later increased by the addition of an 11,000 ft² (1022m²) annex. The addition is a three-story, concrete block structure adjoining the older building. Figures 2-1 through 2-3 show the exterior of the 108-F Building from different angles.

The interior of the building is layed out in typical laboratory fashion, i.e., many small rooms equipped for laboratory use, a number of small offices, a large conference room, an administrative section, a library, lunchroom, and locker rooms, etc. Since radioactive materials were used in the work performed within the building, many of the laboratories and storage rooms were (and are) maintained in a controlled status. Many of the facilities (sinks, exhaust, hoods, duct work, etc.) are contaminated. Figure 2-4 is a photograph of a typical laboratory showing the hood and sink equipment.

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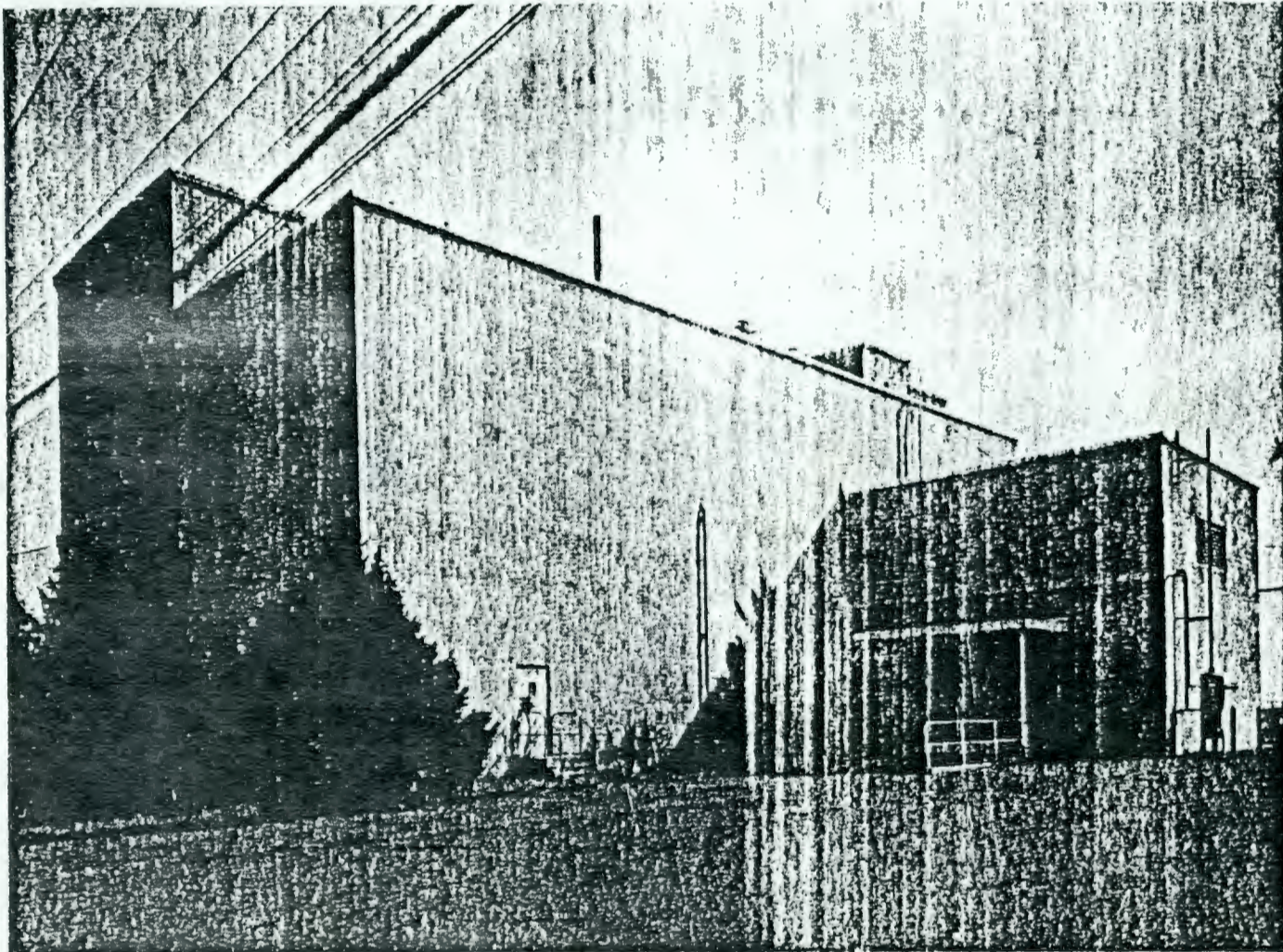


FIGURE 2-1

108-F BLDG - WEST SIDE OF BIOLOGICAL LABORATORY

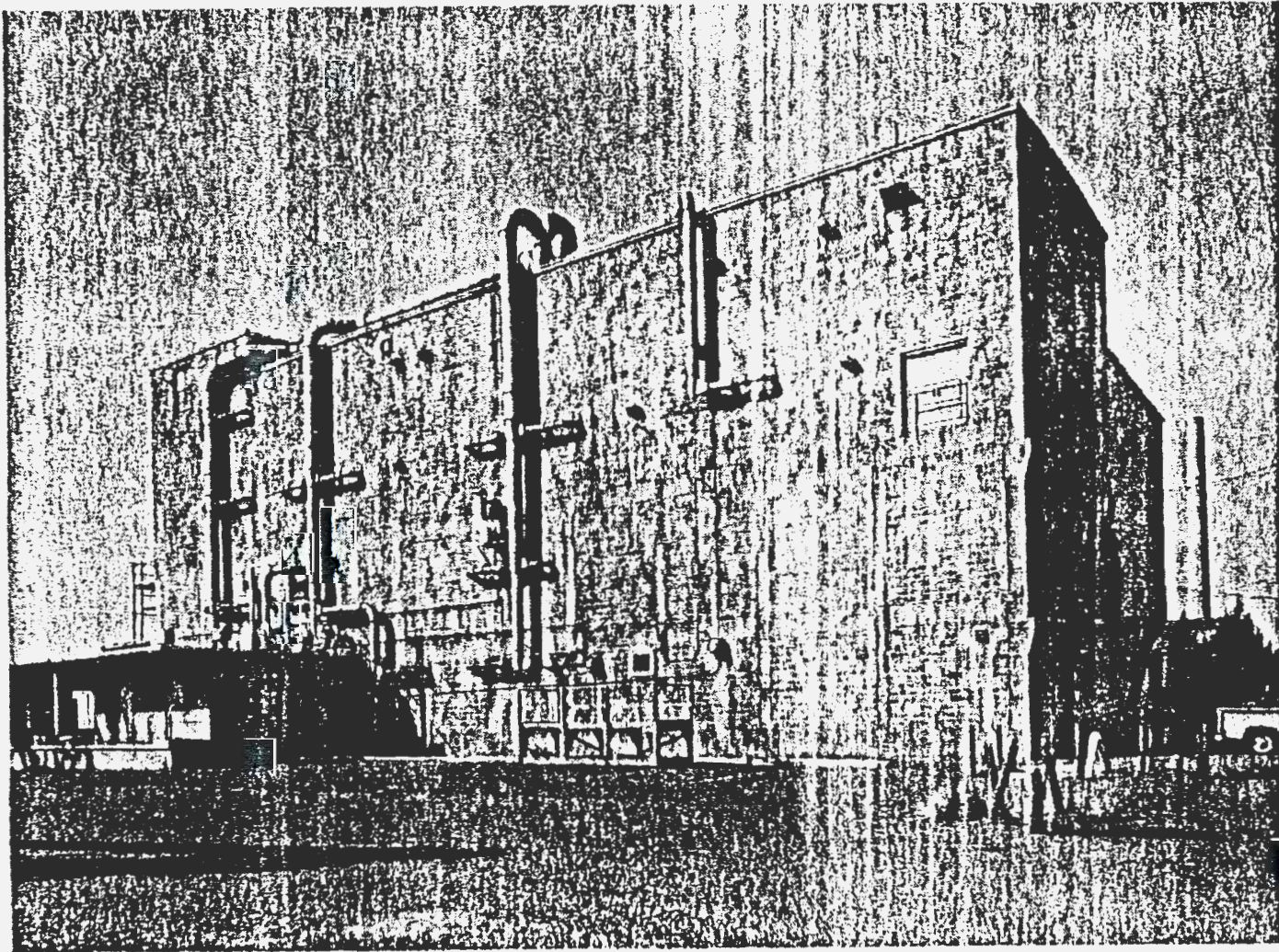


FIGURE 2-2

108-F BLDG - EAST SIDE OF BIOLOGICAL LABORATORY

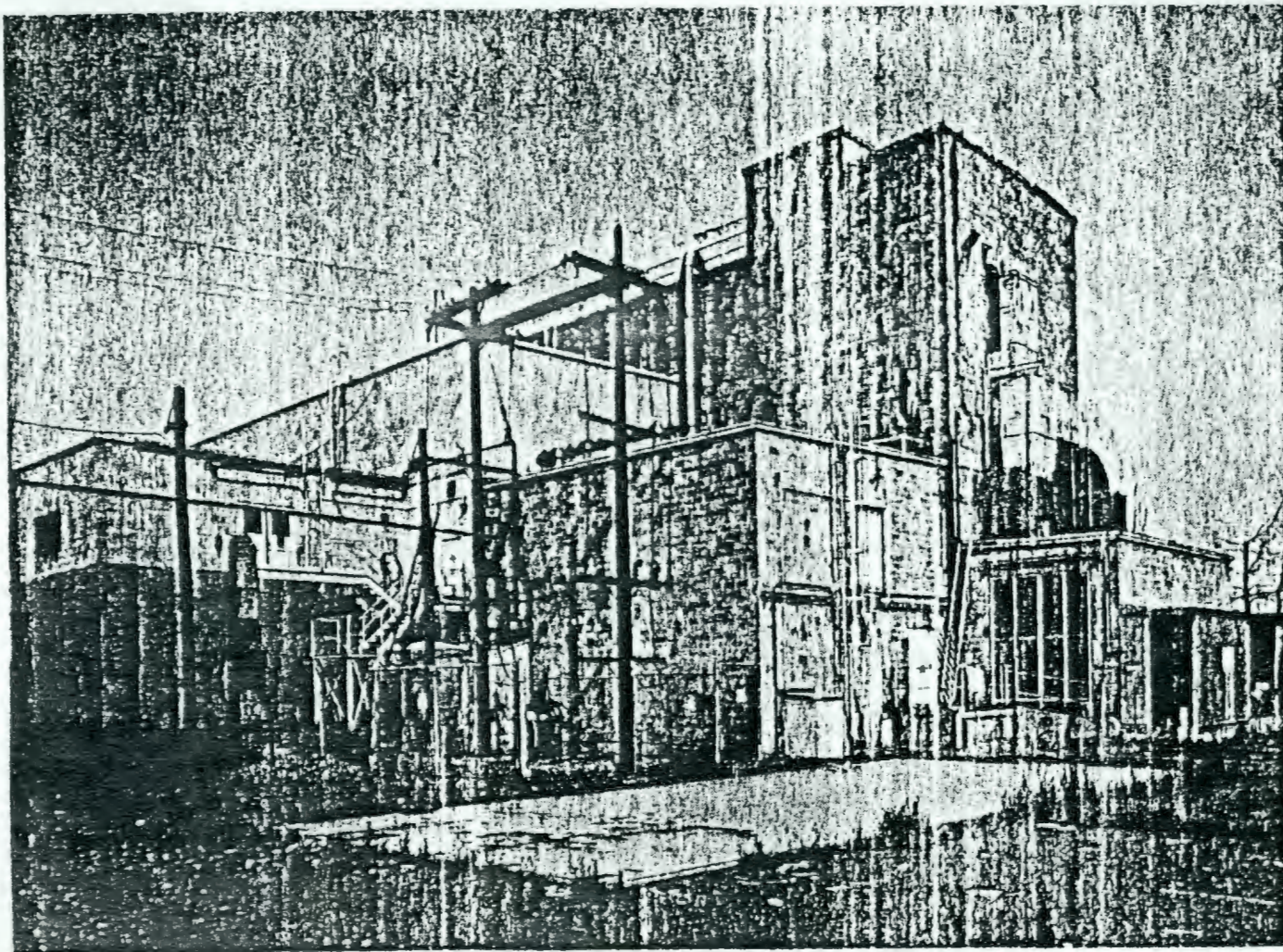


FIGURE 2-3

108-F BLDG - REAR OF BIOLOGICAL LABORATORY

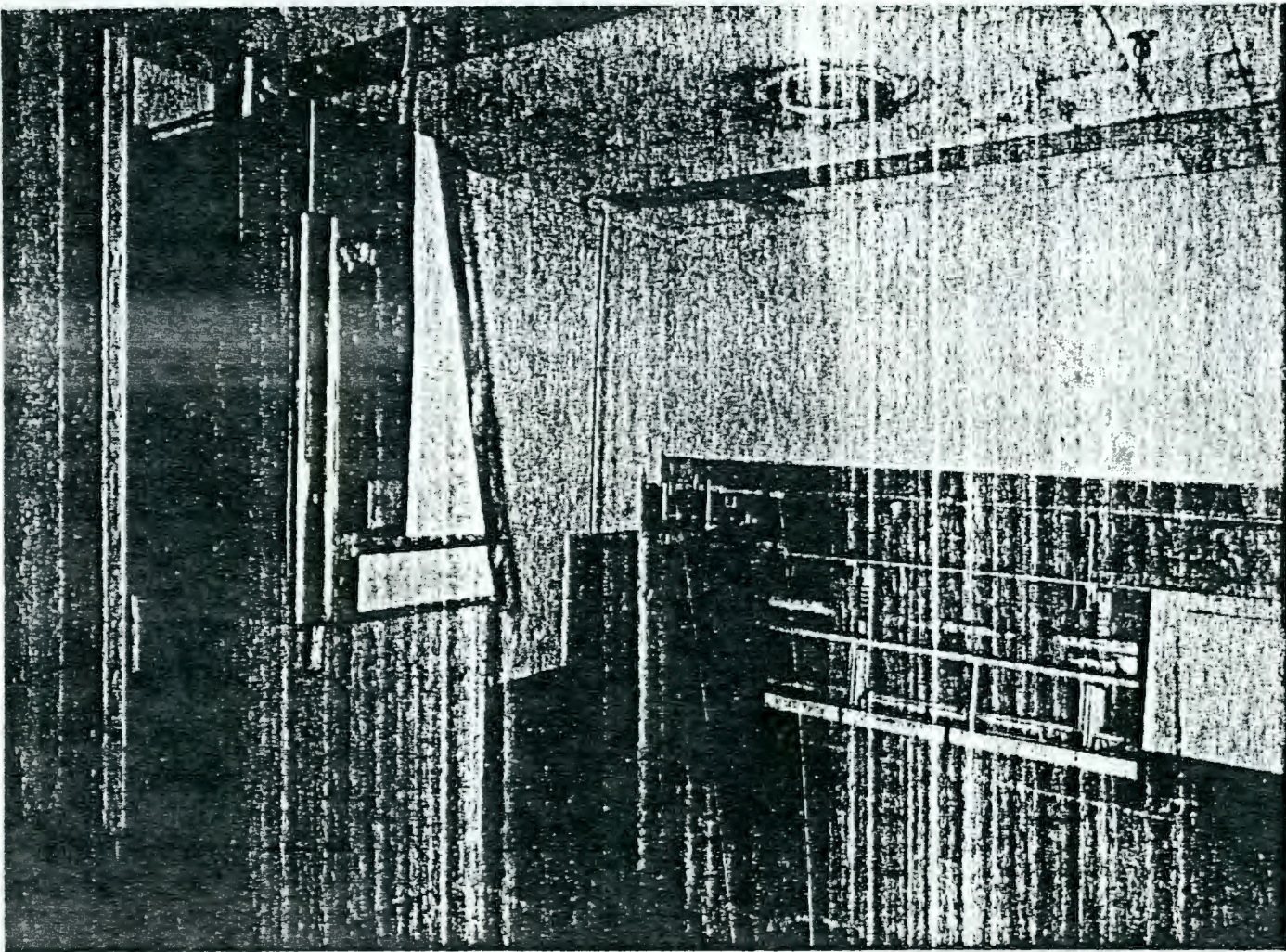


FIGURE 2-4

108-F BLDG - TYPICAL LABORATORY SHOWING HOOD & SINK

The 108-F Building contained all of the services and utilities normally provided in a laboratory facility including a heating and ventilating system, an adequate electrical power supply system, compressed air, special air conditioning facilities, and an exhaust air system with filters and collectors.

2.2.1 Reference Drawings

The following drawings depict the construction and layout of the 108-F Building:

W-74283	108-F architectural - plans and schedules
H-1-1936	108-F lab. furniture arrangement
" " Sht. 1	1st floor
" " Sht. 2	2nd floor
" " Sht. 3	3rd floor
" " Sht. 4	4th floor
" " 1979	108-F architectural - sheets 1 through 24.
W-74355	108-F concrete foundation and ground floor plans

These drawings are retained in the 100-Areas decommissioning section files at 100-K Area.

2.3 General Facility Conditions

The 108-F Building is located just outside the 105-F Building security fence. All doors and windows have been sealed and locked. Rockwell Security provides surveillance of the 100-F Area by means of roving patrols who perform security checks at least once per 8-hour shift.

Most non-contaminated material and equipment have been removed, including many partitions. Temporary power is provided by a line from the 300 kva transformer alongside the 105-F Building. This provides some lighting to each floor.

All contaminated labs were locked and identified with applicable radiation signs. All showers and toilet facilities were removed during the facility deactivation effort in 1977. These facilities were re-installed as part of the site preparation activity in 1980.

2.4 Radiation and Contamination Status

In November, 1977, a number of radiation surveys were carried out in the 108-F Building in connection with a housekeeping program being conducted in the building. These surveys provide a good indication of the radiation and contamination status of the building. In general, the large majority of the building is open to unrestricted entry. A limited number of rooms are generally contaminated and therefore, are on controlled entry status. The overall background exposure rate to personnel working in the building is 1 mr/hr.

The following Radiation Survey Reports, which describe the present radiological condition of the facility are included in the 108-F Project Decommissioning Plan as an appendix B:

<u>Survey Report Number</u>	<u>Date</u>
001052	10-5-77
001053	10-6-77
001057	10-11-77
001061	10-13-77

3.0 PROJECT OBJECTIVE

3.1 Purpose

The objective of this project is to decontaminate the 108-F Facility, leaving the building uncontaminated and ready for demolition by conventional methods. Performance of this activity marks the start of the 100-F Area decommissioning operations.

4.0 DISPOSITION MODE

- The mode selected for decommissioning of the 108-F Facility is complete dismantlement. All contaminated and uncontaminated systems and equipment will be removed and disposed of. The building will be decontaminated to unrestricted use levels.

- Safe storage and entombment are not considered viable disposition modes for this facility due to the presence of plutonium contamination.

5.0 ACTIVITY DESCRIPTIONS

- The 108-F decommissioning project has been divided into the following 11 activities:

- 5.1 Engineering and planning
- 5.2 Site preparation
- 5.3 Laboratory confinement
- 5.4 Hoods, sinks and cabinet removal
- 5.5 Piping removal
- 5.6 Exhaust duct removal
- 5.7 Ventilation systems removal
- 5.8 Decontamination of structures
- 5.9 Waste packaging, transportation and burial
- 5.10 Final site survey and sampling
- 5.11 Demolition of building/restoration of site

A Summary Description of activities follows:

5.1 Engineering and Planning

This activity consists of:

- Preparation of a milestone schedule and cost estimate
- Assessment of disposition alternatives
- Preparation of criteria and instructions for site preparation work

- Preparation of all project documents listed in section 7.5 of this document.
- Development of methods and techniques for the decommissioning operations phase.
- Identification of tools.
- Design of waste burial containers.

5.2 Site Preparation

The following facility preparation and restoration of utility services is required to support the decommissioning operations:

- Installation of a 100 amp, 480 volt, 3-phase secondary line from 105-F and 108-F.
- Installation of temporary lighting and service outlets throughout the 108-F Building.
- Installation of showers, toilets, sinks and a hot-water tank.
- Preparation of waste load-out area.

5.3 Laboratory Confinement

All outlets of a laboratory room will be sealed and a filtered exhaust system installed prior to removal of contaminated hoods, sinks, cabinets and other laboratory equipment.

5.4 Hoods, Sinks and Cabinet Removal

- Interiors of hoods containing plutonium contamination will be coated with fixative prior to being disconnected from their installed positions. The hoods will then be wrapped in plastic and sealed with tape prior to being removed from the room and loaded into burial containers.

- The contaminated sinks and cabinets will be coated with a fixative prior to being disconnected. After being disconnected they will be wrapped in plastic and sealed with tape prior to being removed from the room and loaded into burial containers.

5.5 Piping Removal

All contaminated piping will be filled with foam, utilizing a portable filtered exhaust system for exhausted air. The piping will be segmented for loading into burial containers. A contamination control envelope will be used when cutting pipe with contamination levels greater than 1,000 d/m Alpha.

5.6 Exhaust Duct Removal

Most of the exhaust duct is of the round stainless/steel type varying in size from 2 inches in diameter to 30 inches in diameter. The duct will be removed using the same method described for pipe removal.

5.7 Ventilation System Removal

This activity consists of the removal and segmentation of the exhaust fan systems. The internal surfaces of the ducts, plenums and fans will be coated with a contamination fixative, segmented and loaded into waste burial containers.

5.8 Decontamination of Building Structures

This activity involves the removal of contamination from building surfaces. Many techniques will be used in the decontamination effort, some of the techniques include:

- Portable (HEPA Filtered) vacuum
- Wiping with Masslin cloth
- Removal of wall partitions
- Surface spalling concrete floors with rock-jack, grinding wheel, chipping hammers, scabbler and others.
- Strippable coating

5.9 Waste Packaging-Transportation and Burial

Pre-decommissioning surveys and sampling and sample analysis by U. S. Testing, Co. indicate that all 108-F project waste will be below the levels requiring TRU/retrievable storage disposition. More details of this activity are given in section 6.0, "Waste Management", below.

Detailed work procedures will be prepared for activities 5.3 through 5.9.

6.0 WASTE MANAGEMENT

- All radioactive waste from the 108-F decommissioning project will be packaged, transported and buried in compliance with the regulations and requirements described in UNI-M-29, "Shipment of Radioactive and Other Hazardous Materials".
- A waste management specialist will be assigned responsibility for the disposition of all waste generated from the project.

6.1 Type

The major portion of the contaminated components are contaminated with plutonium. Calculations, based on comprehensive radiation surveys and sample analysis, indicate that less than .2 grams of plutonium exists in the entire facility and that all waste will be below the requirement for 20-year retrievable TRU.

Other contamination consists of 90Sr, 137Cs and 60C. Sample analysis results indicate a maximum concentration of any of the above three isotopes to be 2,500 pci/gram.

6.2 Volume and Packaging

- All radioactive waste from the 108-F Facility will meet the criteria of the Low Specific Activity (LSA) category.
- Figure 6.1 presents the estimated waste volume and container requirements.
- A light weight steel container was designed for packaging waste material. The containers were purchased and tested to DOT-7A criteria and Rockwell Hanford Operations (RHO) waste disposal requirements. The container met all test requirements. RHO has given approval to use the containers. Figure 6.2 presents some specifications of this container.
- All radioactive waste will be transported by truck to the 200 West Waste Disposal Facilities.

7.0 PROPERTY DISPOSITION

All property from the 108-F Facility will be disposed of in compliance with procedures detailed in UNI-M-16 "Property Management Manual".

8.0 SAFETY EVALUATION

8.1 Industrial Safety

In performance of the activities required to complete this project, no safety questions are anticipated that have not been reviewed or covered in UNI-M-38, "Industrial Safety Manual".

All applicable safety standards on bulletins of UNI-M-38 will be complied with. The applicable safety standards from UNI-M-38, along with specific safety controls, will be included in the Detailed Work Procedures.

ITEM	REF. DWG	QTY.	VOLUME	VOLUME
			FT ³	FT ³
HOODS	H-1-2022	16	24	384
SINK, HOOD	H-1-2022	16	6	96
HOOD, CEILING	H-1-2064	16	16.6	266
SINK, LAB.	H-1-1936	40	2	80
	SHT. 5			
EXHAUST DUCT - ROOF	H-1-2092	TOTAL		785
EXHAUST DUCT - EAST WALL				50
PIPING - EACH FLOOR		5	128	640
CONTAMINATED TILE & WALL BOARD - EACH FLOOR		5	256	1,280
COLBALT HANDLING EQUIPMENT		1	128	256
TOTAL VOLUME				<u>3,847</u>
NO. OF SHIPPING CONTAINERS (4' X 4' X 8') REQUIRED				30

FIGURE 6.1
CONTAMINATED WASTE VOLUME ESTIMATES

8.2 Radiological Safety

- The only identifiable radiological hazards are personnel contamination and release of contamination to the environment.
- All work will be performed in strict compliance with applicable control requirements from UNI-M-30, "Radiation Control Manual".

8.3 Criticality

Calculations, based on comprehensive Radiation Surveys, indicate that less than .2 grams of plutonium exists in the 108-F facility. Based on this information, criticality is not a concern.

8.4 Special Nuclear Material (SNM) Controls

No special nuclear materials are stored at the 108-F facility.

8.5 Readiness Review

A readiness review was conducted by the UNC Company Nuclear Review Board (CNRB) and a PNL consultant. Both concurred that the systems developed by Decommissioning Services are adequate to assure safe conduct of the planned work. Approval was given by the CNRB to begin the work when the following documentation have been issued:

- 108-F Project Management Plan.
- 108-F Project Decommissioning Plan.
- Quality assurance Implementation Plan, UNI-1006- REV2
- Environmental Assessment of the F-Area Decommissioning Program DOE Document No. DOE/EA-0120.
- Detailed work procedures for the nine activities.
- 100-F Area Emergency Procedures.

9.0 ENVIRONMENTAL ASSESSMENT

An "Environmental Assessment of the F-Area Decommissioning Program", UNI-082 REV2 has been prepared, reviewed, revised and approved, and issued as DOE Document No. DOE/EA-0120.

The above document includes the 108-F facility as an activity in the 100-F Decommissioning Program.

10.0 COST AND SCHEDULE

- The 108-F Decommissioning Milestone Schedule is shown in Figure 10.1.
- The Cost Estimate for the 108-F Decommissioning is shown in Table 10.2
- All planning and site preparation activities will be completed prior to commencement of decontamination work.
- A Work Breakdown Structure (WBS) Chart is presented in Figure 10.3.
- A WBS dictionary for elements of Activity I-"108-F Decommissioning" is included as Appendix A.

11.0 PROJECT CONTROL

11.1 Project Organization Responsibilities

- DOE-RL

The Surplus Facilities Management Program Office (SFMP0) is responsible for management of the RL lead field office program for decommissioning of DOE facilities assigned to the Assistant Secretary of Nuclear Energy. This includes management of the Surplus Facilities Management Program and management overview of the Office of Surplus Facilities Management (OSFM) operated by UNC. The SFMP is also responsible for the onsite Hanford Decommissioning Program and Site Cleanup Program. Responsibilities are assigned as follows.



108-F BUILDING MILESTONE SCHEDULE

ACTIONS	FY 1983													FY 1984			
	O	N	D	J	F	M	A	M	J	J	A	S		1Q	2Q	3Q	4Q
COMPLETE ENGINEERING FOR 108-F DECONTAMINATION																	
COMPLETE HIRING OF WORK CREWS																	
COMPLETE TRAINING OF WORK CREWS																	
COMPLETE REMOVAL OF CONTAMINATED EQUIPMENT																	
COMPLETE STRUCTURAL DECONTAMINATION																	
ISSUE DECONTAMINATION REPORT																	

TABLE 10.2

108-F DECOMMISSIONING COST ESTIMATE

(Revised)

(This reflects FY 1983 Cost Estimates only.)

• <u>Engineering and Planning</u>	
Site preparation specifications; Management Plan; Project Plan; Detailed Work Procedures.	\$ 80,000
• <u>Site Preparation</u>	
Office Facilities; Shower Facilities; Electrical and Water Services; Contaminated Waste Loadout Area.	30,000
• <u>Procurement</u>	
Materials; Tools; Equipment and Services.	70,000
• <u>Equipment Removal and Decontamination</u>	
Labor and Supervision.	230,000
• <u>Contaminated Waste Disposal</u>	
Containers; Transportation and Burial.	65,000
• <u>Project Closeout</u>	
Photographs; Final Report.	25,000
	<hr/>
	\$500,000*

* Includes overheads.

UNC Nuclear Industries (UNC)Decommissioning Programs Department

The Manager, Decommissioning Services reports to the Director, Decommissioning Programs, and is responsible for management and control of all decommissioning work. The Manager, Decommissioning Operations, reports to the Manager, Decommissioning Services, and is responsible for the performance of all decommissioning work. The UNC Decommissioning Programs organization chart is shown in Figure 11.1.

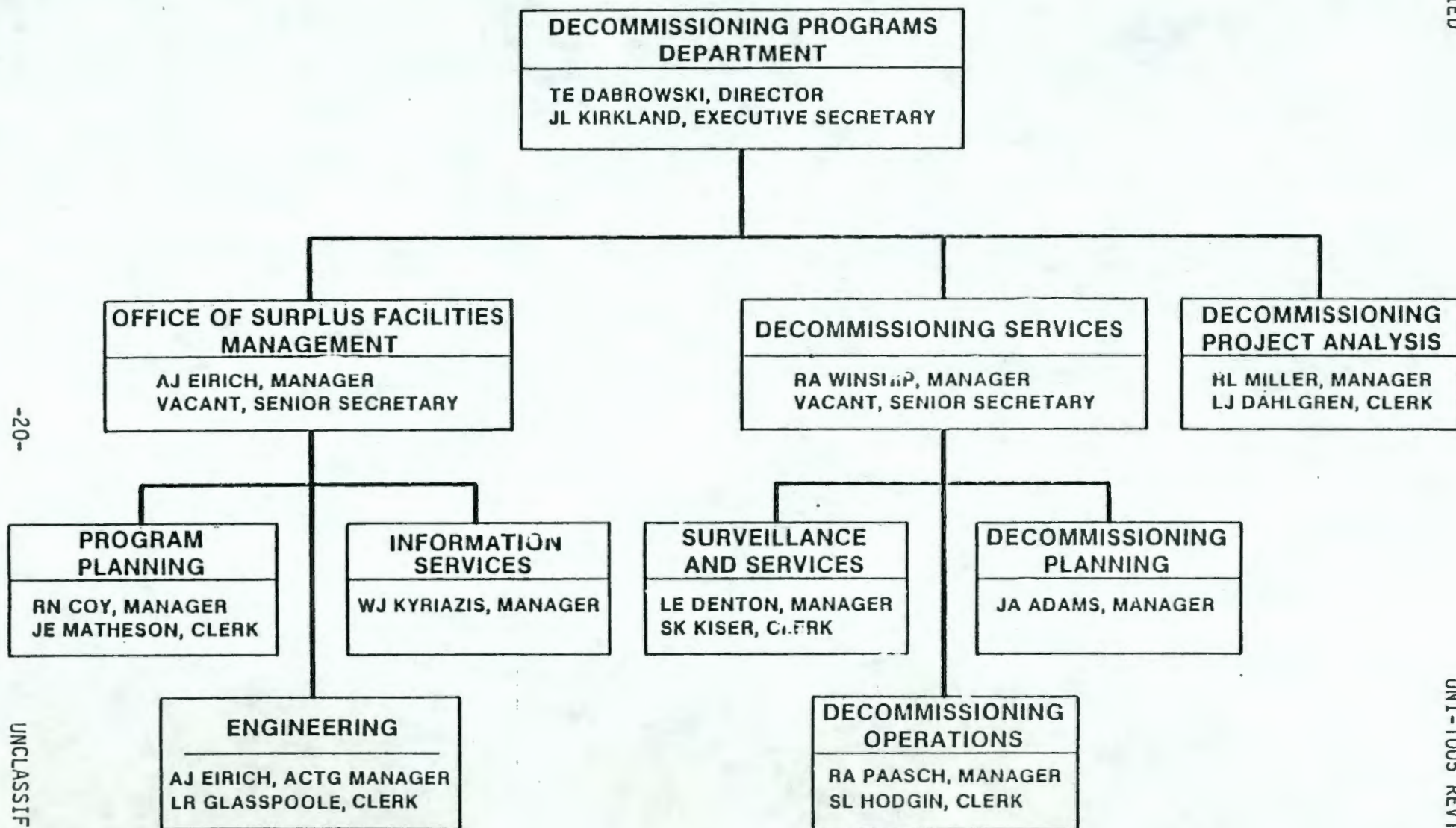
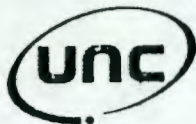
The Manager, Decommissioning Operations is responsible for:

- Project management and support
- Defining the decommissioning plan
- Preparation of milestones/schedules
- Preparation of environmental assessment
- Preparation of all procedures
- Preparation of QA Plan
- Preparation of Readiness Review Package
- Engineering/Planning
- Decommissioning operations
- Safety
- Preparation of weekly and monthly project status reports
- Conducting project meetings
- Preparation of final report
- Site radiological characterization

OTHER UNC NUCLEAR INDUSTRIES ORGANIZATIONSSafety and Environmental Engineering Department

This department will:

- Provide the Environmental Assessment Document
- Provide radiological chemical technician personnel
- Approve detailed work procedures
- Provide assistance in the preparation of the final site radiation survey and sampling procedure
- Prepare radiation work procedures
- Provide industrial safety guidance and overview



Reactor Operations Department

- Provide electrical/instrument services by internal work orders, as required.

Rockwell Hanford Operations (RHO)

Assistance required from Rockwell includes:

- Security check, no change in present schedule is anticipated
- Approval of contaminated waste packaging criteria
- Approval of waste burial schedule
- Provide radioactive waste burial services
- Provide increased electrical service to 108-F Building
- Provide Decontamination and Decommission Workers (D&D Workers)

J. A. Jones Construction Services Company (JAJ)

- Provide all site preparation work
- Provide other decommissioning operation services as required and by mutual agreement with UNC Nuclear Industries.

U. S. Testing Company

- Provide sample analysis as requested by Safety and Environmental Engineering Department of UNC Nuclear Industries.

11.2 Training

Radiological

- The training requirements for all UNC Radiation zone workers is described in detail in UNC's "Radiation Control Manual", Doc. No. UNI-M-30, Chapter 4.0 ("Training"). All work on this project will be performed in compliance with the requirements of UNI-M-30.

General Training

- All employees will be trained in the applicable emergency and safety procedures. This training will be documented.
- All employees will receive detailed training on the implementation of detailed work procedures. This training will be documented.

11.3 Reporting

A weekly project status meeting will be conducted by the Manager, 100-Areas Decommissioning Operations, or his designated alternate. A weekly status report will be distributed to OSFM and DOE-RL/SFMP0.

11.4 Document Control

The control of all documents associated with this project will be in compliance with the requirements described in UNI-M-52 REV1 "Document Preparation and Control Manual" and UNI-1006 REV2 "Areas Decommissioning Quality Assurance Implementation Plan."

11.5 Quality Assurance

Document UNI-1006 REV2- "100 Areas Decommissioning Quality Assurance Implementation Plan," describes the plan for implementation of UNC's "Quality Assurance Manual," UNI-M-73.

11.6 Health and Safety

- Industrial and radiological safety considerations for Decommissioning the 108-F facility are described in:
 - UNI-1006 REV2- "100 Areas Decommissioning Quality Assurance Implementation Plan."
 - UNI-1005 REV1- "108-F Project Management Plan"
 - The 108-F Project Decommissioning Plan - UNI-1007 REV1
 - Nine (9) Detailed Work Procedures for 108-F Decommissioning

- Fire protection in the 108-F facility will be provided through use of a Vida Guard system located in the 1701 FA building with a pull-box alarm located on the northside of the 108-F building. In addition, there is a fire hydrant near the front entrance to the building and fire extinguishers will be located throughout the building and near each work location when work is in progress.

APPENDIX A
WORK BREAKDOWN STRUCTURE DICTIONARY
FOR 100-F DECOMMISSIONING - ACTIVITY I -
ACTIVITY I - "108-F DECOMMISSIONING"

1 Engineering

This WBS element includes the development of criteria and instructions for site preparation work, preparation of a Project Decommissioning Plan, Project Management Plan, eight Detailed Work Procedures, identification of tools and preparation of a Readiness Review Package.

2 Site Preparation

Work performed by J. A. Jones Construction Services includes construction of a security fence, preparation of a waste loadout area, restrooms and a change room. Temporary electrical wiring was installed.

3 Laboratory Equipment Removal

This WBS element includes sealing lab rooms to prevent contamination spread and removal and packaging of hoods, sinks and cabinets.

4 Contaminated Piping Removal

Includes the removal, segmentation and packaging of all contaminated piping.

5 Ventilation Exhaust (GVAC) Systems Removal

This element includes coating inside surfaces with a fixative or foam, and segmenting and packaging all contaminated ventilation systems.

- _____ 6 Decontamination Of Structures
Includes the decontamination of the 108-F building to unrestricted use levels.
- _____ 7 Tools And Materials
Includes the purchase or rental of all tools used in the decommissioning of the 108-F facility and the purchase of all materials used.
- _____ 8 Final Site Survey, Sampling and Report
Includes a comprehensive survey, statistical sampling, sampling analysis and final site radiological condition report.
- _____ 9 Health Physics Support
Radiological Chemical technicians and supervisor provided by the Safety and Environmental Engineering Department.
- _____ 10 Waste Packaging, Transportation, and Burial
This WBS element consists of container cost, transportation to the 200 West Area and disposal in RHO burial ground.
- _____ 11 Building Demolition/Site Restoration
This element consists of the work required to demolish the building and restore the site.