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RFP-1325.02 (REV. 5/97)
Previously RF-46522

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01243 RF 97

DUE DATE

ACTION

Department of Energy

ROCKY FLATS FIELD OFFICE
P.O. BOX 928
GOLDEN, COLORADO 80402-0928

19 AUG 97 10:04 RFETS-CC

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DIST.	LTR	ENC
BACON, R.F.		
BENSUSSEN, S.J.		
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BUHL, T.R.		
BURDGE, L		
CARD, R.G.		
COSGROVE, M.M.		
COULTER, W.L.		
CRAWFORD, A.C.		
DERBY, S.		
DIETERLE, S.E.		
FERRERA, D.W.		
GERMAIN, A.L.		
HARDING, W.A.		
HARROUN, W.P.		
HEDAHL, T.G.		
HERRING, C.L.		
HILL, J.A.		
MARTINEZ, L.A.		
NORTH, K.		
OGG, R.N.		
PARKER, A.		
PHILLIPS, F.J.		
RHOADES, D.W.		
RUSCITTO, D.G.		
SANDLIN, N.B.		
SPEARS, M.S.		
TILLER, R. E.		
TUOR, N.R.		
VOORHEIS, G.M.		
VOORHEIS, G.M.		
Tarlton	X	X

Mr. Steve Tarlton
RFCA Coordinator
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530

Dear Mr. Tarlton:

Enclosured is the Proposed Action Memorandum (PAM) for Buildings 980, 968, and 965. We appreciate the comments from Colorado Department of Public Health and Environment personnel, and have responded to them in the enclosed Response to Comments.

Kaiser Hill is currently removing supplies and equipment from the buildings. We would appreciate the expeditious consideration of the PAM.

If you have any questions regarding this PAM, please call William Fitch at 966-4013

Thank you.

Sincerely,

Steven W. Slaten
RFCA Coordinator

Enclosure

COR CONTROL	X	X
ADMN RECORD	X	X
PATS/T130G	X	X

Reviewed for Addressee
Corres. Control RFP

8/19/97
Date By

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Rocky Mountain
Remediation Services, L.L.C.
. . . protecting the environment

RF/RMRS-97-016

Proposed Action Memorandum (PAM)

For The Decommissioning Of The Building 980 Cluster

Rocky Mountain Remediation Services, L. L. C.

Revision 0

AUGUST 1997

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VNU
8/14/97

PROPOSED ACTION MEMORANDUM

TABLE OF CONTENTS

i. ACRONYMS iii

1.0 PURPOSE 1

2.0 PROJECT DESCRIPTION 1

2.1 BACKGROUND 1

2.1.1 Foundations 3
2.1.2 Structural Framing 3
2.1.3 Exterior Walls 3
2.1.4 Floors 3
2.1.5 Roofs 3
2.1.6 Interior Walls 3
2.1.7 Ceilings 3
2.1.8 Doors 3
2.1.9 Windows 4
2.1.10 Surface Finishes 4

2.2 HISTORICAL DATA 4

2.3 BUILDING HAZARD SUMMARY 4

2.3.1 General 4
2.3.2 Radiological Concerns 5
2.3.2.1 Radiological Characterization/Final Survey 5
2.3.2.2 Unconditional Radiological Release Criteria 6
2.3.3 Paint 6
2.3.4 Asbestos 6

3.0 PROJECT MANAGEMENT OVERVIEW 7

3.1 PROJECT ORGANIZATION 7

3.1.1 Project Manager 7
3.1.2 Radiation Protection Project Lead 7
3.1.3 Decommissioning Construction Management Superintendent 8
3.1.4 Project Administrator 8
3.1.5 Project Cost And Schedule Lead 8
3.1.6 Quality Assurance Engineer 8
3.1.7 Project Engineer 8
3.1.8 Regulatory Compliance Engineer 8
3.1.9 Occupational Safety Project Support 9

3.2 DECOMMISSIONING OBJECTIVES 9

3.3 DECOMMISSIONING PROCESS 9

3.3.1 Characterization Planning And Engineering 10
3.3.2 Decommissioning Physical Work 10

3.4 QUALITY PROGRAM 11

3.5 WORKER HEALTH AND SAFETY 12

3.6 CHARACTERIZATION 12

3.6.1 Scoping Characterization 12
3.6.2 Reconnaissance Characterization 12
3.6.3 Characterization Summary 13

3.7 WASTE MANAGEMENT 14

4.0 ENVIRONMENTAL ISSUES 15

4.1 PROPOSED ACTION AND ALTERNATIVES 15

4.1.1 Alternative 1, Proposed Action, Decommissioning of the 980 Cluster 15
4.1.2 Alternative 2, No Action, Maintain General Warehouse Function 15
4.1.3 Alternative 3, Alternative Use of the 980 Cluster Facilities 15
4.1.4 Evaluation of Alternatives 15

4.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION 16

4.2.1 Geology and Soils 16
4.2.2 Air Quality 16
4.2.3 Water Quality 16
4.2.4 Fauna And Flora 16
4.2.5 Human Health 16
4.2.6 Noise 16
4.2.7 Historical Resources/HUD/GSA 17
4.2.8 Irreversible And Irretrievable Commitments Of Resources 17
4.2.9 Cumulative Impact Statement 17

5.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS 17

6.0 IMPLEMENTATION SCHEDULE 21

7.0 DOCUMENTATION 21

8.0 REFERENCES 21

Attachment 1 - Project Schedule
Attachment 2 - Reconnaissance Level Characterization Report For The Building 980

FIGURES

2-1 Site Map 2

TABLES

5-1 General ARARs For The Building 980 Cluster 18

ACRONYMS

ACM	Asbestos Containing Material
AHA	Activity Hazard Analysis
ARARs	Applicable or Relevant and Appropriate Requirements
BRCS	Building Radiation Cleanup Standard
CCR	Colorado Code Of Regulations
CDPHE	Colorado Department Of Public Health And Environment
CFR	Code Of Federal Regulations
D&D	Decontamination And Decommissioning
DOE	U. S. Department Of Energy
EDE	Effective Dose Equivalent
EPA	U. S. Environmental Protection Agency
FSP	Field Sampling Plan
HASP	Health And Safety Plan
HSP	Health And Safety Practices
IWCP	Integrated Work Control Program
Kv	Kilovolt
LLW	Low-Level Waste
mrem	millirem
NAAQS	National Ambient Air Quality Standards
NCR	Non-Conformance Report
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards For Hazardous Air Pollutants
OSHA	Occupational Safety And Health Administration
PM	Project Manager
PA	Protected Area
PAM	Proposed Action Memorandum
PCB	Polychlorinated Biphenyl
PHA	Project Hazard Assessment
ppm	parts per million
PPE	Personal Protective Equipment
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QC	Quality Control
RBA	Radiological Buffer Area
RCRA	Resource Conservation And Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site

RLCR	Reconnaissance Level Characterization Report
RPOSO	Radiation Protection And Occupational Safety Officer
SAP	Sampling and Analysis Plan
SAA	Satellite Accumulation Area
TBC	To Be Considered
TSCA	Toxic Substances Control Act

PROPOSED ACTION MEMORANDUM FOR THE DECOMMISSIONING OF THE BUILDING 980 CLUSTER

1.0 PURPOSE

This Proposed Action Memorandum (PAM) outlines the approach that will be taken and the applicable requirements that will be utilized in the decommissioning of Buildings 965, 968, and 980 (the Building 980 Cluster) as part of the site cleanup of the Rocky Flats Environmental Technology Site (RFETS). The removal is being conducted in accordance with the Rocky Flats Cleanup Agreement (RFCA [Department of Energy (DOE), 1996]) and the Applicable or Relevant and Appropriate Requirements (ARARs) of the Federal, State, and local regulations identified in Table 5-1. In accordance with RFCA the decommissioning will be conducted as non-time critical removal actions under the Comprehensive, Environmental Response, Compensation, and Liability Act, an interim action, and is in keeping with the Site Lifecycle Baseline. The regulatory requirements are implemented through RFETS policies and procedures. This action will be conducted in a manner which is protective of site workers, the public, and the environment.

2.0 PROJECT DESCRIPTION

2.1 BACKGROUND

The Building 980 Cluster is located near the center of RFETS within the Protected Area (PA) (see Figure 2-1). The associated facilities currently have no mission or scope. They were previously utilized as warehouses and to store construction equipment, building material, and supplies for on-site contractors.

Building 965 is a single-story corrugated metal structure constructed on a concrete slab. The facility is located on the eastern side of RFETS. Building 965 is 25 feet long by 25 feet wide by approximately 18 feet high; the total floor space is approximately 625 square feet.

Building 968 is a single-story corrugated metal structure constructed on a concrete slab. The facility is located on the eastern side of RFETS. The facility is situated east of 980. Building 968 is 125 feet long by 95 feet wide by approximately 18 feet high; the total floor space is approximately 11,875 square feet.

Building 980 is a single-story corrugated metal structure constructed on a concrete slab. The facility is located on the eastern side of RFETS. The facility is situated south of Spruce Avenue and Building 910. Building 980 is 200 feet long by 65 feet wide by approximately 18 feet high; the total floor space is approximately 13,000 square feet.

Sewage, domestic water, and natural gas lines feed into Buildings 968 and 980. The natural gas line feeds into Building 980 on the north side and on the west side of Building 968. Building 968 has a post indicating valve (fire suppression valve) located at the northwest end of the facility. Building 965 contains no sewage, domestic water, steam and condensate lines, or natural gas lines.

Electrical power for the Building 980 Cluster originates at Substation 517-2. An overhead 13.8 Kv line branches to Power Pole C6-673B. At Power Pole C6-673B, the 13.8 Kv line enters a conduit that is routed down the pole and underground to Transformer T-980. From the primary side of Transformer T-980, the 13.8 Kv is stepped down to 480 volts, 3 phase, on the secondary side. The 480 volts on the secondary side of Transformer T-980 supplies the line side of a disconnect switch that is attached to T-980. From the load side of the disconnect switch a conduit containing

Figure 2-1

Buildings 965, 968, And 980 D&D Area

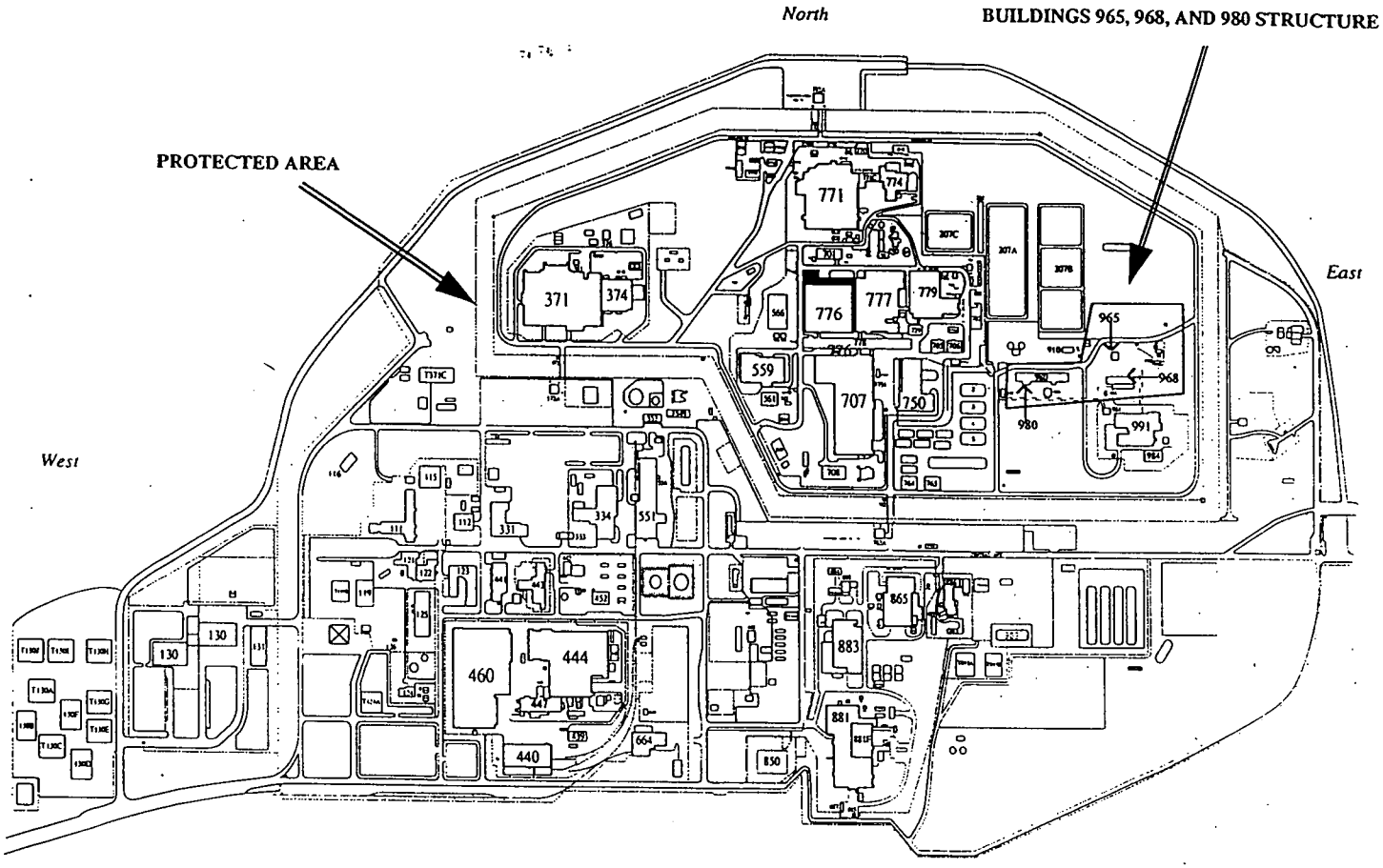


Figure 2-1 Site Map

the 480 volt cable is routed up Power Pole C6-673A where it exits a weatherhead and is tapped onto an overhead line. This overhead line supplying 480 volts is routed directly to Building 980 from this point. Also from this point, the overhead line supplies 480 volts to Buildings 968 and 965 via Power Poles C7-652 and C7-652A.

2.1.1 Foundations

Foundations for Buildings 965, 968, and 980 are horizontal, poured-in-place, reinforced concrete spread footings. In depth, below grade, they vary from 3 ft to 9 ft. Reinforced concrete grade beams, 16 in. to 18 in. wide and 10 in. to 13 in. thick, rest on the spread footings. Concrete grade walls 10 1/2 in. to 12 in. thick and 4 ft 6 in. deep support the exterior walls.

2.1.2 Structural Framing

The following describes the framing members used in Buildings 965, 968, and 980. Columns constructed of metal beams rest on slab footings, supporting the corrugated walls and ceilings in Building 965 and Building 980. Building 968 has wood beams supporting the corrugated metal walls and metal beams supporting the ceiling. The majority of the beams are painted with industrial epoxy paint.

2.1.3 Exterior Walls

Exterior walls of Buildings 965, 968, and 980 are made of corrugated steel. The walls are not insulated. Outer surfaces of the metal walls are unpainted. The walls are designed to be the equivalent of 2-hr fire-rated walls.

2.1.4 Floors

The floor slabs in Buildings 965, 968, and 980 are poured-in-place, reinforced concrete 6 to 8 in. thick, with a barrier on a gravel base.

2.1.5 Roofs

The roofs on all three facilities are constructed of corrugated metal with a few fiberglass sunlight panels inserted. There is no asbestos containing material (ACM) associated with the roofing materials.

2.1.6 Interior Walls

Most interior and exterior walls in Buildings 968 and 980 are corrugated metal. The interior surface of the exterior walls is un-insulated metal.

2.1.7 Ceilings

Ceilings in offices and hallways are suspended acoustical tile. Elsewhere in Buildings 965, 968, and 980 the ceilings are the underside of floors and roofs.

2.1.8 Doors

Most of the personnel doors in Buildings 965, 968, and 980 are either solid steel, steel with louvers, or steel with safety glass windows. Building 980 has 13 metal roll-up doors at various locations on the north and south side of the building, and one large sliding door on the east end of the facility. Building 968 has two large sliding doors at the northeast and southeast ends of the facility. Building 965 has one rolling door at the south end of the facility.

2.1.9 Windows

There are windows in Buildings 965, 968, and 980. Building 980 has seven windows on the south side and five on the north side. Building 968 has two windows on the east side and three on the west side. Building 965 has one window on the north and east sides and two on the west side of the facility.

2.1.10 Surface Finishes

Most interior and exterior walls in Building 980 are not painted. Beam and railing areas are painted with epoxy. Walls are corrugated metal and the floors are painted concrete.

2.2 HISTORICAL DATA

Building 965, constructed in 1981, functioned as a maintenance shop until 1996, and was utilized for various carpentry services and equipment repairs. Wood products were brought into the facility to be drilled, cut and made into scaffolding, shoring, and desk supports. In addition, equipment, such as pumps and electric motors, were brought in for repair. Tools, including drills, routers, and saws were utilized in this area. No hazardous waste streams originated from this facility.

Building 968, constructed in 1982, was used by the construction subcontractor for storage, warehousing, and support shops for their activities at the plant. The facility housed work and staging areas for painting (mixing and blending) and motorpool maintenance. Waste was generated during these processes and while conducting facility maintenance. Resource Conservation and Recovery Act (RCRA) waste streams were managed in Satellite Accumulation Areas (SAAs) (e.g., paint sludge with thinner/solvents, flammable waste and paint equipment). Waste generated in support of motorpool activities included: combustibles, broken parts, used absorbent, and empty containers. Used oil and filters were recycled, solvents used were non-hazardous, batteries were reclaimed, and aerosol cans were punctured then recycled. Fluorescent tubes were crushed and placed in a SAA until shipped off-site or placed in a RCRA permitted unit.

Building 980, constructed in 1957, was previously used by subcontractors for storage, warehousing, and as a support shop for their activities. Operations within Building 980 included: sheet metal work, painting, iron work, asbestos abatement, carpentry, millwright work, and motorpool maintenance. RCRA waste streams were managed in SAAs (e.g., paint sludge with thinner/solvents, flammable waste and paint equipment). Waste generated in support of motorpool activities included: combustibles, broken parts, used absorbent, and empty containers. Used oil and filters were recycled, solvents used were non-hazardous, batteries were reclaimed, and aerosol cans were punctured then recycled. Fluorescent tubes were crushed and placed in a SAA until shipped off-site or placed in a RCRA permitted unit.

2.3 BUILDING HAZARD SUMMARY

2.3.1 General

The Building 980 Cluster historic information, including the Waste Steam and Residue Identification and Characterization building books for Buildings 965, 968, and 980, was reviewed to determine the hazardous materials and hazardous waste associated with these facilities. Previous facility occupants were interviewed to assist with this scoping characterization effort. Hazardous material information is summarized in the following sections. The information provided also indicates that hazardous wastes generated from operations were removed from the facilities for disposal or accumulated in SAAs for staging purposes. At this time, there are no hazardous wastes being stored in the facilities.

2.3.2 Radiological Concerns

Based on the process knowledge associated with Buildings 965, 968, and 980, and their general use as warehouses, there is no expectation of radiological contamination except in the following areas:

- A radiological buffer area (RBA) and a contamination area presently exist in the east end of Building 980. A slightly contaminated pumping truck was decontaminated in the area and is currently present. The truck will be removed and contamination down graded from an RBA area prior to the implementation of this PAM. Based on previous and recent radiological surveys, no radiological contamination has been detected on the facility surfaces in the RBA in the vicinity of the truck.

- Fixed radiological contamination exists on the exterior metal surfaces of Buildings 965, 968, and 980. The contamination is believed to be as a result of being wetted from contaminated spray, during high wind conditions, from solar evaporation ponds located north and west of the 980 Cluster facilities.

2.3.2.1 Radiological Characterization/Final Survey

The radiological characterization/final survey for the Building 980 Cluster is based on the guidance from the following draft documents:

- NUREG/CR5849 - Manual for Conducting Radiological Surveys In Support Of License Termination

- MARSSIM - Multi-Agency Radiation Survey And Site Investigation Manual.

The following classifications of areas are being used for characterization and final survey. These classifications are delineated as follows:

- Class 1 Impacted (Affected) Areas are areas that have potential contamination (based on building operating history) or known contamination (based on past or preliminary characterization survey data). This would normally include areas where radioactive materials were used and stored and where records indicate spills or other unusual occurrences could have resulted in the spread of contamination. The survey frequency will be a minimum of one fixed survey measurement and one removable survey measurement per square meter. In addition, a scan survey for alpha and beta of 100% of the applicable surface areas, including fixed equipment, is required.

- Class 2 Impacted Areas are areas that have or had a potential for radioactive contamination or known contamination, but are not expected to exceed the applicable contamination limits. The survey frequency will be a minimum of one fixed survey measurement and one removable survey measurement at intervals as determined utilizing MARSSIM statistical calculations. In addition, a scan survey for alpha and beta of 10% to 100% of the applicable surface areas, including fixed equipment, will be performed as directed by Radiological Engineering personnel.

- Class 3 Impacted (Unaffected) Areas are all areas not classified as Class 1 or Class 2 Impacted or Non-Impacted. These areas are not expected to contain residual contamination above the limits, based on knowledge of building history and previous survey information. However, insufficient documentation is present to exclude the area from survey requirements. The survey frequency will be a minimum of one fixed survey measurement and one removable survey measurement per 50 square meter or 30 points, whichever is greater. In addition, a scan survey for alpha and beta of 10% of the

applicable surface areas, including fixed equipment, is required.

- Non-Impacted Areas are all areas not classified as Class 1, Class 2, or Class 3 Impacted. These areas have no reasonable potential for residual contamination, based on knowledge of building history and/or previous survey information. Sufficient information is present to be assured that no residual contamination is present above the acceptance criteria.

Criteria defined in DOE Order 5400.5, the RFETS Radiological Control Manual, and associated RFETS radiation protection procedures will be used to determine the potential for building surfaces, equipment, and demolition debris to be conditionally released.

2.3.2.2 Unconditional Radiological Release Criteria

The requirements of DOE Order 5400.5 and associated RFETS radiation protection procedures will be considered to determine if facility surfaces, equipment, and demolition debris are acceptable for unconditional release.

The requirements of DOE Order 5400.5 will be considered in the release of equipment removed from RFETS, as will RFETS Radiological Control Manual and associated RFETS radiation protection implementing procedures.

2.3.3 Paint

Painted surfaces are present throughout the Building 980 Cluster. Safety paint (yellow and red) used in the facilities is lead based. Historical knowledge, age of the facilities, and analytical data obtained from similar paints from like structures serves as the basis for the assumption that surfaces coated with safety paint are lead based.

Although no Polychlorinated Biphenyls (PCBs) are anticipated in the Building 980 Cluster, one floor coating sample has been analyzed from Building 980 due to the age of the facility (1957 construction). This sample was obtained and analyzed in accordance with the Decontamination and Decommissioning (D&D) Characterization Protocol and guidance obtained from TSCA Program Management. No PCBs were detected in the sample.

A Lead Abatement Plan will be prepared and implemented in the event that work is to be performed on lead containing surfaces. Prior to demolition, waste will be collected, characterized, and managed in accordance with applicable hazardous waste regulations.

2.3.4 Asbestos

Asbestos characterization activities have been performed in the Building 980 Cluster and included a review of documents detailing facility history, facility construction drawings, walkdowns, sample collection, and analysis and evaluation, and documentation of results and conclusions. The asbestos characterization survey was designed and managed by a qualified individual in accordance with the requirements of 29 Code Of Federal Regulations (CFR) 1926.1101. Samples were collected at locations identified during the review of facility drawings and walkdowns. Surveys were performed by certified personnel according to the guidelines set forth by the Asbestos Hazard Emergency Response Act and in compliance with the EPA, Occupational Safety And Health Act (OSHA), and CDPHE regulations. Asbestos inspections were performed using trained individuals and written procedures. All samples were tracked from sample collection through transport and analysis. All samples were analyzed at a certified laboratory. Data was recorded in an orderly and verifiable manner and was reviewed by a qualified Building Inspector for accuracy and consistency. A report has been prepared summarizing laboratory results including sample location, sample description, asbestos type and

percent, non-asbestos fiber types, matrix types, and sample color. The resulting analytical data confirms the presence of asbestos in the insulation on the water pipe fittings in Buildings 968 and 980, and wall board in Building 980 as follows:

- Building 965 - No asbestos has been discovered in this facility.
- Building 968 - 21 mudded fittings and 35 linear feet of pipe insulation in the rest room area contains asbestos and will be handled utilizing asbestos abatement procedures.
- Building 980 - Five mudded fittings and 20 linear feet of pipe insulation in the rest room area contains asbestos and one section of a wall consists of transite wall board.

All identified asbestos will be handled utilizing asbestos abatement procedures and all demolition activities performed in the vicinity of ACM, will be conducted by certified personnel in compliance with State regulatory requirements.

Buildings 965, 968, and 980 were inspected by a State Certified Asbestos Building Inspector as part of the reconnaissance characterization process. Suspect materials were: thermal systems insulation, surfacing materials, and miscellaneous materials. Subsequent sampling identified less than 160 linear feet of friable thermal systems insulation and, approximately, 300 square feet of non-friable cementitious board total for the cluster.

State of Colorado Regulation 8 Part B states that the control of asbestos requires notification if the amount of asbestos exceeds 160 linear, 260 square, or the volume equivalent of one 55 gallon drum. This notification must precede the intended abatement date by ten days. Notification will be made to the State of Colorado in accordance with Regulation 8, Part B, Section 3, (3)(b)(iii).

In addition to the notification for asbestos abatement, the State requires a Demolition Notification Form to be submitted that documents the facility has been inspected by a certified asbestos building inspector, and that all ACMs, excluding tar impregnated roofing felt and vinyl asbestos tile, have been removed prior to demolition. Notification will be made to the State of Colorado in accordance with Regulation 8, Part B, Section 3 (3)(b)(i,ii,iii).

3.0 PROJECT MANAGEMENT OVERVIEW

3.1 PROJECT ORGANIZATION

3.1.1 Project Manager (PM)

The Building 980 Cluster Decommissioning PM reports to the Manager of Engineering/Construction/Decommissioning/Facilities and is responsible for the overall management of the project. To carry out this function, the PM is responsible for and has the authority for the development, execution, supervision, coordination, and integration of all aspects of the decommissioning project's planning, staffing, management, and operations activities. All project aspects will be completed under his/her direction or through a designated individual.

3.1.2 Radiation Protection Project Lead

The Radiation Protection Project Lead will interface with the Radiation Operations and Engineering group at RFETS. He is responsible to ensure proper radiological controls are maintained (in accordance with the RFETS Radiological Control Manual) while project activities are being completed. The Radiation Protection Project Lead will develop radiological contamination survey instructions and over see their implementation. He will also write the final survey report.

3.1.3 Decommissioning Construction Management Superintendent

The decommissioning Construction Management Superintendent reports to the PM and is responsible for managing the decommissioning team (labor and supervision), in completing the decommissioning activities which include the decontamination of surfaces, structures, materials and equipment, the decommissioning activities of sub-contractor's work, the movement, packaging and storage of wastes on-site, the monitoring of performed work verses planned activities, and for maintaining time records of the operating staff. The decommissioning Construction Management Superintendent is also responsible for ensuring that activities are performed in accordance with applicable Integrated Work Control Program (IWCP) procedures, including tasks plans, radiation work permits, and safety requirements.

3.1.4 Project Administrator

The Project Administrator reports to the PM. The Project Administrator is responsible for establishing and maintaining the project files which will include all project related documentation. The Project Administrator will also provide clerical and secretarial support to the PM. The Project Administrator will provide a copy of all project documents to the Administrative Record for distribution.

3.1.5 Project Cost And Schedule Lead

The Project Cost and Schedule Lead reports to the PM and is responsible for establishing, maintaining, and reporting project cost and performance utilizing the Primavera software. The Project Cost and Schedule Lead is responsible for generating status reports and schedules as requested by the PM.

3.1.6 Quality Assurance (QA) Engineer

The QA Engineer is responsible for performing assessments and surveillances of project activities, inspections of selected activities, assists in training project personnel on Quality Control (QC) requirements, provides concurrence regarding the dispositioning of Non-Conformance Reports (NCRs) and reviews project procedures for quality requirements by providing quality related input. The QA Engineer is also responsible for initiating discrepancy reports, NCRs, Corrective Action Requests, and reviewing worker training records to ensure workers are appropriately trained. The QA Engineer receives direction from the PM regarding project priorities. The QA Engineer reports to and receives technical direction from the QA Manager.

3.1.7 Project Engineer (PE)

The PE is responsible for completing engineering activities supporting the decommissioning project. The PE is responsible for complying with Engineering Department procedures applicable to the project scope of work. He/she receives daily project direction from the PM and reports to the Engineering Manager for technical overview.

3.1.8 Regulatory Compliance Engineer

The Regulatory Compliance Engineer reports to the PM and is responsible for ensuring that the project activities are conducted in compliance with applicable environmental and regulatory requirements as identified in RFCA. The Regulatory Compliance Engineer will review IWCPs and change work processes, as necessary, to ensure the projected work is completed within existing permit requirements or he/she will have the permits issued/ modified to include the proposed work. The Regulatory Compliance Engineer is the PMs' interface with State and Federal regulators. The Regulatory Compliance Engineer will track all regulatory commitments and coordinate their completion.

3.1.9 Occupational Safety Project Support

Although Occupational Safety is the responsibility of each individual involved in the project, a Health and Safety professional is assigned to the project and will verify the proper personnel protective measure are in place to support the project.

3.2 DECOMMISSIONING OBJECTIVES

All sampling data was reviewed and considered valid and, thereby usable, in accordance with sampling, analytical, and record keeping procedures. Data Quality Objectives for the characterization have been satisfied.

The objective of all decommissioning actions is to safely dismantle all systems, and remove material internal to the facilities, decontaminate all hazards areas within the structures, and dismantle the external framework. This will be completed through the integration of DOE guidance and Orders, site infrastructure pre-job planning and briefing, training on general safety and job specific safety, and documenting processes that have been improved with previous projects lessons learned.

The Decommissioning Program is comprised of the resources to budget, plan, engineer, execute and control the decommissioning of the entire RFETS, consisting of several major facilities. Each major facility, group of facilities (cluster) or grouping of similar facility areas may comprise a decommissioning project.

Each of the decommissioning projects assigned within the Decommissioning Program have many common activities that will be managed at the program level. These activities consist of planning, engineering, permitting, characterization, waste disposal, site preparation, and final release. In this manner, these activities can be accomplished beginning immediately with a level of effort staffing. The deliverables of these activities are prepared in advance of individual project needs. This will allow the operations activity schedule of the Decommissioning Program to be compressed, which will have a major effect on the surveillance and maintenance costs due to a reduced overall schedule.

Activities that include dismantlement, decontamination, demolition, and site-specific preparatory activities will be managed at the project level. The PM will be responsible for the integration of project activities for individual projects and will have full responsibility for directing all resources necessary to complete the project.

Because the Building 980 Cluster Decommissioning Project will be conducted within the PA, safeguards and security have been considered and work will be performed within the guidelines set forth by RFETS Security.

3.3 DECOMMISSIONING PROCESS

The decommissioning process is described in general terms as: decommissioning planning and engineering, and decommissioning operations. This process documents the minimum elements that will be utilized by the Decommissioning Program to document respective actions.

The objectives of the Building 980 Cluster Decommissioning Project are as follows:

- Characterize the facilities to enable the decommissioning work to be adequately planned, ensuring safety of the decommissioning workers, the public, and the environment.

- Complete the decommissioning activities with no personnel injuries.
- Remove the contents of the 980 Cluster facilities utilizing surplus property procedures.
- Remove, survey, and transfer the material immediately surrounding the 980 Cluster to Property Utilization and Disposal for salvage scrap and/or re-use.
- Abate any ACM from the 980 Cluster prior to demolition.
- Dismantle the 980 Cluster facilities down to the facility foundations without disturbing the surrounding environs.
- Sanitary sewer, domestic water, and underground fire water lines will be left in place.

3.3.1 Characterization Planning And Engineering

The decommissioning planning phase begins with the selection/release of facilities/units to the Decommissioning Program. The release of facilities/units from facility management to the Decommissioning Program begins with the review of facility documentation and characterization data and a walk-down of the facilities by decommissioning personnel. Once the release has occurred, the Decommissioning Program will develop project-specific documents. A project-specific plan will have been developed by the Decommissioning Program staff for preliminary budgeting purposes which reflects the decommissioning section of the Site Lifecycle Baseline. The Decommissioning Program Manager will develop this plan, to the detail necessary, and apply the Decommissioning Cost and Schedule Control System. This plan is based on the information gathered, facility process knowledge, and planned decommissioning activities. Depending upon the availability of funds, the decommissioning planning phase will generally be conducted prior to the release of the facilities to the Decommissioning Program.

The Program Manager will have a project-specific Health And Safety Plan (HASP) developed which identifies the types of hazards within the decommissioning work scope. This HASP may be developed by a subcontractor if the work is subcontracted. The project-specific HASP requires the use of Activity Hazard Analysis (AHA) for each work task.

The AHA is primarily for the protection of the workers and will identify any safety issues such as the need for Personal Protective Equipment (PPE) and confined space entry. Personnel risk analysis will address the potential for contamination of personnel and hazards associated with chemicals in the area. Engineering support will assist in identifying methodologies and equipment to be utilized during the decommissioning process. This step is to minimize impacts and provides a well organized approach to decommissioning.

Waste management activities and waste minimization requirements will be incorporated in the IWCP. Waste volumes will be estimated and provided to the Waste Management organization for their planning purposes. Waste minimization techniques will be used to reduce the volume of waste generated by the decommissioning actions. Minimal radiological and hazardous waste is expected to be generated in completing this project (see Waste Management Section 3.7).

3.3.2 Decommissioning Physical Work

The decommissioning activities which will be completed in the 980 Cluster are identified below:

- Remove the permanent equipment from the structures and surrounding areas (e.g., cargo containers).
- Complete the asbestos abatement.

- Disconnect and cap water utilities.
- De-energize and disconnect electrical power (the electrical power system around the 980 Cluster will be modified to eliminate obsolete sections).
- Remove the facility structures.
- Check facility to ensure no new ground water migration paths are introduced. The foundations will be left in place and sealed, if necessary, to inhibit precipitation migration through the foundation into the ground water.

(Note: All activities are controlled through the use of IWCPs which identify how tasks will be completed and state what safety precautions apply to the task being performed.)

3.4 QUALITY PROGRAM

A commitment to a quality program and a continuous improvement philosophy are applied from project start through completion. This commitment to quality is instilled at all project levels, and adherence to this commitment is instrumental in the project's success. All project personnel are responsible for following approved QA program requirements and participating in quality improvement activities.

QA/QC personnel are involved at the initial planning stages of the project during site preparation and during project execution. The QA organization assumes a proactive role during the project by identifying and/or preventing potential problems or shortcomings, offering solutions, and assisting in corrective action steps. QA personnel are also responsible for objectively verifying that management/DOE directions and policies are being effectively implemented by the responsible organizations. The QA/QC role includes:

- Assurance that the engineering and administrative procedures are adhered to and are consistent with other project/DOE requirements
- Performance of audits and surveillances
- Review of applicable procurement and work documents
- Assurance of document review and approval requirements
- Review of data gathering methodologies
- Determine compliance with procedures
- Inspection of waste packaging
- Inspection of incoming materials
- Performance of facility walkdowns
- Monitor project for potential improvements
- Monitor corrective action initiatives

3.5 WORKER HEALTH AND SAFETY

Due to the scope of work and the potential hazards associated with this decommissioning action, this project will comply with the OSHA Construction Standard For Hazardous Waste Operations And Emergency Response, 29 CFR 1926 and Health And Safety Practices (HSP) 24.01, Construction Safety And Health Requirements. Under these standards, a site-specific HASP will be developed to address the safety and health hazards of each phase of site operations and specify the requirements and procedures for employee protection. In addition, the DOE Order for Construction Project Safety And Health Management, 5480.9A, applies to this project. The Order and HSP 24.01 require the preparation of AHAs to identify each task, the hazards associated with each task, and the actions taken to mitigate the hazards. These requirements will be integrated into the work process wherever appropriate.

This project could expose workers to physical, chemical, and low levels of radiological hazards. The physical hazards associated with decommissioning activities include: the use of heavy equipment, electrical shock, noise, heat stress, and work on elevated surfaces. Physical hazards will be mitigated by appropriate use of PPE, pre-engineering evaluation, briefing, training, and administrative controls. Chemical hazards will be mitigated by the use of PPE, removal of sources, and administrative controls. Appropriate skin and respiratory PPE will be worn throughout the project as directed by Industrial Hygiene personnel. Based on employee exposure evaluations, the site Health and Safety Officer may downgrade PPE requirements, if appropriate. If field conditions vary from the planned approach, the AHA will be modified for the existing circumstances and work will proceed according to the appropriate control measures. Data and controls will be continually evaluated. Radiological Work Permits will be generated for areas of contamination and will identify the areas of potential surface contamination, appropriate PPE, and airborne radioactivity controls, if necessary. Finally, dust minimization techniques will be used to minimize re-suspension or fugitive dust emissions.

3.6 CHARACTERIZATION

Characterization of a facility is the process of identifying the physical, chemical, biological, and radiological hazards that are associated with a facility. The hazard may be contained (i.e., acid in a tank or loose radioactive material on the floor) or the hazard may be potential (i.e., broken ladder or immediate, or a leaking pipe which contains radioactive material).

All existing equipment and materials will be characterized using process knowledge, material composition, and surveys, as appropriate to determine the potential for hazardous constituents, Toxic Substances Control Act (TSCA) materials, or radioactive contamination. The equipment and materials will be handled, stored, and/or disposed of in accordance with applicable State and Federal regulations.

This section discusses the types and phases of characterization which have been and will be completed for the 980 Cluster.

3.6.1 Scoping Characterization

The Scoping Characterization phase is the process of gathering information about facility hazards from existing sources. The main sources of this information are historical records, routine survey records, facility walkdowns, and interviews with former facilities' personnel.

3.6.2 Reconnaissance Characterization

The reconnaissance characterization phase establishes a definitive baseline of information about the facilities' hazards. During this phase of characterization, the information from the scoping characterization is used in conjunction with a review of the proposed decommissioning activities to

determine if the proposed activities are feasible and to identify the need for additional sampling and/or surveys. If additional characterization information is needed to adequately define the quantity and distribution of contaminants, the additional samples would be obtained during the reconnaissance characterization phase as identified in the Reconnaissance Level Characterization Plan (RLCP). The culmination of this phase results in development of a Reconnaissance Level Characterization Report (RLCR). The RLCR is a summary of all known characterization information which was obtained for the facilities being investigated. The RLCR is included as Attachment 2.

It is not anticipated that any environmental sampling will be required during the Building 980 Cluster decommissioning. However, if conditions change and environmental sampling becomes necessary, a Sampling And Analysis Plan (SAP) will be prepared in accordance with the RFCA. The SAP requires approval by the Lead Regulatory Agency (CDPHE) before the action can commence.

A SAP is made up of two parts: the Field Sampling Plan (FSP) and the QA Program Plan (QAPP). The FSP identifies sample, quantity, location, method for handling, collection, and storage of samples and the method of analysis. The QAPP documents the quality actions associated with the project.

3.6.3 Characterization Summary

The following decisions and observations were made from the Reconnaissance Level Characterization Report (Attachment 2) data:

1. There are no areas within the 980 Cluster that contain significant amounts of unidentified, uncontrolled, or unmarked radioactive contamination.

2. Although hazardous chemicals were housed in the 980 Cluster facilities, all excess and hazardous chemicals have been removed during the deactivation process. A few paints and cleaning solvents remain which will be removed by the subcontractor. Because the majority of chemicals have been removed and there are no known areas which have a buildup of chemical residue, no special chemical characterization is anticipated. Should a chemical be found during the decommissioning process, the chemical will be handled in accordance with existing chemical identification and handling procedures.

3. The specific quantity and distribution of ACM is known. An inspection of the facilities has been completed and the results are summarized in the RLCR.

4. Paints (specifically red and yellow) used for safety markings are considered lead based. Analytical data has confirmed the presence of lead in these paints. AHA will assume that these paints contain lead and appropriate precautions will be included in the work activity.

5. The fluorescent lights and associated ballasts will be removed and disposed of in accordance with appropriate RFETS procedures.

6. Although no Polychlorinated Biphenyls (PCBs) are anticipated in the 980 Cluster, one floor coating sample has been analyzed from Building 980 due to the age of the facility (1957 construction). This sample was obtained and analyzed in accordance with the Decontamination and Decommissioning (D&D) Characterization Protocol and guidance obtained from TSCA Program Management. No PCBs were detected in the sample.

The 980 Cluster project-specific HASP utilizes the characterization information to ensure that the associated hazards are addressed. For day-to-day field activities, the HASP requires that AHAs are developed to ensure worker protection and safety on a task specific basis.

3.7 WASTE MANAGEMENT

A Waste Management Plan will be developed for the project to define waste management activities. Estimates of waste volume from the decontamination, dismantlement, and decommissioning of the 980 Cluster are listed below. The waste will be designated as LLW, hazardous, or industrial waste and will be managed in accordance with State and Federal regulations by properly trained personnel. Waste Operations will arrange for transportation to an appropriate off-site facility. Sanitary (solid) waste will be disposed of on site. Low-level waste will be (1) disposed of at Envirocare, or the Nevada Test Site or (2) the metalic fraction may be recycled for reuse as low-level waste containers. Hazardous waste will be shipped to an approved hazardous waste disposal facility. Asbestos containing material will be shipped to Kettleman Hill or another approved facility. Manifests will be the responsibility of RFETS Traffic Department. Waste management training requirements are outlined in *Part IX Personnel Training of the Rocky Flats Environmental Technology Site RCRA Permit* (DOE 1997). The training matrix defined in Part IX details the training requirements for all personnel managing hazardous waste. Although the document is part of a permit, all RFCA training requirements of 6 CCR 1007-3, 265.16 are met.
Waste management information is summarized below:

- There are three drums of low-level radiological waste in Building 980. These drums were left in the facility after decontamination of the solar pond vacuum truck. The waste travelers will be verified to be complete and accurate, and the drums will be removed from the area.

- 980 Cluster records indicate that there is no radiological contamination in Building 980, 965, or 968. A random radiological survey sampling indicated no radiological contamination in the Building 980 area which houses the vacuum truck.

- Low level fixed radioactive contamination has been identified on the exterior metal surfaces of the 980 Cluster facilities. These metal surfaces will be removed and packaged as low level radioactive material.

- Buildings 980 and 968 house portable equipment which was used in other site facilities. These items will be cleaned and surveyed for free release. Some of these items have surfaces which cannot be surveyed and, therefore, will be treated as a low-level waste (LLW).

- Based on the information provided above, the following waste volume estimates are:

Type Of Waste	Volume
Transuranic Waste	None
Low-Level Waste	208 yd^3
Low Level Mixed Waste	None
Hazardous Waste (i.e., paint solvents)	.5 yd^3
Industrial (i.e., recycled metal)	163 Tons
Industrial (i.e., drywall and misc. consumables)	30 yd^3
Asbestos Containing Material	6 yd^3

4.0 ENVIRONMENTAL ISSUES

The National Environmental Policy Act (NEPA) requires that actions conducted at the RFETS consider potential impacts to the environment. The Memorandum for Secretarial Officers and Heads of Field Elements, dated June 13, 1994, issued by the Secretary of Energy, Hazel O' Leary entitled "The National Environmental Policy Act Policy Statement" defines the DOE policy for integrating the NEPA process with the CERCLA decision making process. While no separate NEPA documentation is required for this effort, RFCA (and DOE policy) requires DOE to consider environmental impacts of the proposed action and of alternatives as part of this document.

4.1 PROPOSED ACTION AND ALTERNATIVES

4.1.1 Alternative 1, Proposed Action, Decommissioning of the 980 Cluster

The proposed action is the decommissioning of the 980 Cluster. Decommissioning activities are to follow a project-specific plan approved by the DOE and CDPHE. Activities consist of site and facility characterization, decontamination, dismantlement (as necessary), and waste generation. Any hazardous, LLW and low-level mixed waste generated by decommissioning activities would be transported to an appropriate facility for storage followed by disposal.

4.1.2 Alternative 2, No Action, Maintain General Warehouse Function

Alternative 2 to Proposed Action:

> This alternative maintains the 980 Cluster facilities in their current configuration and use as general warehouse and maintenance buildings. This alternative would not result in further environmental degradation but, does result in continued funding of landlord function for general facility maintenance.

4.1.3 Alternative 3, Alternative Use of the 980 Cluster Facilities

Alternative 3 to Proposed Action:

> This alternative would maintain the 980 Cluster facilities in their current configuration but changes their mission in support of the RFETS.

4.1.4 Evaluation of Alternatives

Alternative 1: The objective of the proposed action is to reduce the overall Site mortgage by removal of facilities that no longer have an intended mission. Decommissioning includes removing equipment, decontaminating facility surfaces and structural members; surveying the facility for residual contamination; and characterizing, packing, and shipping any resulting wastes. Removal of residual contamination would be initiated with the simplest and least aggressive method, such as decontamination using damp cloths. The entire facility would be dismantled (with the exception of the building slab) and debris would be shipped to appropriate off-site facilities for disposal or recycle. This is the selected alternative because it supports the accelerated closure and results in no further environmental degradation.

Alternative 2: This alternative would not accelerate closure of the site, therefore it was rejected.

Alternative 3: This alternative does not result in any detrimental environmental consequences but, is rejected based on the following evaluation. Alternative use of the 980 Cluster in support of the RFETS mission was evaluated by the Site Utilization Review Board (SURB) and the

SURB determined there was no further mission for the 980 Cluster.

Alternate use of the 980 Cluster for an alternative off-site use was evaluated in accordance with DOE Order 4300.1C, subparagraph g, Disposal of Government - Owned Land and Improvements. No future use was identified in the DOE 4300.1C evaluation.

4.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Environmental effects associated with the D&D of the 980 Cluster are described in the following:

4.2.1 Geology And Soils

Decommissioning activities will disturb less than four (4) acres of land, most of which has previously been disturbed and is not vegetated. No soil contouring will be conducted after facilities are removed. Geological effects associated with demolition activities may include short-term increases in soil erosion and siltation. Because the area subject to impact through equipment transport is not vegetated, no significant loss in soil productivity is anticipated.

4.2.2 Air Quality

No air quality impacts are expected after the project has been completed. Short-term impacts, such as increase in dust due to heavy equipment movement, if experienced, will be mitigated by dust suppression techniques and excavation controls. Dust generated during the decommissioning effort will be managed with engineering controls. In addition, non-electric generators may be used as power support to demolition equipment. Smoke emissions generated when non-electric generators are used, will be monitored by Site Air Quality Management to ensure that the level of opacity does not exceed 20%.

4.2.3 Water Quality

Measurable surface water and ground water quality impacts are not anticipated due to evaluation of relevant historic rainfall data. Removal of facilities, while leaving the cement pads intact is not expected to effect storm water runoff from the 980 Cluster area, nor is it expected to impact the amount of precipitation that percolates into the soil. Most of the local precipitation either evaporates on the ground surface or is taken up by vegetation in the surrounding area.

4.2.4 Fauna And Flora

A small wetland area is located east of Building 980. The wetland area is not particularly suitable habitat for threatened and endangered species and migratory birds due to its overall size and location. In any event, the area will be labels with caution tape and barricades will be installed to ensure that the wetland area remains undisturbed.

4.2.5 Human Health

Human health impacts are addressed through requirements for worker protection and requirements to control the dispersion of contamination to air, water, and soil. Exposures to workers and the public will be controlled and monitored in accordance with RFETS standards which are based on State and Federal requirements.

4.2.6 Noise

Decommissioning activities will involve common industrial with a variety of associated noise levels. Because the 980 Cluster is relatively isolated from other RFETS work areas, any elevated noise levels will be muffled. The anticipated method of demolition will be shears

attached to a piece of heavy equipment. In the event that scabbling is required, higher than ambient noise levels will result. Workers involved in such activities will use appropriate hearing protection devices. Outdoor activities will be conducted in a safe manner in which noise will not affect non-involved workers and the public.

4.2.7 Historical Resources/HUD/GSA

The programmatic agreement between the DOE/Rocky Flats Field Office, the Colorado State Historic Preservation Office, and the Advisory Council On Historic Preservation has been approved. A listing of potentially historic structures was identified in this programmatic agreement. The 980 Cluster was not contained in the listing of potentially historic structures and is therefore considered of no historic significance.

The McKinney Act requires that excessed federal facilities be identified to the U.S. Department of Housing and Urban Development (HUD) to determine their suitability to assist homeless persons. The McKinney Act provisions do not apply to facilities, such as the 980 Cluster, that are covered under the Atomic Energy Act.

Property removal and building demolition is coordinated for GSA through the Site Property and Utilization Program.

4.2.8 Irreversible And Irretrievable Commitments Of Resources

Decommissioning is essentially a destruction related project that eliminates existing uses for that which has been destroyed. Decommissioning is not a construction project that consumes land and building materials. Funds, labor, equipment, fuel, tools, PPE, waste storage drums, and similar items are resources that will be irretrievably committed to this decommissioning project.

4.2.9 Cumulative Impacts

Decommissioning and demolition of the 980 Cluster comprises part of a broader program to decommission and demolish all but nine(9) of the approximately 700 buildings on the RFETS. The cumulative efforts of this program are described in detail in Section 5 of the *Cumulative Impacts Document*. In summary, such effects will result in a site with only nine (9) buildings, selected streets, a minor degree of infrastructure (water, sewer, and electric service), and a large area of vacant land.

5.0 ARARs

Decommissioning actions at RFETS that are performed under a PAM must attain, to the maximum extent practicable, compliance with Federal and State ARARs. The substantive attributes of the Federal and State ARARs, relating to this proposed action are identified in this section and summarized in Table 5-1. In addition, Table 5-1 identifies whether the requirement is applicable, relevant and appropriate, or To Be Considered (TBC). (Note: No relevant and appropriate ARARS have been identified for the 980 Cluster project.)

Air
The Colorado Air Pollution Prevention And Control Act standards for emissions (5 Colorado Code of Regulations [CCR] 1001) have been identified as action-specific ARARs. Based on process evaluation and Air Quality Management review, the anticipated air emissions are not sufficient to generate Air Pollution Emission Notices or air permitting requirements. Regulations 1, 7, and 15 will be followed to maintain the quality of air with respect to construction activities specific emission sources such as generators which use petroleum products, and the disposal of refrigerants. In

addition, 5 CCR 1001-14 will be followed to maintain the quality of ambient air in compliance with the National Ambient Air Quality Standards (NAAQS). Applicable emission standards for asbestos will be accomplished in accordance with Regulation 8, Part B.

Additionally, the National Emission Standards For Hazardous Air Pollutants (NESHAP) (5 CCR 1001-10; 40 CFR 61 Subpart H) have been identified as a chemical-specific ARAR to evaluate potential radionuclide emissions. The EDE will be calculated for those emissions anticipated from the operations associated with facility demolition.

Waste Management
Minimal hazardous remediation waste generation is anticipated from demolition. Remediation waste generated during this removal action will be evaluated under Part 261, Identification and Listing of Hazardous Waste, specifically Subparts A through C and managed in accordance with Part 262, Standards Applicable To Generators Of Hazardous Waste. Solid waste will be generated and managed in accordance with the Colorado Solid Waste Disposal requirements, 6 CCR 1007-2. In addition, all sections regarding off-site shipment of wastes contained in Part 268, Land Disposal Treatment Standards are applicable ARARs.

If necessary, remediation waste will be managed in a temporary unit established pursuant to §264.553. The requirements governing Temporary Units (TUs) are applicable to tanks and containers used for storage and treatment of hazardous remediation wastes generated in conjunction with the decommissioning of the 980 Cluster. Incompatible wastes, if encountered, will be segregated within the units. Secondary containment will be provided, where practical, when liquid wastes are stored or treated in tanks or containers. Waste characterization will be provided, as appropriate, in accordance with the SAP. Inspections, at a minimum of once a week, will be provided during operations in accordance with the Waste Management Plan. Training for individuals generating and handling hazardous remediation waste will be implemented using the framework identified in the RFETS Part B permit. To close a TU, waste and contaminated soils will be removed, as appropriate.

Wastewater
Remediation waste waters generated during decommissioning will be transferred to the Consolidated Water Treatment Facility (CWTF, Building 891) for treatment. Remediation wastewaters that contain listed RCRA hazardous wastes or exhibit a RCRA characteristic are not subject to compliance with RCRA hazardous waste requirements because the wastewaters are CERCLA remediation wastes being treated in a CERCLA treatment unit. The CWTF will treat the remediation wastewater to meet applicable surface water quality standards under a National Pollution Discharge Elimination System (NPDES) ARARs framework. Waste Generated at B891 as the result of treatment of a listed remediation wastewater will be assigned the corresponding listed waste code. All wastes generated at B891 will be evaluated for hazardous characteristics.

Table 5-1 General ARARs For The Building 980 Cluster

Action	Requirement	Prerequisite	Citation	ARAR
Air Quality	Compliance with air emissions	Control of emissions for smoke, particulate, and volatiles of concern. Implemented for construction activities, haul roads, haul trucks, demolition activities.	5 CCR 1001-3 Reg 1 5 CCR 1001-9 Reg 7	Applicable

Action	Requirement	Prerequisite	Citation	ARAR
Air Quality	Compliance with NESHAP	Regulates radionuclide emissions from DOE facilities with a limit of ten mrem/yr. Site standard.	5 CCR 1001-10, Reg 8 40 CFR 61 Subpart H	Applicable
Air Quality	Compliance with NAAQS	Maintain quality of ambient air for criteria pollutants.	5 CCR 1001-14	Applicable
Air Quality	Emission standards and compliance with asbestos work practice requirements	Standards for demolition, storage, and handling of waste. Implemented through specific operational directions in IWCPs.	5 CCR 1001-10 Reg 8	Applicable
Air Quality	Compliance with Hazardous Air Pollutant Requirements	Implemented if the remedial action involves a specific regulated pollutant, eg., lead.	5 CCR 1001-10 Reg 8	Applicable
Air Quality	Compliance with ozone depleting compound requirements	Ensure refrigerants are disposed of properly . Approved vessel recovery method must be used.	5 CCR 1001-19 Reg 15	Applicable
Solid Waste	Solid Waste Disposal Act	Requirements for disposal of solid wastes.	6 CCR 1007-2	Applicable
TSCA	Disposal of PCBs	Ensure that any materials with ≥ 50 ppm for PCBs are managed according to TSCA.	40 CFR Part 761	Applicable
Hazardous Waste	Compliance with Colorado Hazardous Waste Act	Identification and characterization of hazardous waste.	40 CFR 261 6 CCR 1007-3, 261	Applicable
Generator Standards	Standards Applicable to Generators of Hazardous Waste	Generator prepares a manifest if hazardous remediation wastes are disposed of offsite.	40 CFR, Part 262 6 CCR 1007-3, Part 262	Applicable
TSD Facility Standards	Temporary unit container and tank storage requirements	Requirements for operation of temporary tank and container storage areas.	40 CFR 264.553 6 CCR 1007-3, 264.553	Applicable
LDR	Treatment standards for hazardous waste	Requirements for treatment and land disposal of hazardous waste.	40 CFR 268 6 CCR 1007-3, Part 268	Applicable
Low Level Waste Disposal	Low Level Waste Disposal	Requirements governing offsite disposal of low level radioactive waste.	10 CFR Part 61 6 CCR 1007-14	Applicable

Action	Requirement	Prerequisite	Citation	ARAR
Radiation Protection	Standards for radiation protection	Establishes the criteria for the protection of human health and the environment.	DOE 5400.5	TBC
Radioactive Waste Management	Radioactive Waste Management	Requirements for the management and packaging of LLW.	DOE Order 5420.2A	TBC

Asbestos
Compliance with asbestos requirements is an applicable ARAR and will be achieved in accordance with Regulation 8. Specifically, Section III, C.7.6, provides maximum allowable asbestos levels, and section C.8.2.(b).,(d) and (f) provides requirements for handling asbestos waste materials.

Regulation 8 also governs work practices aimed at the protection of the worker/public and are virtually identical to the OSHA requirements in 29 CFR 1926.1101. At RFETS this is controlled through the Industrial Hygiene group in accordance with HSP 1-62200HSP-9.09. NESHAP standards for asbestos will be implemented through specific operational directions in IWCPs in accordance with Reg 8, Part B.

PCBs
Screening for PCBs will be performed on suspect materials prior to demolition. Presently, the painted concrete facility pads are the only areas where special use coatings, which may contain PCBs, are suspect. Sampling results have been obtained and are less than 50 ppm for PCBs. Any other materials, identified through In-Process Characterization, as suspect of containing PCBs will be managed in accordance with 40 CFR Part 761, Disposal Of Polychlorinated Biphenyls, if determined to contain ≥ 50 ppm PCBs.

Fluorescent light ballasts are the only potential source of PCBs identified in the 980 Cluster. Light ballasts marked "No PCBs" or "PCB Free" will be managed as non-hazardous solid waste and disposed at a sanitary landfill. Ballasts marked "PCBs" or not marked and not leaking will be packaged for disposal at an TSCA-permitted facility. Leaking PCB light ballasts and unmarked light ballasts will be managed as fully-regulated PCB articles.

Radiological Contamination
Due to the potential for radiological contamination in specific areas of the Building 980 Cluster, guidelines contained in DOE Order 5400.5 have been identified as TBC. In the event that radiological contamination is identified, DOE Order 5400.5 will be followed to ensure protection of the workers, the public, and the environment. In addition, DOE Order 5420.2A, Radioactive Waste Management, has been identified as TBC and contains the requirements for the management and packaging of LLW.

Soil excavation will not be necessary during this removal action. The cement pad for each facility will remain in place. The Individual Hazardous Substance Site located on the south side of Building 980 will be secured to ensure no disruption of soils within its boundary.

The only potential impact to water quality associated with the Building 980 Cluster project is due to storm water run off during the demolition phase. Quantities of water-borne soil leaving the immediate area are expected to be small.

6.0 IMPLEMENTATION SCHEDULE

The 980 Cluster is scheduled for decommissioning by the end of this fiscal year (September 30, 1997). (See Attachment 1.)

7.0 DOCUMENTATION

A closeout report will be generated identifying work completed, method of validation, sampling data (if any), status of any areas of risks, any new areas of concern, and the status of the unit at the end of the decommissioning action. The report will also include:

- Any modifications or variations from the original decision document (this PAM).
- Any analytical results, including the results of any confirmatory sampling taken to verify completion of the action.
- Quantity and characteristics of the actual wastes produced and how the wastes were stored or disposed.

This document closes the decommissioning administrative record.

8.0 REFERENCES

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO.

DOE, 1996, *Final Rocky Flats Cleanup Agreement, Rocky Flats Environmental Technology Site*, Golden, CO.

Kaiser-Hill Company, L. L. C., 1996, *Rocky Flats Environmental Technology Site Radiological Control Manual*, June 1996.

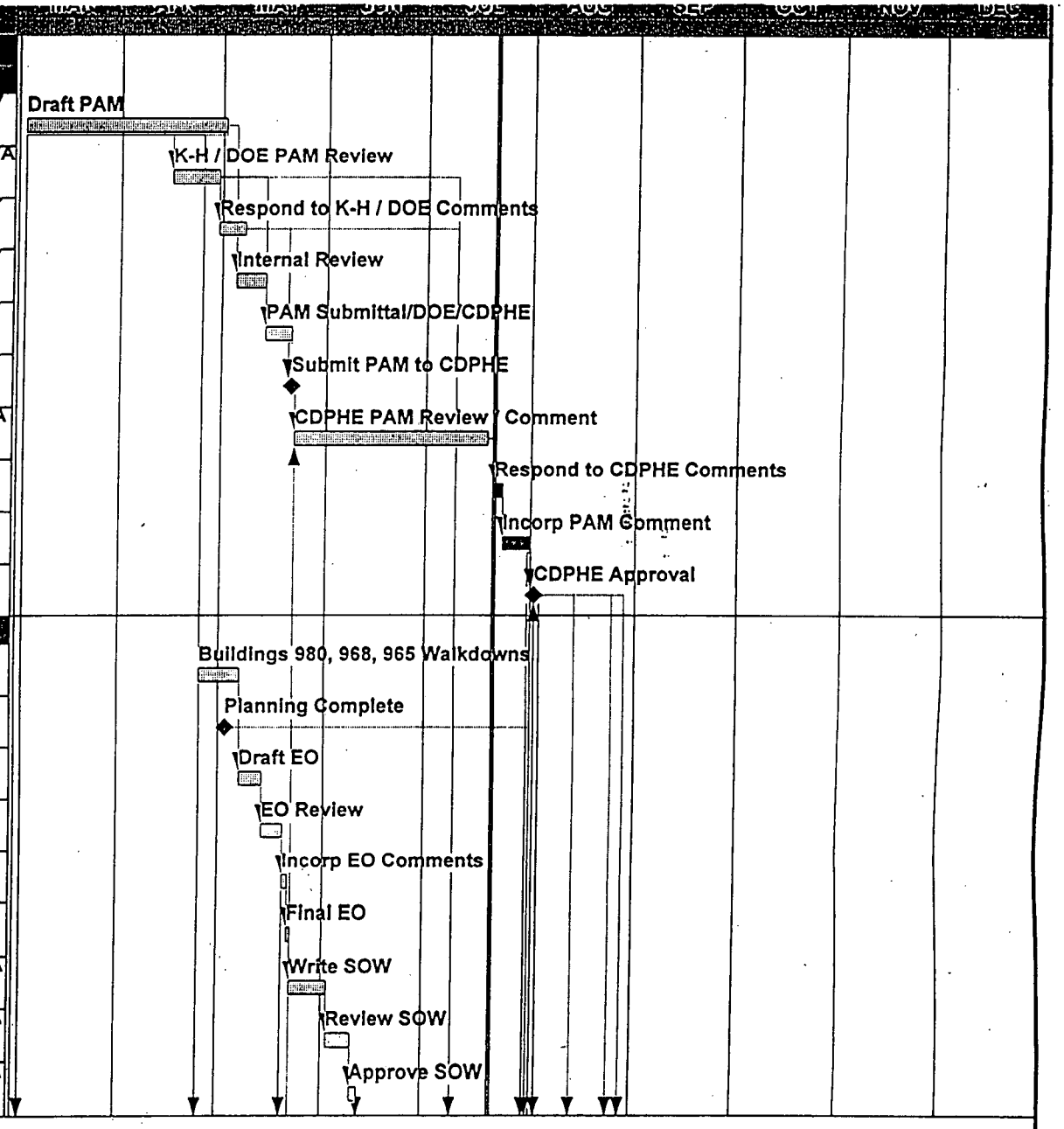
DOE, *Waste Stream and Residue Identification and Characterization for Building 965, 968, and 980.*

Nuclear Regulatory Commission, 1992, *NUREG/CR-5849, Manual For Conducting Radiological Surveys In Support Of License Termination.*

Attachment 1

Project Schedule

ID	Description	Dur	Rem	Int	Start	Finish
0 Complex Decommissioning						
AM						
0100	Draft PAM	15	0	00	03MAR97A	01MAY97
0690	K-H / DOE PAM Review	9	0	00	16APR97A	29APR97A
0700	Respond to K-H / DOE Comments	5	0	00	30APR97A	07MAY97
0450	Internal Review	7	0	00	05MAY97A	13MAY97
0110	PAM Submittal/DOE/CDPHE	5	0	00	14MAY97A	21MAY97
0710	Submit PAM to CDPHE	0	0	00		21MAY97
0120	CDPHE PAM Review / Comment	58	0	00	23MAY97A	18JUL97A
0730	Respond to CDPHE Comments	3	3	0	21JUL97A	23JUL97
0130	Incorp PAM Comment	5	5	0	24JUL97	31JUL97
0140	CDPHE Approval	0	0	0		01AUG97
gineering						
0290	Buildings 980, 968, 965 Walkdowns	7	0	00	25APR97A	06MAY97
0640	Planning Complete	0	0	00		02MAY97
0300	Draft EO	5	0	00	07MAY97A	13MAY97
0310	EO Review	3	0	00	14MAY97A	19MAY97
0320	Incorp EO Comments	2	0	00	20MAY97A	21MAY97
0330	Final EO	1	0	00	22MAY97A	22MAY97
0550	Write SOW	5	0	00	23MAY97A	02JUN97A
0560	Review SOW	5	0	00	03JUN97A	09JUN97A
0570	Approve SOW	2	0	00	10JUN97A	11JUN97A



:t Start	03MAR97	Early Bar
:t Finish	30SEP97	Progress Bar
)ate	21JUL97	Critical Activity
'ate	29JUL97	

rimavera Systems, Inc.

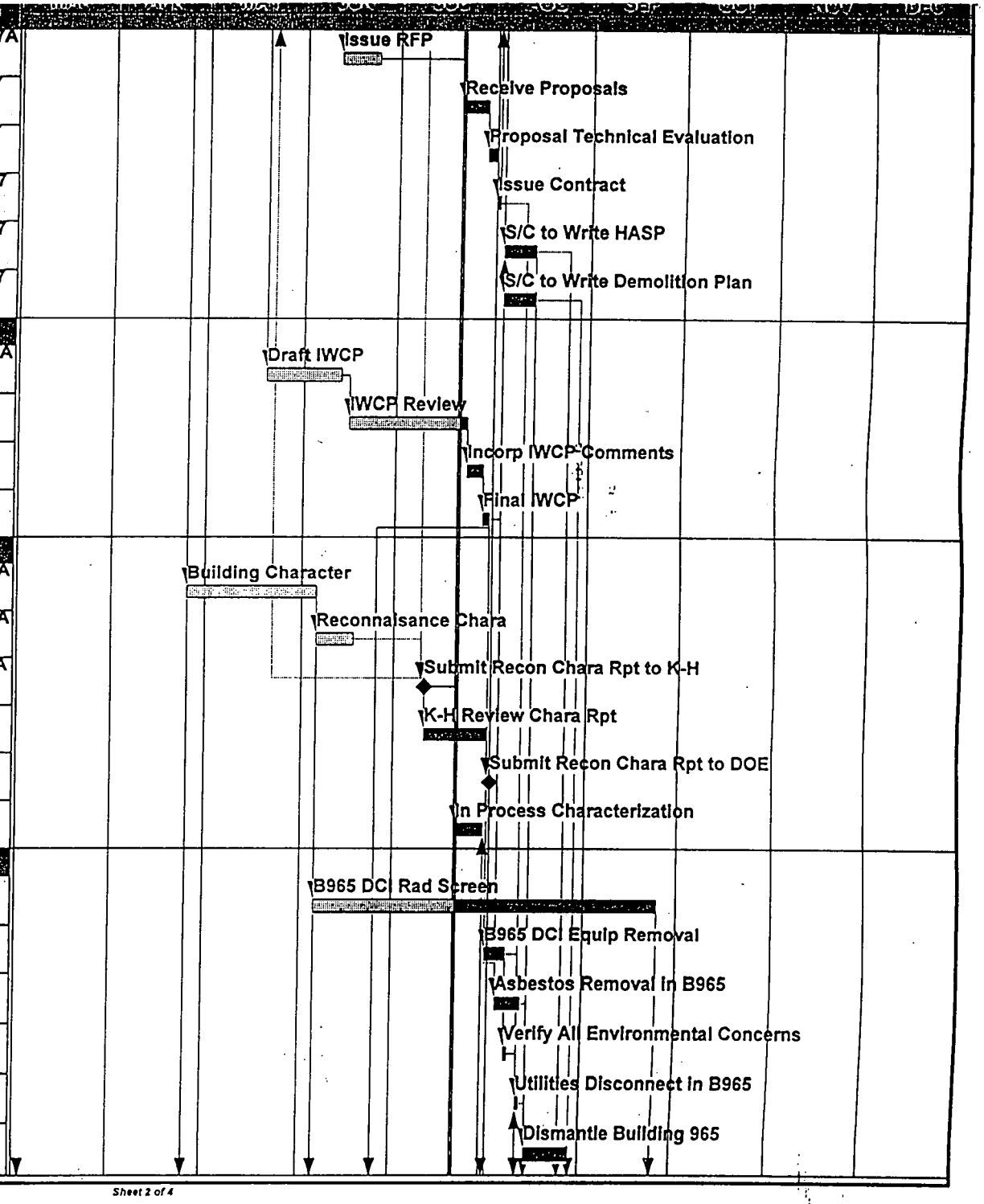
B981

Sheet 1 of 4

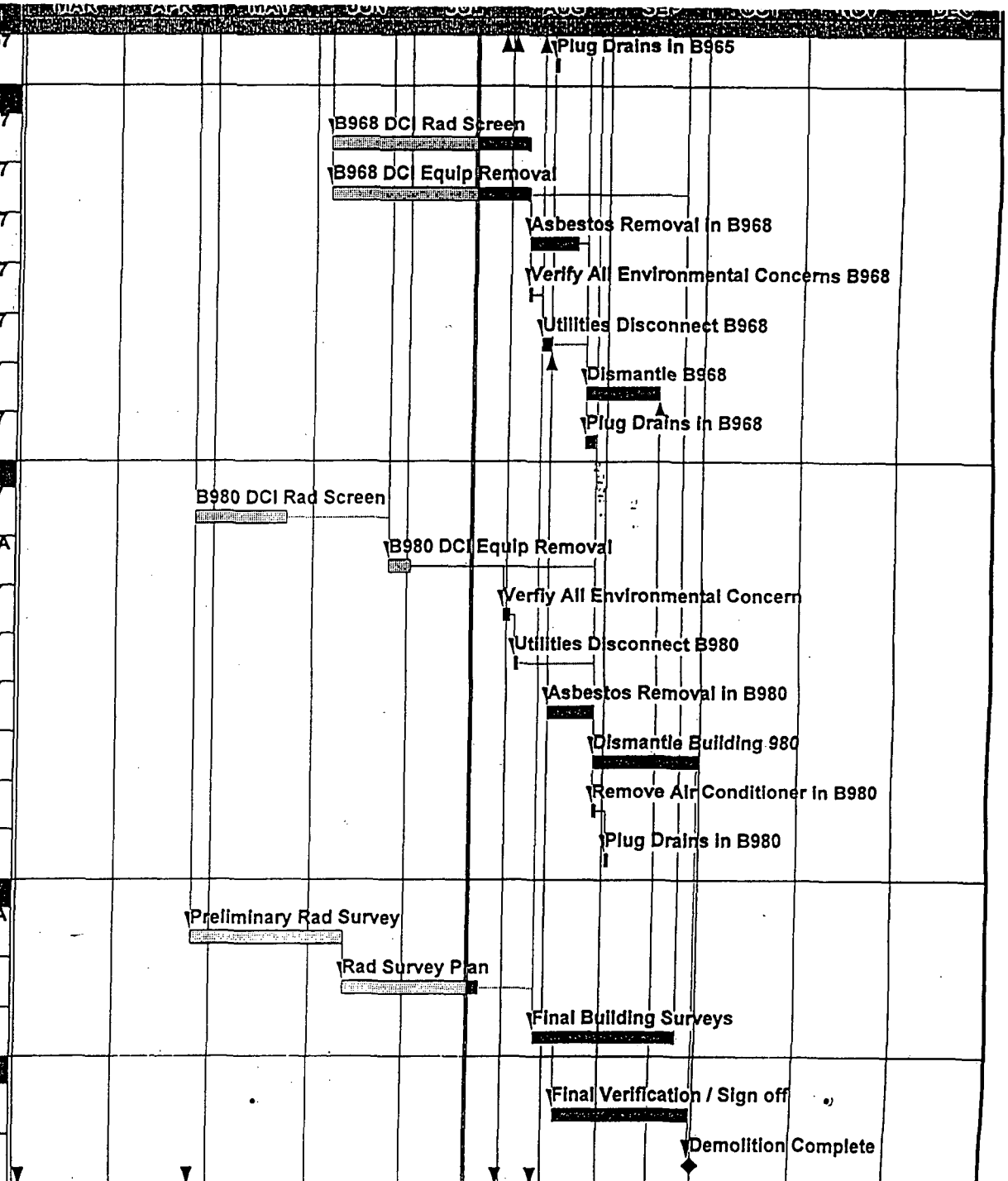
RMRS
980 Complex Decommissioning
Classic Schedule Layout

Date	Revision	Checked	Approved

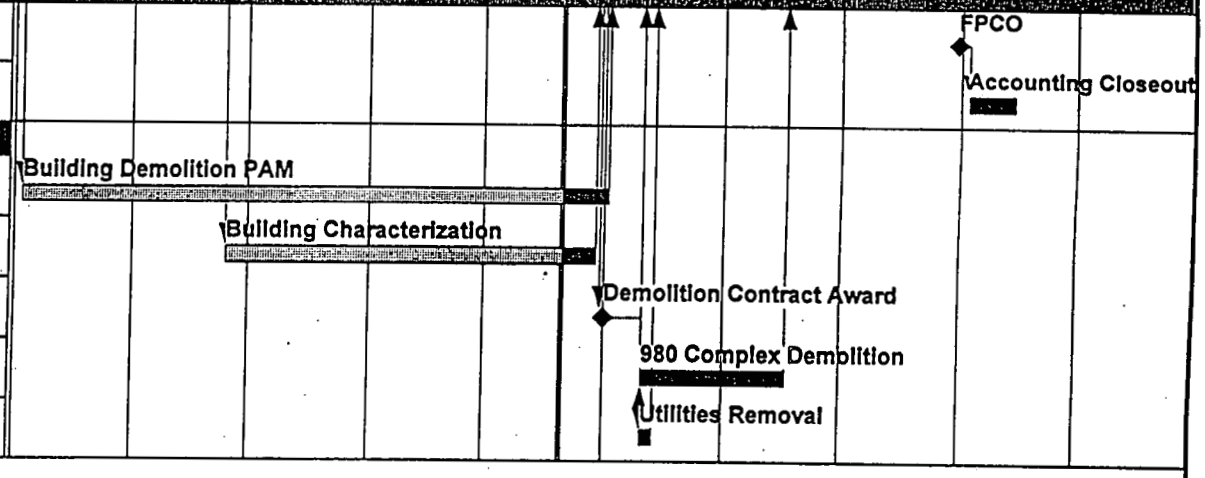
ID	Description	Dur	Du		Start	Finish
0580	Issue RFP	2	0	00	12JUN97A	23JUN97A
0590	Receive Proposals	5	5	0	21JUL97	28JUL97
0600	Proposal Technical Evaluation	3	3	0	29JUL97	31JUL97
0610	Issue Contract	1	1	0	01AUG97	01AUG97
0620	S/C to Write HASP	7	7	0	04AUG97	13AUG97
0630	S/C to Write Demolition Plan	7	7	0	04AUG97	13AUG97
WCP						
0340	Draft IWCP	16	0	00	20MAY97A	12JUN97A
0350	IWCP Review	3	3	8	16JUN97A	23JUL97
0360	Incorp IWCP Comments	2	2	0	24JUL97	28JUL97
0370	Final IWCP	2	2	0	29JUL97	30JUL97
haracterization						
0160	Building Character	26	0	00	25APR97A	05JUN97A
0190	Reconnaisance Chara	7	0	00	06JUN97A	17JUN97A
0650	Submit Recon Chara Rpt to K-H	0	0	00		10JUL97A
0780	K-H Review Chara Rpt	15	14	7	11JUL97A	30JUL97
0800	Submit Recon Chara Rpt to DOE	0	0	0		31JUL97
0230	In Process Characterization	6	6	0	21JUL97	29JUL97
ilding 965						
0380	B965 DCI Rad Screen	2	42	0	06JUN97A	24SEP97
0390	B965 DCI Equip Removal	5	5	0	31JUL97	06AUG97
0250	Asbestos Removal in B965	5	5	0	04AUG97	11AUG97
0280	Verify All Environmental Concerns	1	1	0	07AUG97	07AUG97
0210	Utilities Disconnect in B965	1	1	0	11AUG97	11AUG97
0150	Dismantle Building 965	10	10	0	14AUG97	28AUG97



ID	Description	Dur	Dur		Start	Finish
0270	Plug Drains in B965	1	1	0	14AUG97	14AUG97
uilding 968						
0400	B968 DCI Rad Screen	13	12	8	06JUN97A	06AUG97
0410	B968 DCI Equip Removal	13	12	8	06JUN97A	06AUG97
0470	Asbestos Removal in B968	10	10	0	07AUG97	21AUG97
0530	Verify All Environmental Concerns B968	1	1	0	07AUG97	07AUG97
0510	Utilities Disconnect B968	3	3	0	11AUG97	13AUG97
0440	Dismantle B968	15	15	0	25AUG97	16SEP97
0460	Plug Drains in B968	3	3	0	25AUG97	27AUG97
uilding 980						
0420	B980 DCI Rad Screen	19	0	00	25APR97A	23MAY97
0430	B980 DCI Equip Removal	26	0	00	25JUN97A	01JUL97A
0540	Verify All Environmental Concern	1	2	0	31JUL97	01AUG97
0520	Utilities Disconnect B980	1	1	0	04AUG97	04AUG97
0500	Asbestos Removal in B980	10	10	0	14AUG97	28AUG97
0260	Dismantle Building 980	20	20	0	29AUG97	30SEP97
0480	Remove Air Conditioner in B980	1	1	0	29AUG97	29AUG97
0490	Plug Drains in B980	1	1	0	02SEP97	02SEP97
d Info						
0180	Preliminary Rad Survey	30	0	00	25APR97A	11JUN97A
0200	Rad Survey Plan	15	4	73	12JUN97A	24JUL97
0240	Final Building Surveys	29	29	0	11AUG97	24SEP97
oseout and Verification						
0790	Final Verification / Sign off	27	27	0	18AUG97	29SEP97
0670	Demolition Complete	0	0	0		30SEP97



ID	Description	Dur	Dur		Start	Finish
0720	FPCO	0	0	0	31OCT97*	
0740	Accounting Closeout	10	10	0	03NOV97	14NOV97
0660	Building Demolition PAM	152*	12*	92	03MAR97A	01AUG97
0680	Building Characterization	96*	9*	91	25APR97A	29JUL97
0750	Demolition Contract Award	0	0	0		31JUL97
0760	980 Complex Demolition	24*	24*	0	11AUG97	16SEP97
0770	Utilities Removal	3*	3*	0	11AUG97	13AUG97



Attachment 2

Reconnaissance Level Characterization Report For The Building 980 Cluster

Rocky Mountain
Remediation Services, L.L.C.
. . . protecting the environment

RF/RMRS-97-019

Reconnaissance Level Characterization Report For The Building 980 Cluster Removal Project

AUGUST 1997

REVIEWED FOR CLASSIFICATION/UCNI
By
Date

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT

TABLE OF CONTENTS

TABLE OF CONTENTS i

ACRONYMS iii

1.0 INTRODUCTION 1

1.1 PURPOSE 1

1.2 SCOPE 1

1.3 METHODOLOGY 1

1.4 SUMMARY 4

2.0 ANALYTICAL TESTING 6

2.1 WASTE MANAGEMENT 6

2.2 INDUSTRIAL HYGIENE 6

3.0 RECONNAISSANCE SURVEY RESULTS 6

3.1 FACILITY WORK AREA 6

3.2 FACILITY CHARACTERIZATION 7

4.0 DATA QUALITY ASSESSMENT 12

5.0 INFORMATION SOURCES 12

6.0 REFERENCES 12

7.0 ATTACHMENTS 13

7.1 Radiological Survey Instructions For Building 980
7.2 Radiological Survey Instructions For Building 968
7.3 Radiological Survey Instructions For Building 965
7.4 Radiological Survey Instrumentation
7.5 Radiological Survey Information For Buildings 965, 968 & 980
7.6 Asbestos Characterization Report For Building 980
7.7 Asbestos Characterization Report For Building 968
7.8 Asbestos Characterization Report For Building 965
7.9 Reconnaissance Level Characterization Plan

TABLES

4.1 BUILDING 980 CLUSTER RLCR 9
4.2 980 CLUSTER RADIOLOGICAL SURVEY DATA 10
4.3 SUMMARY OF CONTAMINATION VALUES FOR UNRESTRICTED RELEASE 11

FIGURES

1-1 SITE MAP 4
1-2 FIRST FLOOR KEY PLAN, BUILDING 965, 968, AND 980 5

ACRONYMS

A/B	Alpha/Beta
ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
COC	Chain of Custody
D&D	Decontamination and Decommissioning
DOE/RFFO	U. S. Department of Energy/Rocky Flats Field Office
DQO	Data Quality Objective
EPA	U. S. Environmental Protection Agency
H&S	Health and Safety
HASP	Health and Safety Plan
IWCP	Integrated Work Control Program
LLW	Low Level Waste
MSDS	Material Safety Data Sheet
NIOSH	National Institute of Occupational Safety and Health
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
PLM	Polarized Light Microscopy
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
RAD	Radioactive
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RMRS	Rocky Mountain Remediation Services, L. L. C.
RWP	Radiological Work Permit
SNM	Special Nuclear Materials
TSCA	Toxic Substance Control Act
WAC	Waste Acceptance Criteria
WMP	Waste Management Plan
WSP	Work Summary Plan
WSRIC	Waste Stream and Residue and Identification and Characterization

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT

1.0 INTRODUCTION

The Department of Energy (DOE) has established a goal of reducing the total built square footage at Rocky Flats Environmental Technology Site (RFETS) by 2% in FY97. RFETS management has determined that the 980 Cluster will be removed to help meet the 2% goal. This project will help RFETS management reduce operating costs and hazards.

The 980 Cluster is comprised of three metal buildings located in the east portion of the RFETS Protected Area. A site map and floor map of the 980 Cluster are contained in Figures 1-1 and 1-2.

1.1 PURPOSE

The purpose of this Reconnaissance Level Characterization Report is to present all of the available historical data and process information pertaining to the Building 980 Cluster to provide a baseline of information for hazards within the B980 Cluster. Characterization includes identification of the type, quantity, condition, and location of radioactive and hazardous materials which are, or which may be present as residual contamination in the subject facilities. The following facility information incorporates the Building 980 Cluster project files, established during the reconnaissance characterization, including pertinent data from various sources. This report is to serve as a practical reference for project use during the decontamination and decommissioning efforts.

This baseline will aid DOE/RFFO in determining if a Decommissioning Operations Plan is required for the decommissioning effort.

1.2 SCOPE

This report is prepared in support of the Building 980 Characterization for the U.S. Department of Energy (DOE) at the RFETS located near Golden, Colorado. The information presented in this report specifically pertains to the Building 980 Cluster; the review of historical records and the collection of process knowledge information covers the operational time period for the facility from original construction to present.

This information presented in this report is specific to the 980 Cluster. This report contains information obtained during historical document reviews, personnel interviews and characterization information generated in support of this document.

1.3 METHODOLOGY

As part of this investigation, comprehensive physical inspections of all accessible areas of the 980 Cluster were conducted during March 1997. The primary purpose of these inspections were:

- to confirm the accuracy of file documentation of as-built or modified facility construction equipment installations and general facility conditions,
- obtain volume estimates for wastes that will be generated during removal activities,
- identify equipment, structures, process lines, and associated items that will require hazardous and/or radioactive surveys and analytical sampling to further characterize the Cluster,
- identify potential sources of lead and asbestos,

- identify potential chemical contamination, (chemical contamination would be identified by signs of staining or unusual smell),
- identify physical hazards (such as tripping hazards, loose/missing handrails, etc.).
- To locate, identify, and document any facility condition or problem situation which had not been previously identified or otherwise documented in appropriate building records or files.
- To identify equipment, structures, process lines, and associated items which require field surveys and/ or analytical sampling for the purposes of characterization of the Building 980 Cluster for radioactive and hazardous contaminants. These sampling activities were conducted prior to decommissioning efforts and are identified in detail in Section 3.0.

1.4 SUMMARY

The review of process knowledge and documents, relating to the Building 980 Cluster initiated in March 1997, has been completed. As part of this examination, a comprehensive survey of historical records was undertaken to determine the location and character of any radioactive and hazardous contaminants which were present in the area. An area tabulation of relevant process knowledge and characterization information is presented in Section 4.0. The general conclusions drawn from this examination are as follows:

Presently, the Building 980 Cluster is vacant.

The Building 980 Cluster housed a significant quantity of warehouse materials and equipment. These materials and equipment are being removed prior to the decommissioning of the buildings. Although facility records do not indicate any spills of hazardous chemicals, inspections of the floor for visible signs of contaminants (i.e., oils or solvents) will be conducted after equipment is removed. If the inspections reveal signs of chemical spills, sampling of the concrete floors will be conducted as "in-process" characterization.

Building 980 was constructed in 1957 and was used for storage, warehousing and as support shops for site construction activities. Building 965 was constructed in 1981 and provided carpentry services as well as equipment repair and storage. Building 968 was constructed in 1982 and was used for storage of excess parts to support the Protected Area (PA) maintenance activities and also served as a staging area for painting (mixing and blending) and motor pool activities.

Contamination is not expected from materials stored or processed in the Building 980 Complex. However, the east section of Building 980 presently houses a vacuum truck which was used to remove liquid and sludge from the Solar Ponds. The holding tank and vacuum system mounted on the truck was radiologically contaminated during the Solar Pond evolution. Additional information on the contaminants that may be present in these buildings is presented in Section 5.0.

The following decisions/observations were made from the Reconnaissance Characterization data:

1. Radiological surveys were conducted for the B980 Cluster in accordance with the instructions established in the Reconnaissance Level Characterization Plan, Attachment 7.9. Characterization surveys have not revealed any elevated contamination inside Buildings 965, 968 or 980. However, surveys performed on the outside of Buildings 965 and 968 have revealed a few elevated values of fixed alpha contamination above 100 dpm/100 cm^2 on metal surfaces below two meters. In addition, surveys on the outside of Building 980 have revealed extensive areas of fixed contamination above 100 dpm/100 cm^2. These elevated readings are predominately located on the north facing walls,

although some values have been discovered on the metal surfaces of the other walls.

2. Although there were hazardous chemicals in the B980 Cluster facilities, all excess and hazardous chemicals have been removed from the B980 Cluster facilities during the deactivation process with the exception of some paints and cleaning solvents, which will be disposed of by the subcontractor. Because the chemicals have been removed and there are no known areas which have a buildup of chemical residue, no special chemical characterization is anticipated. If visible inspections of the floor reveal suspect spill areas, sampling of the floor would be conducted as "in-process" characterization. Should a chemical be found during the decommissioning process, the chemical will be handled in accordance with existing chemical identification and handling procedures. There are no RCRA units associated with this project, therefore; no closure plans are required.

3. The specific quantity and distribution of asbestos containing material is known. An inspection of the facilities has been completed and the results have been summarized in Table 4.1. The asbestos reports for these buildings have been included as Attachments 7.6, 7.7 and 7.8. All ACM has been labeled.

4. It is assumed that the majority of painted surfaces associated with safety markings and fire protection systems contain lead. This assessment is based on previous sampling conducted by the Industrial Hygiene group and is documented in the Health and Safety Lead Abatement Plan files. The first decommissioning effort in each area will be to wipe down and thoroughly clean all surfaces. This effort is to remove any dust which may contain contaminants. Computer modeling and leachability studies have demonstrated that lead in paint, if it exists, will not create a disposal problem. The amount of lead in the painted surfaces will be determined and compared to the previous model as necessary to support the decommissioning effort.

5. The B980 Cluster facilities' fluorescent lights and fluorescent light ballasts will be removed and disposed in accordance with appropriate RFETS procedures. Due to the age of the buildings and guidance from the RFETS Toxic Substance Control (TSCA) specialist, the ballasts will be segregated and managed as PCB - containing items during the decommissioning effort.

6. No unusual or unique physical hazards were identified which would endanger the construction workforce.

FIGURE 1-1 SITE MAP

Buildings 965, 968, And 980 D&D Area

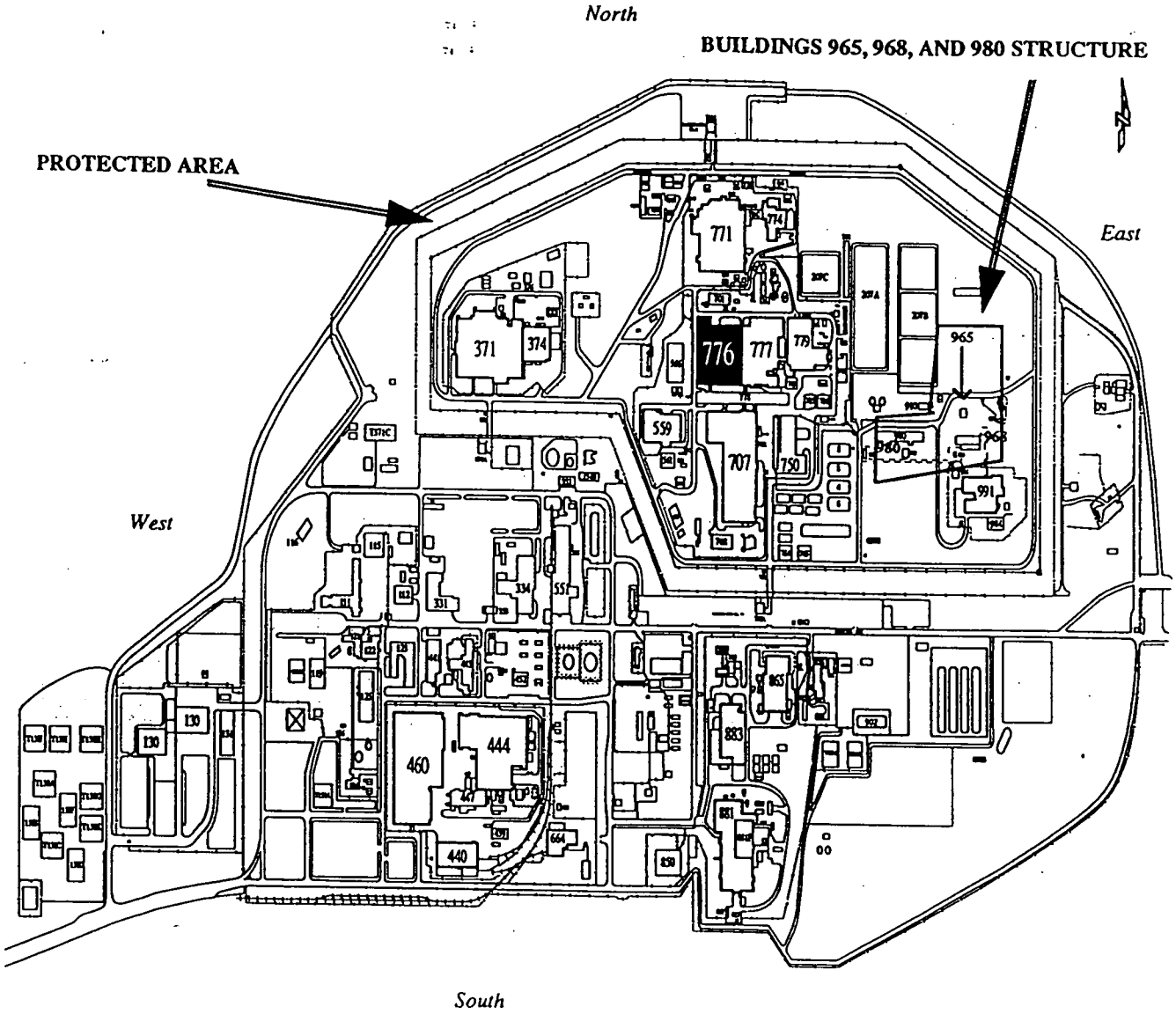
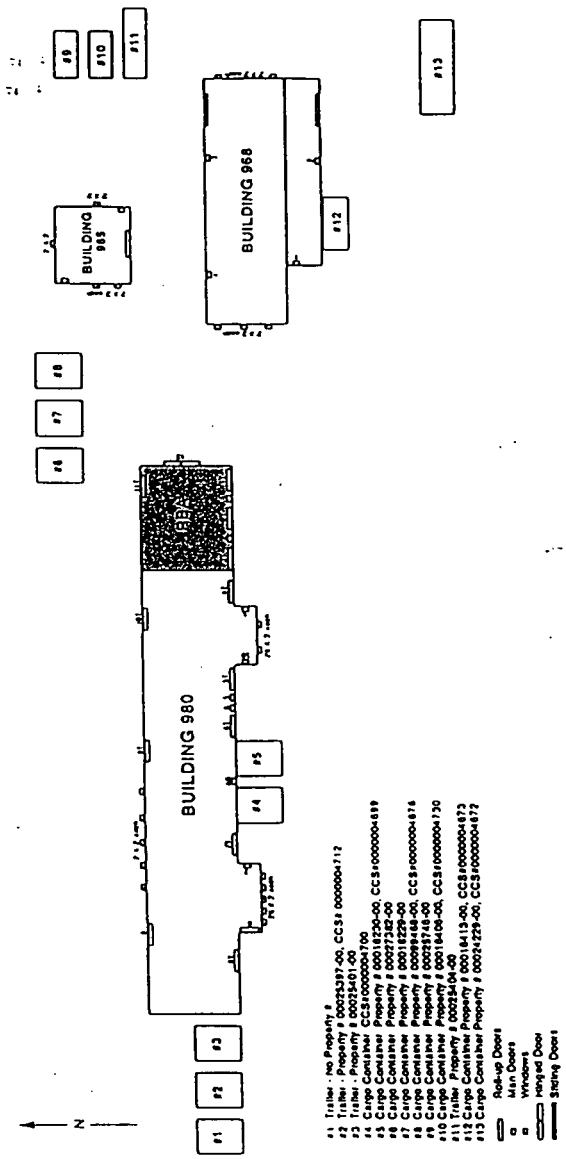


FIGURE 1-2 FIRST FLOOR KEY PLAN, BUILDING 980,968 AND 965



2.0 ANALYTICAL TESTING

Specific rationale for the Sampling and Analysis was presented in the Reconnaissance Level Characterization Plan for the B980 Cluster. Sample and survey results are presented in Section 3.0 of this document.

2.1 WASTE MANAGEMENT

Procedures are in place to insure that sampling and analysis of generated wastes will be in accordance with the U. S. Environmental Protection Agency (EPA) and State regulations. Hazardous and radioactive contaminant data is acquired, to a level consistent with regulatory and procedural requirements, for wastes that will be generated. The requirements for characterization of hazardous waste is specified in several RFETS waste management procedures, based on requirements established primarily by 40 CFR 261 and 6 CCR 1007-3, 261. Waste materials demonstrating hazardous or radioactive characteristics are managed in accordance with the Low-Level or Hazardous Waste Requirements Manual.

A project specific Waste Management plan will be generated that details the final amounts of waste produced and how the waste was dispositioned (i.e., recycled, low-level built or free release).

2.2 INDUSTRIAL HYGIENE

The potential for exposure to hazardous or radioactive substances will be evaluated, prior to conducting the operation, according to Occupational Safety and Health Act (OSHA) and National Institute of Occupational Safety and Health (NIOSH) requirements. A Demolition Plan will be written by the subcontractor. This requirement is driven by OSHA 1926.62 for lead and driven by other sections of OSHA for other constituents. Data is acquired for contaminants associated with equipment, building materials, residuals within construction areas, or other potential sources of hazardous exposure to the workers. Preliminary screening and sampling is required in decommissioning areas for materials which the workers may be exposed. Trailers designated for offsite transport will be surveyed for radiological contamination. The documentation will be included in the project files for IWCP closeout. Instructions for completing reconnaissance level radiological surveys have been included as Attachment 7.1. Trailers will be decommissioned according to Engineering and Administrative Controls, Decontamination, or use of Personal Protective Equipment, as implemented under appropriate plans and procedures to meet OSHA requirements.

3.0 RECONNAISSANCE SURVEY RESULTS

Location-specific information concerning the characterization of each area of the Building 980 Cluster and each area in the buildings is presented in this section. This localized characterization includes descriptions of construction, equipment operation, and other process knowledge information relating to the Building 980 Cluster. The information collected in this section has been obtained from several sources, including past/current records and RFETS personnel with relevant Building 980 Cluster work experience or related knowledge. A complete listing of the information sources examined for this report is provided in Section 5.0.

3.1 FACILITY WORK AREA

The following list contains the hazardous materials which have been used in the 980 Cluster and were addressed during the characterization of the 980 Cluster:

- Acids (Batteries)
- Asbestos
- Solvents
- Solar Pond Radioactive Contaminants

- PCBs In Equipment
- Excess Chemicals
- Lead Paint
- Machine Oil

An assessment of the hazards that may be encountered during specific decommissioning activities has been performed through walkdowns and job safety analyses. This information has been incorporated into the planning process of each activity to ensure maximum protection of the worker.

The Waste Stream and Residue and Identification Characterization (WSRIC) building books for 965, 968 and 980 were reviewed to determine the hazardous materials associated with the Cluster. The information indicates that the wastes generated from operations were removed from the buildings for disposal, or accumulated in Satellite Accumulation Areas for staging purposes. At this time there are no hazardous wastes being stored in the buildings. Hazardous product material identified during the walk-downs will be removed prior to the start of decommissioning.

3.2 FACILITY CHARACTERIZATION

Facility walk-downs were conducted in March 1997 to identify potential hazards associated with the buildings. In addition, the buildings were inspected for the presence of asbestos containing building materials (ACBM) by a state-certified building inspector. Information was also collected on the presence of lead-containing paints used in construction, although no samples were taken.

Table 4.1 is organized by decommissioning areas as described above and includes a description of the information available for each room and area, the contamination considerations for each room, and the confirmation analysis which was performed prior to decommissioning activities to further characterize the facility, and wastes generated.

The primary purpose of the reconnaissance characterization activity is to provide a baseline of hazards within the B980 Cluster. This baseline (RLCR) will aid the DOE in determining if a Decommissioning Operations Plan is required for the decommissioning effort. This characterization information may also be used:

1. to quantify and qualify the physical and chemical characteristics of radiological and hazardous material contamination and the extent of contaminant distribution;

2. to quantify and qualify parameters that effect potential human exposure from existing and residual radiological or hazardous material contamination;

3. to support evaluation of detailed planning of a preferred approach for decontamination, equipment removal and waste disposal; and;

4. to support project plan considerations of dose assessments and ALARA analyses to support selection of cleanup criteria and approach.

Data collected during the characterization activities consists of two types:

1. field measurements using portable instruments or test kits and

2. sample analyses of media using fixed laboratory equipment or systems.

Radiological surveys have been performed by trained Radiological Control Technicians using field instrumentation (See Attachment 7.4) in accordance with the ROI Manual. Specific instructions for radiological surveys were outlined in the Reconnaissance Level Characterization Plan for the Building 980 Cluster (See Attachment 7.1, 7.2 & 7.3). Results from these scoping

surveys demonstrated that the majority of results were below instrument detection limits, with the exception of isolated spots on the walls of B965, the floor of B965 and the exterior of B980. Activity detected is being evaluated to determine if the transuranic alpha limit of 100 dpm/100 cm^2 for fixed contamination applies. Results are identified on the Radiological Contamination Survey Forms for each building. Further confirmation surveys will be conducted as part of the Final Survey Plan, prior to releasing the building to the subcontractor. Table 4.2 is a summary of the survey data. In addition, more detailed information is included in Attachment 7.5, Radiological Survey Information for Buildings 965, 968 and 980.

Bulk samples were collected, as necessary, for lead paint, PCB, and for Asbestos Containing Material (ACM). A complete building inspection of the Building 980 Cluster was conducted for ACM in accordance with Asbestos Hazard Emergency Response Act (AHERA) and State of Colorado Regulations by a certified building inspector. The results are summarized in Table 4.1.

During the physical inspection of Buildings 980, 965, and 968 various painted surfaces were observed. These paints included white on drywall, grey on floors, amber (red-brown) on beams, yellow on safety rails, and red on fire suppression systems and fire extinguisher location boards. These paints have tested positive for detectable levels of lead in other buildings in a consistent manner. Although additional paint samples have not been taken, the demolition work practices will continue with the assumption that the paints contain lead and appropriate precautions will be taken.

Table 4.1, "Building 980 Cluster RLCR" lists the locations and the types of samples that were required for characterization purposes. A trained sampling team was selected to perform the sampling activities required for characterization purposes. Analysis for characterization purposes was performed using Environmental Protection Agency (EPA) approved procedures through laboratory facilities. Data Quality Objectives are established for the analytical methods referenced and are on file at the on-site Analytical Projects Office (APO) in Building 881. Sampling and analysis activities were conducted in accordance with the Reconnaissance Level Characterization Plan and the "characterization protocols" which describe the methods for sampling and analysis for various contaminants of concern including asbestos, PCBs, and radioactive constituents.

Table 4.1 includes the descriptions associated with each area, process information regarding the processes conducted in each room, radioactive and/or hazardous considerations (i.e., known materials associated with a specific process or area), and the confirmation analysis that were performed. Lead and Asbestos surveys were conducted by a state-certified inspector and results have also been compiled in Table 4.1.

TABLE 4.1 BUILDING 980 CLUSTER RLCR

Building & Area	Process Information	Rad/Haz Concerns	Confirmation Analysis	Comments
980 East Wall	Transite	Asbestos	None Required	Assumed To Be >1% Acm
980 Water Lines	Mud Pipe Fitting Insulation	Asbestos	PLM for Asbestos	Tested Positive 4%
980 Safety Railings	Yellow Safety Paint	Lead	None Required	Known to Contain Lead
980 Fire Water Systems	Red Safety Paint	Lead	None Required	Known to Contain Lead
980 Brown Beam Paint	Brown Paint	Lead	None Required	Known to Contain Lead
980 Grey Paint	Grey Paint	Lead	None Required	Known to Contain Lead
980 North Exterior Wall	Exposed to Solar Ponds	Rad Contaminants	Rad Survey Joints	Rad Survey Results Above Detection Limits
980 East Section of Building	Contains Vacuum Truck in RBA	Rad Contaminants	Rad Survey Required	Rad Survey Results Above Detection Limits
980 Floor Paint	Grey Paint	PCBs	SW-846 Method for PCB solids	None Detected
968 Water Lines	Mud Pipe Fitting Insulation	Asbestos	PLM for Asbestos	Tested Positive 3%
968 Safety Railings	Yellow Safety Paint	Lead	None Required	Known to Contain Lead
968 Fire Water Systems	Red Safety Paint	Lead	None Required	Known to Contain Lead
968 Brown Beam Paint	Brown Paint	Lead	None Required	Known to Contain Lead
968 Grey Paint	Grey Paint	Lead	None Required	Known to Contain Lead
968 Tan Window Putty	Tan Putty from West Upper Window	Asbestos	PLM for Asbestos	Tested Positive .25% (PC)
968 Floor	Concrete	Rad Contaminants	Rad Survey	Rad Survey results below detection limits
968 Walls	Interior/Exterior	Rad Contaminants	Rad Survey	Rad Survey results below detection limits
965 Safety Railings	Yellow Safety Paint	Lead	None Required	Known to Contain Lead
965 Fire Water Systems	Red Safety Paint	Lead	None Required	Known to Contain Lead
965 Brown Beam Paint	Brown Paint	Lead	None Required	Known to Contain Lead
965 Grey Paint	Grey Paint	Lead	None Required	Known to Contain Lead
965 North Exterior Wall	Exposed to Solar Ponds	Rad Contaminants	Rad Survey Joints	Rad Survey Above Detection Limits
965 Floor	Interior/Exterior	Rad Contaminants	Rad Survey	Rad Survey Above Detection Limits
965, 968 & 980 Light Fixtures	Fluorescent Light Ballasts	PCBs	Visual inspection for PCB information	Known to contain PCBs prior to 1980

TABLE 4.2 980 CLUSTER RADIOLOGICAL SURVEY DATA

Item	# of Alpha/ Beta Swipes	# of Direct Alpha/Beta Measure-ments	REMOVABLE Alpha dpm/100 cm²	REMOVABLE Beta dpm/100 cm²	TOTAL Alpha dpm/100 cm²	TOTAL Beta/Gamma dpm/100 cm²	Below Unre-stricted Limits Release (see Table 4.3)
B980 Exterior	76	76	<18	<205	40 readings <60 19 readings 60 to 100 17 readings >100	<455	17 readings above 100 dpm alpha limit
B980 Interior	109	109	<18	<205	all readings <60	67 readings <450 24 readings <610 17 readings 611-2000	yes
B968 Interior	500	500	<18	<205	All readings <60	452 readings <455 46 readings 456-2000 2 readings 2001-8000	yes
B968 Exterior	68	68	<18	<205	all readings <60	All readings <455	yes
B965	34	34	<18	<205	27 readings <60 3 readings 60-100 4 readings 100-250	22 readings <610 11 readings 611-2000 1 reading 6975	4 readings above 100 dpm alpha limit

Note: Replications of the survey data is attached as Attachment 7.5.
Copies of original Radiological survey data forms are available on request.

TABLE 4.3 SUMMARY OF CONTAMINATION VALUES FOR UNRESTRICTED RELEASE

RADIONUCLIDE (1)	Average Total (Fixed + Removable) Contamination dpm/100cm² (2), (3), (4)	Maximum Total (Fixed + Removable) dpm/100cm² (2), (4), (5)	Removable dpm/100cm² (2), (4), (6)
Transuranics, Ra^{-226}, Ra^{-228}, Th^{-228}, Pa^{-231}, Ac^{-227}, I^{-125}, I^{-129}	100	300	20
Th-Natural, Th^{-232}, Sr^{-90}, Ra^{-223}, Ra^{-224}, U^{-232}, I^{-131}, I^{-133}	1,000	3,000	200
U-Natural, U-235, U-238, and associated decay products, alpha emitters	5,000	15,000	1,000
Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr^{-90} and others noted above (7)	5,000	15,000	1,000

NOTES:

(1) Where surface contamination by both alpha and beta-gamma emitting radionuclides exists, the limits established for alpha and beta-gamma emitting radionuclides should apply independently.

(2) As used in this table, disintegrations per minute (dpm) is defined as the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

(3) Measurements of average contamination should not be averaged over an area of more than 1 meter². For objects with a total surface area of less than 1 meter², the average should be derived for each object.

(4) The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mRad/hour and 1.0 mRad/hour, respectively at 1 cm.

(5) The maximum contamination level applies to an area of not more than 100 cm².

(6) The amount of removable material per 100 cm² of surface area should be determined by wiping an area of that size with a dry filter of soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm² is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. Except for transuranics and Ra-228, Ac-227, Th-228, Th-230, Pa-231, and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate the total residual surface contamination levels are within the limits for removable contamination.

(7) This category of radionuclides includes mixed fission products, including the Sr-90 which is present in them. It does not apply to Sr-90 which has been separated from the other fission products or mixtures where the Sr-90 has been enriched.

4.0 DATA QUALITY ASSESSMENT

All sampling data were reviewed and considered valid and thereby usable, according to sampling, analytical, and record keeping procedures. DQOs for the characterization have been satisfied, in accordance with the requirements outlined in the Reconnaissance Level Characterization Plan.

5.0 INFORMATION SOURCES

The preparation of this report involved the retrieval, from various sources, and review of several documentation files pertaining to the Building 980 Cluster and past operations therein. The following sections list the files that have been reviewed in the course of this reconnaissance characterization.

This investigation effort also included the collection of first-hand process knowledge interviews from RFETS employees with Building 980 experience. A listing of personnel who contributed first-hand information is available in the project files.

Characterization information was also obtained as described in the Reconnaissance Level Characterization Plan which included the Data Quality Objectives. The evaluation of this data was discussed previously.

6.0 REFERENCES (NOT ATTACHED)

Asbestos Characterization Report for Buildings 980, 965, and 968 prepared by SEG, CO, dated March 27,1997.

Basic Information for the Decommissioning of Building 980 Cluster.

Building 980 Radiological Engineering Property/Waste Release Evaluation Survey Forms, dated June 25, 1995.

Facilities Engineering Drawings of the Building 980 Cluster.

Facilities photographs from walk-downs conducted in March-April 1997.

Proposed Action Memorandum for the Decommissioning of Buildings 980,968, and 965, March 14,1997, Rev. 0, RF/RMRS-97-016.

Radiological Operations Contamination Survey Forms dated in June 1995.

Reconnaissance Level Characterization Plan for the 980 Cluster, RF/RMRS-97-019.

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", U.S. EPA SW-846, 1986, Third Edition.

WSRIC Building 965, Version 5.0, November 18, 1993.

WSRIC Building 968, Version 5.0, November 18, 1993.

WSRIC Building 980, Version 5.0, November 18, 1993.

7.0 ATTACHMENTS

7.1 Radiological Survey Instructions for Building 980

7.2 Radiological Survey Instructions for Building 968

7.3 Radiological Survey Instructions for Building 966

7.4 Radiological Survey Instrumentation

7.5 Radiological Survey Information for Buildings 965, 968 & 980

7.6 Asbestos Characterization Report for Building 980

7.7 Asbestos Characterization Report for Building 968

7.8 Asbestos Characterization Report for Building 965

7.9 Reconnaissance Level Characterization Plan

ATTACHMENT 7.1 RADIOLOGICAL SURVEY INSTRUCTIONS FOR BUILDING 980

Building 980 Decommissioning Project
Characterization Survey Radiological Instructions

Location/Room: Interior of Bldg. 980 (except the radiological buffer area)

	Radiological Survey[2]			
Item/Area Description[1]	**# of Alpha/Beta Swipes**	**# of Direct Alpha/Beta Measurements**	**Scan Survey[3]**	**Special Instructions**
Floors/Walls ≤ 2 meters	A minimum of 1 measurement for each 50 m^2	A minimum of 1 measurement for each 50 m^2	N/A	Obtain measurements on floor & wall surfaces ≤ 2 meters throughout the bldg.
Fixed Equipment	A minimum of 30 measurements	A minimum of 30 measurements	N/A	Obtain biased measurements on horizontal surfaces of fixed equipment
Sink drains	A minimum of 1 measurement per sink drain	A minimum of 1 measurement per sink drain	N/A	Obtain measurements on accessible surfaces of drains.

Location/Room: Exterior of Bldg. 980

	Radiological Survey[2]			
Item/Area Description[1]	**# of Alpha/Beta Swipes**	**# of Direct Alpha/Beta Measurements**	**Scan Survey[3]**	**Special Instructions**
Item # 1 North facing walls	A minimum of 1 measurement for each 9 m^2	A minimum of 1 measurement for each 9 m^2	N/A	Obtain measurements on wall surfaces of the north side of the bldg.
Sheet metal seams on north facing walls	A minimum of 1 measurement for each 9m^2	A minimum of 1 measurement for each 9 m^2	N/A	Obtain biased measurements under the overlap of the sheet metal siding
Item # 2 Non-North facing walls	A minimum of 1 measurement for each 50 m^2	A minimum of 1 measurement for each 50 m^2	N/A	Obtain measurements on east, south & west wall surfaces & roof of the bldg.

Notes

[1] See attached map of building layout.
[2] Surveys to be performed in accordance with 4-K62-ROI-03.01, "Performance of Surface Contamination Surveys". Other radiological references are 1-P73-HSP-18.10, " Radioactive Material Transfer and Unrestricted Release of Property and Waste", 4-S23-ROI-03.02, "Radiological Requirements for Unrestricted Release", and 4-N83-REP-1108, "Radioactive Material Management Area (RMMA) Determination".
[3] Perform an alpha/beta scan survey of the percentage of the accessible surfaces, including fixed equipment, as listed.

Review and Approval

Prepared By: _____ Date: _____

ATTACHMENT 7.2 RADIOLOGICAL SURVEY INSTRUCTIONS FOR BUILDING 968

Building 968 Decommissioning Project
Characterization Radiological Instructions

Location/Room: Inside Bldg. 968

	Radiological Survey[2]			
Item/Area Description[1]	**# of Alpha Beta Swipes**	**# of Direct Alpha Beta Measurements**	**Scan Survey[3]**	**Special Instructions**
Item # 1 Floor	Approximately 1 measurement for each 9 m² area	Approximately 1 measurement for each 9 m² area	N/A	Record the survey location and the survey results on a Radiological Operations Contamination survey form and attach to this survey instruction.
Item # 2 Misc. Equipment	Approximately 1 measurement on a selected component within each 9m² survey location	Approximately 1 measurement on a selected component within each 9m² survey location	N/A	Record the survey location, name of the component and the survey results on a Radiological Operations Contamination survey form and attach to this survey instruction

Notes

[1] See attached map of building layout.
[2] Surveys to be performed in accordance with 4-K62-ROI-03.01, "Performance of Surface Contamination Surveys". Other radiological references are: 1-P73-HSP-18.10, " Radioactive Material Transfer and Unrestricted Release of Property and Waste", 4-S23-ROI-03.02, "Radiological Requirements for Unrestricted Release", and 4-N83-REP-1108, "Radioactive Material Management Area (RMMA) Determination".
[3] Perform an alpha/beta scan survey of the percentage of the accessible surfaces, including fixed equipment, as listed.

Review and Approval

Prepared By: _____ Date: _____

Reviewed By: _____ Date: _____

ATTACHMENT 7.3 RADIOLOGICAL SURVEY INSTRUCTIONS FOR BUILDING 965

Building 965 Decommissioning Project
Characterization Survey Radiological Instructions

Location/Room: Inside Bldg. 965

	Radiological Survey[2]			
Item/Area Description[1]	**# of Alpha/Beta Swipes**	**# of Direct Alpha/Beta Measurements**	**Scan Survey[3]**	**Special Instructions**
Floors/Walls ≤ 2 meters	A minimum of 1 measurement for each 50 m^2	A minimum of 1 measurement for each 50 m^2	N/A	Obtain measurements on floor & wall surfaces ≤ 2 meters throughout the bldg.
Fixed Equipment	A minimum of 10 measurements	A minimum of 10 measurements	N/A	Obtain biased measurements on horizontal surfaces of fixed equipment

Location/Room: Outside Bldg. 965

	Radiological Survey[2]			
Item/Area Description[1]	**# of Alpha/Beta Swipes**	**# of Direct Alpha/Beta Measurements**	**Scan Survey[3]**	**Special Instructions**
Walls ≤ 2 meters	A minimum of 1 measurement for each 50 m^2	A minimum of 1 measurement for each 50 m^2	N/A	Obtain measurements on wall surfaces ≤ 2 meters.

Notes

[1] See attached map of building layout.
[2] Surveys to be performed in accordance with 4-K62-ROI-03.01, "Performance of Surface Contamination Surveys". Other radiological references are 1-P73-HSP-18.10, " Radioactive Material Transfer and Unrestricted Release of Property and Waste", 4-S23-ROI-03.02, "Radiological Requirements for Unrestricted Release", and 4-N83-REP-1108, "Radioactive Material Management Area (RMMA) Determination".
[3] Perform an alpha/beta scan survey of the percentage of the accessible surfaces, including fixed equipment, as listed.

Review and Approval

Prepared By: _____ Date: _____

Reviewed By: _____ Date: _____

ATTACHMENT 7.4 RADIOLOGICAL SURVEY INSTRUMENTATION

Instrument	Count Type	Allowable Background Counts	Acceptable Application	MDA (dpm/100 cm²)
Bicron w/A100 Probe	60 sec. (alpha)	2	Direct Alpha Surveys	55
Bicron w/B50 Probe	60 sec. (beta)	250	Direct Beta Surveys	610
NE Electra w/DP6 Probe	60 sec. (alpha) 60 sec. (beta)	2 700	Direct Alpha Surveys Direct Beta Surveys	60 455
Eberline SAC-4	60 sec. (alpha)	1	Removable Alpha Swipes	18
Eberline BC-4	60 sec. (beta)	200	Removable Beta Swipes	205
LB-5100LW	60 sec. (alpha) 60 sec. (beta)	0.5 4	Simultaneous Removable Alpha and Beta Swipes	20 35

ATTACHMENT 7.5

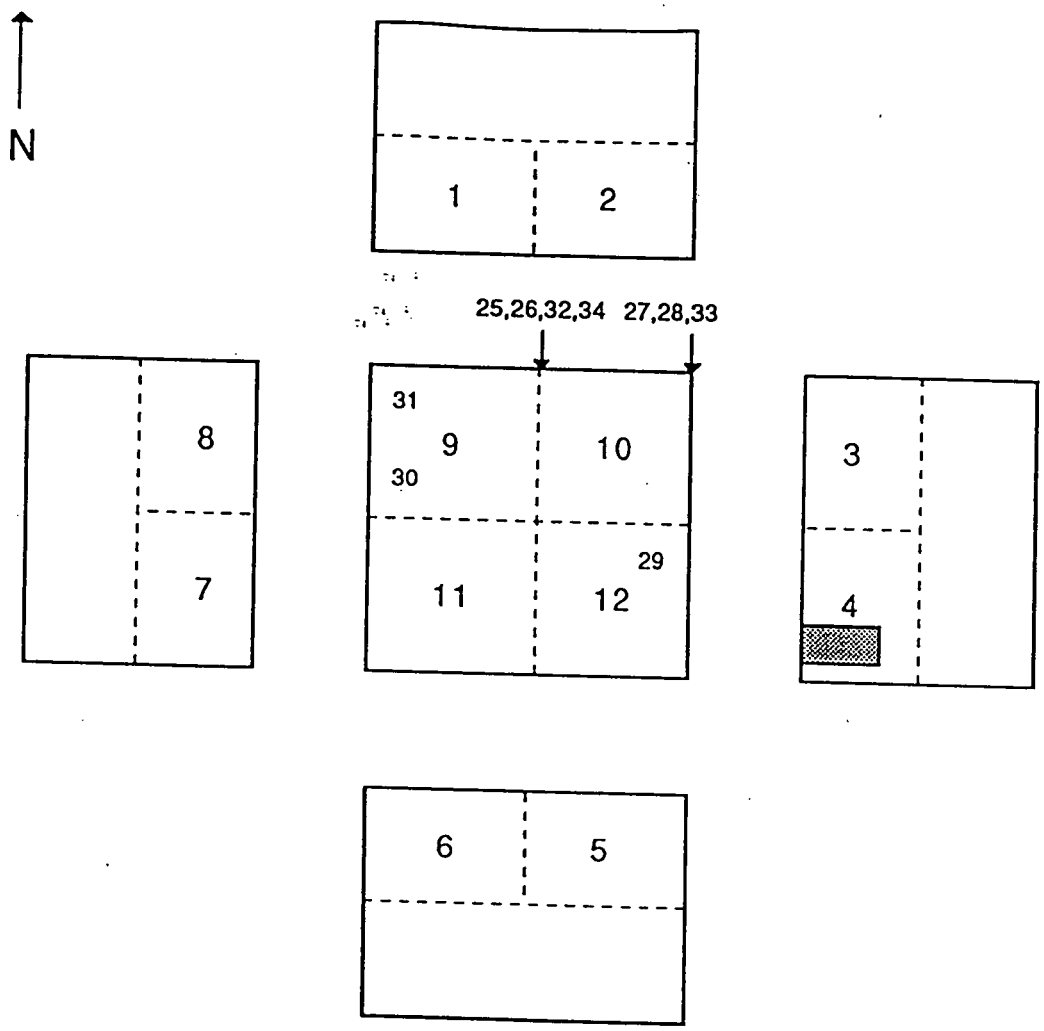
RADIOLOGICAL SURVEY INFORMATION

FOR BUILDINGS 965, 968 & 980

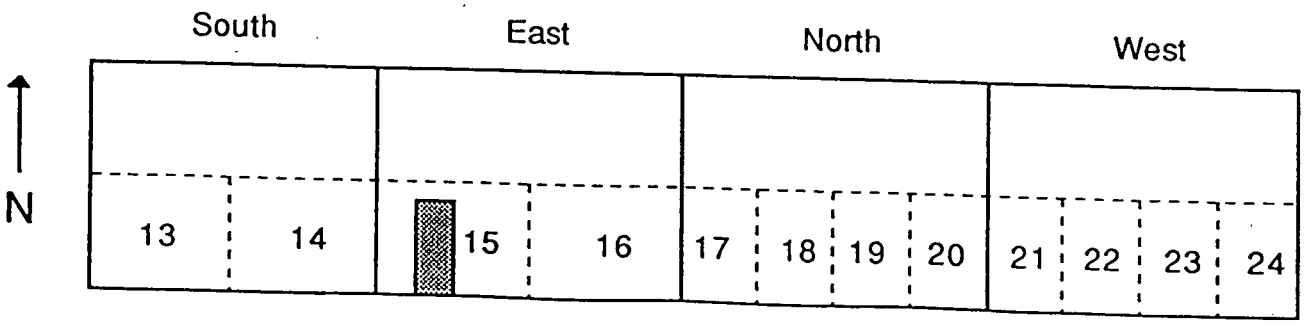
965 Survey Information

SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA dpm/100 cm²	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT)dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
1	Interior and Exterior	<18	<205	<55	<610
2	Interior and Exterior	<18	<205	<55	<610
3	Interior and Exterior	<18	<205	<57	<610
4	Interior and Exterior	<18	<205	<55	<610
5	Interior and Exterior	<18	<205	<55	<610
6	Interior and Exterior	<18	<205	63	<610
7	Interior and Exterior	<18	<205	<55	<610
8	Interior and Exterior	<18	<205	57	<610
9	Interior and Exterior	<18	<205	75	648
10	Interior and Exterior	<18	<205	<55	616
11	Interior and Exterior	<18	<205	<55	<610
12	Interior and Exterior	<18	<205	<55	<610
13	Interior and Exterior	<18	<205	<60	1116
14	Interior and Exterior	<18	<205	<60	<455
15	Interior and Exterior	<18	<205	240	1230
16	Interior and Exterior	<18	<205	120	1770
17	Interior and Exterior	<18	<205	60	6975
18	Interior and Exterior	<18	<205	<60	1116
19	Interior and Exterior	<18	<205	108	1296
20	Interior and Exterior	<18	<205	<60	1440
21	Interior and Exterior	<18	<205	127	1218
22	Interior and Exterior	<18	<205	<60	1107
23	Interior and Exterior	<18	<205	<60	1284
24	Interior and Exterior	<18	<205	<60	558
25	Bottom of Work Desk	<18	<205	<55	<610
26	Board	<18	<205	<55	<610
27	Paper Towel Holder	<18	<205	<55	<610
28	Cork Board	<18	<205	<55	<610
29	Heater	<18	<205	57	<610
30	Metal Book Rack	<18	<205	<55	<610
31	Heater	<18	<205	<55	<610
32	Cork Board	<18	<205	<55	<610
33	Top of Work Desk	<18	<205	<55	<610
34	Top of Work Desk	<18	<205	<55	<610

Interior of Building 965



Exterior of Building 965



1 m. x 3 m. and
3 m. x 4 m. grids

968 Survey Information

SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE		TOTAL ALPHA	TOTAL BETA/
		ALPHA dpm/100 cm^2	BETA/ GAMMA dpm/100 cm^2	(FRISK / 60 SEC COUNT) dpm/100 cm^2	dpm/100 cm^2
1	Floor	< 18	< 205	< 60	< 455
2	Floor	< 18	< 205	< 60	< 455
3	Floor	< 18	< 205	< 60	< 455
4	Floor	< 18	< 205	< 60	< 455
5	Floor	< 18	< 205	< 60	< 455
6	Floor	< 18	< 205	< 60	< 455
7	Floor	< 18	< 205	< 60	< 455
8	Wall 8' Elev	< 18	< 205	< 60	< 455
9	Wall 8' Elev	< 18	< 205	< 60	< 455
10	Wall 8' Elev	< 18	< 205	< 60	< 455
11	Wall 8' Elev	< 18	< 205	< 60	< 455
12	Wall 8' Elev	< 18	< 205	< 60	< 455
13	Wall 8' Elev	< 18	< 205	< 60	< 455
14	Wall 8' Elev	< 18	< 205	< 60	< 455
15	Wall 8' Elev	< 18	< 205	< 60	< 455
16	Wall 8' Elev	< 18	< 205	< 60	< 455
17	Shelves	< 18	< 205	< 60	< 455
18	Shelves	< 18	< 205	< 60	< 455
19	Shelves	< 18	< 205	< 60	< 455
20	Shelves	< 18	< 205	< 60	< 455
21	Shelves	< 18	< 205	< 60	< 455
22	Shelves	< 18	< 205	< 60	< 455
23	Shelves	< 18	< 205	< 60	< 455
24	Shelves	< 18	< 205	< 60	< 455
25	Shelves	< 18	< 205	< 60	664.7*
26	Shelves	< 18	< 205	< 60	< 455
27	Shelves	< 18	< 205	< 60	< 455
28	Shelves	< 18	< 205	< 60	< 455
29	Shelves	< 18	< 205	< 60	< 455
30	Shelves	< 18	< 205	< 60	< 455
31	Shelves	< 18	< 205	< 60	< 455
32	Shelves	< 18	< 205	< 60	< 455
33	Shelves	< 18	< 205	< 60	< 455
34	Shelves	< 18	< 205	< 60	< 455
35	Shelves	< 18	< 205	< 60	< 455
36	Shelves	< 18	< 205	< 60	< 455
37	Shelves	< 18	< 205	< 60	< 455
38	Shelves	< 18	< 205	< 60	< 455
39	Shelves	< 18	< 205	< 60	< 455
40	Shelves	< 18	< 205	< 60	< 455

968 Survey Information

41	Wall	< 18	< 205	< 60	< 455
42	Floor	< 18	< 205	< 60	783
43	Floor (AP2)	< 18	< 205	< 60	840
44	Floor	< 18	< 205	< 60	< 455
45	Shelves	< 18	< 205	< 60	< 455
46	Shelves	< 18	< 205	< 60	< 455
47	Shelves	< 18	< 205	< 60	< 455
48	Shelves	< 18	< 205	< 60	< 455
49	Shelves	< 18	< 205	< 60	< 455
50	Shelves	< 18	< 205	< 60	< 455
51	Shelves	< 18	< 205	< 60	< 455
52	Floor	< 18	< 205	< 60	< 455
53	Floor	< 18	< 205	< 60	< 455
54	Floor	< 18	< 205	< 60	< 455
55	Wall	< 18	< 205	< 60	< 455
56	Shelves	< 18	< 205	< 60	< 455
57	Shelves	< 18	< 205	< 60	< 455
58	Shelves	< 18	< 205	< 60	< 455
59	Shelves	< 18	< 205	< 60	< 455
60	Shelves	< 18	< 205	< 60	< 455
61	Shelves	< 18	< 205	< 60	< 455
62	Shelves	< 18	< 205	< 60	< 455
63	Floor	< 18	< 205	< 60	< 455
64	Floor	< 18	< 205	< 60	< 455
65	Floor	< 18	< 205	< 60	< 455
66	Floor	< 18	< 205	< 60	< 455
67	Floor	< 18	< 205	< 60	900
68	Floor	< 18	< 205	< 60	< 455
69	Floor	< 18	< 205	< 60	< 455
70	Floor	< 18	< 205	< 60	< 455
71	Floor	< 18	< 205	< 60	< 455
72	Floor	< 18	< 205	< 60	< 455
73	Floor	< 18	< 205	< 60	< 455
74	Floor	< 18	< 205	< 60	< 455
75	Floor	< 18	< 205	< 60	702
76	Walls	< 18	< 205	< 60	< 455
77	Walls	< 18	< 205	< 60	< 455
78	Walls	< 18	< 205	< 60	< 455
79	Walls	< 18	< 205	< 60	< 455
80	Walls	< 18	< 205	< 60	< 455
81	Walls	< 18	< 205	< 60	< 455
82	Walls	< 18	< 205	< 60	< 455
83	Walls	< 18	< 205	< 60	< 455
84	Walls	< 18	< 205	< 60	< 455
85	Walls	< 18	< 205	< 60	< 455
86	Walls	< 18	< 205	< 60	< 455

968 Survey Information

87	Floor	< 18	< 205	< 60	< 455
88	Floor	< 18	< 205	< 60	< 455
89	Floor (AP2)	< 18	< 205	< 60	1125
90	Shelves	< 18	< 205	< 60	<455
91	Shelves	< 18	< 205	< 60	<455
92	Shelves	< 18	< 205	< 60	<455
93	Floor (AP2)	< 18	< 205	< 60	1347
94	Floor	< 18	< 205	< 60	<455
95	Floor	< 18	< 205	< 60	<455
96	Floor	< 18	< 205	< 60	<455
97	Wall	< 18	< 205	< 60	<455
98	Door (AP2)	< 18	< 205	< 60	1065
99	Shelves	< 18	< 205	< 60	<455
100	Shelves	< 18	< 205	< 60	1251
101	Shelves	< 18	< 205	< 60	<455
102	Shelves	< 18	< 205	< 60	<455
103	Floor	< 18	< 205	< 60	<455
104	Floor	< 18	< 205	< 60	<455
105	Floor	< 18	< 205	< 60	<455
106	Shelves	< 18	< 205	< 60	<455
107	Floor	< 18	< 205	< 60	<455
108	Shelves	< 18	< 205	< 60	<455
109	Floor	< 18	< 205	< 60	<455
110	Shelves	< 18	< 205	< 60	<455
111	Wall	< 18	< 205	< 60	<455
112	Shelves	< 18	< 205	< 60	<455
113	Shelves	< 18	< 205	< 60	<455
114	Shelves	< 18	< 205	< 60	<455
115	Shelves	< 18	< 205	< 60	<455
116	Floor	< 18	< 205	< 60	<455
117	Floor	< 18	< 205	< 60	<455
118	Floor	< 18	< 205	< 60	<455
119	Floor	< 18	< 205	< 60	<455
120	Floor	< 18	< 205	< 60	<455
121	Shelves	< 18	< 205	< 60	<455
122	Wall	< 18	< 205	< 60	<455
123	Shelves	< 18	< 205	< 60	<455
124	Shelves	< 18	< 205	< 60	<455
125	Floor	< 18	< 205	< 60	<455
126	Shelves	< 18	< 205	< 60	<455
127	Shelves	< 18	< 205	< 60	<455
128	Shelves	< 18	< 205	< 60	<455
129	Shelves	< 18	< 205	< 60	<455
130	Shelves	< 18	< 205	< 60	<455
131	Shelves	< 18	< 205	< 60	<455
132	Shelves	< 18	< 205	< 60	<455

968 Survey Information

133	Shelves	< 18	< 205	< 60	<455
134	Shelves	< 18	< 205	< 60	<455
135	Shelves	< 18	< 205	< 60	<455
136	Shelves	< 18	< 205	< 60	<455
137	Shelves	< 18	< 205	< 60	<455
138	Pallet 1	< 18	< 205	< 60	<455
139	Pallet 1	< 18	< 205	< 60	<455
140	Pallet 2	< 18	< 205	< 60	<455
141	Pallet 2	< 18	< 205	< 60	<455
142	Pallet 3	< 18	< 205	< 60	<455
143	Pallet 3	< 18	< 205	< 60	<455
144	Shelves/Wall	< 18	< 205	< 60	<455
145	Shelves/Wall	< 18	< 205	< 60	<455
146	Shelves/Wall	< 18	< 205	< 60	<455
147	Shelves/Wall	< 18	< 205	< 60	<455
148	Shelves/Wall	< 18	< 205	< 60	<455
149	Shelves/Wall	< 18	< 205	< 60	<455
150	Wall	< 18	< 205	< 60	<455
151	Wall	< 18	< 205	< 60	<455
152	Wall	< 18	< 205	< 60	<455
153	Wall	< 18	< 205	< 60	<455
154	Wall	< 18	< 205	< 60	<455
155	Shelves	< 18	< 205	< 60	<455
156	Shelves	< 18	< 205	< 60	<455
157	Floor	< 18	< 205	< 60	<455
158	Floor	< 18	< 205	< 60	<455
159	Floor	< 18	< 205	< 60	<455
160	Floor	< 18	< 205	< 60	<455
161	Floor	< 18	< 205	< 60	<455
162	Floor	< 18	< 205	< 60	<455
163	Shelves	< 18	< 205	< 60	<455
164	Shelves	< 18	< 205	< 60	<455
165	Floor	< 18	< 205	< 60	<455
166	Shelves	< 18	< 205	< 60	<455
167	Shelves	< 18	< 205	< 60	<455
168	Shelves	< 18	< 205	< 60	<455
169	Shelves	< 18	< 205	< 60	<455
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171	Shelves	< 18	< 205	< 60	<455
172	Shelves	< 18	< 205	< 60	<455
173	Shelves	< 18	< 205	< 60	<455
174	Shelves	< 18	< 205	< 60	<455
175	Shelves	< 18	< 205	< 60	<455
176	Shelves	< 18	< 205	< 60	<455
177	Shelves	< 18	< 205	< 60	<455
178	Shelves	< 18	< 205	< 60	<455

968 Survey Information

179	Shelves	< 18	< 205	< 60	<455
180	Shelves	< 18	< 205	< 60	<455
181	Shelves	< 18	< 205	< 60	<455
182	Shelves	< 18	< 205	< 60	<455
183	Shelves	< 18	< 205	< 60	<455
184	Shelves	< 18	< 205	< 60	<455
185	Shelves	< 18	< 205	< 60	<455
186	Floor	< 18	< 205	< 60	<455
187	Floor	< 18	< 205	< 60	<455
188	Floor	< 18	< 205	< 60	<455
189	Floor	< 18	< 205	< 60	<455
190	Floor	< 18	< 205	< 60	735
191	Floor	< 18	< 205	< 60	<455
192	Floor	< 18	< 205	< 60	<455
193	Floor (AP2)	< 18	< 205	< 60	771
194	Floor	< 18	< 205	< 60	615
195	Floor	< 18	< 205	< 60	<455
196	Shelves	< 18	< 205	< 60	<455
197	Shelves	< 18	< 205	< 60	<455
198	Shelves	< 18	< 205	< 60	<455
199	Shelves	< 18	< 205	< 60	<455
200	Shelves	< 18	< 205	< 60	<455
201	Shelves	< 18	< 205	< 60	<455
202	Shelves	< 18	< 205	< 60	<455
203	Shelves	< 18	< 205	< 60	<455
204	Shelves	< 18	< 205	< 60	<455
205	Shelves	< 18	< 205	< 60	<455
206	Door	< 18	< 205	< 60	<455
207	Door	< 18	< 205	< 60	<455
208	Floor	< 18	< 205	< 60	837
209	Shelves	< 18	< 205	< 60	<455
210	Shelves	< 18	< 205	< 60	<455
211	Shelves/Black Slag	< 18	< 205	< 60	1644
212	Wall	< 18	< 205	< 60	<455
213	Wall	< 18	< 205	< 60	<455
214	Wall	< 18	< 205	< 60	<455
215	Wall	< 18	< 205	< 60	<455
216	Floor	< 18	< 205	< 60	<455
217	Floor	< 18	< 205	< 60	<455
218	Floor	< 18	< 205	< 60	<455
219	Floor	< 18	< 205	< 60	<455
220	Floor	< 18	< 205	< 60	<455
221	Floor	< 18	< 205	< 60	633
222	Heat Exchanger 1	< 18	< 205	< 60	<455
223	Heat Exchanger 1	< 18	< 205	< 60	<455
224	Heat Exchanger 2	< 18	< 205	< 60	<455

968 Survey Information

225	Heat Exchanger 2	< 18	< 205	< 60	<455
226	Welder 1	< 18	< 205	< 60	<455
227	Welder 2	< 18	< 205	< 60	<455
228	Welder 3	< 18	< 205	< 60	<455
229	Welder 4	< 18	< 205	< 60	<455
230	Floor	< 18	< 205	< 60	<455
231	Floor	< 18	< 205	< 60	<455
232	Floor	< 18	< 205	< 60	<455
233	Wall	< 18	< 205	< 60	<455
234	Wall	< 18	< 205	< 60	<455
235	Wall	< 18	< 205	< 60	<455
236	Ladders	< 18	< 205	< 60	<455
237	Ladders	< 18	< 205	< 60	<455
238	Ladders	< 18	< 205	< 60	<455
239	Ladders	< 18	< 205	< 60	<455
240	Ladders	< 18	< 205	< 60	<455
241	Shelves	< 18	< 205	< 60	<455
242	Shelves	< 18	< 205	< 60	<455
243	Shelves	< 18	< 205	< 60	<455
244	Shelves	< 18	< 205	< 60	<455
245	Shelves	< 18	< 205	< 60	<455
246	Shelves	< 18	< 205	< 60	<455
247	Shelves	< 18	< 205	< 60	<455
248	Shelves	< 18	< 205	< 60	<455
249	Shelves	< 18	< 205	< 60	<455
250	Shelves	< 18	< 205	< 60	<455
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252	Shelves	< 18	< 205	< 60	<455
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254	Shelves	< 18	< 205	< 60	<455
255	Shelves	< 18	< 205	< 60	<455
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257	Shelves	< 18	< 205	< 60	<455
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260	Shelves	< 18	< 205	< 60	<455
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262	Shelves	< 18	< 205	< 60	<455
263	Shelves	< 18	< 205	< 60	<455
264	Shelves	< 18	< 205	< 60	<455
265	Shelves	< 18	< 205	< 60	<455
266	Shelves	< 18	< 205	< 60	<455
267	Wall	< 18	< 205	< 60	<455
268	Wall	< 18	< 205	< 60	<455
269	Floor	< 18	< 205	< 60	609
270	Floor	< 18	< 205	< 60	<455

968 Survey Information

271	Floor	< 18	< 205	< 60	<455
272	Floor	< 18	< 205	< 60	768
273	Floor	< 18	< 205	< 60	<455
274	Floor	< 18	< 205	< 60	<455
275	Floor	< 18	< 205	< 60	735
276	Shelves	< 18	< 205	< 60	<455
277	Shelves	< 18	< 205	< 60	<455
278	Shelves	< 18	< 205	< 60	<455
279	Shelves	< 18	< 205	< 60	<455
280	Shelves	< 18	< 205	< 60	<455
281	Shelves	< 18	< 205	< 60	<455
282	Shelves	< 18	< 205	< 60	<455
283	Shelves	< 18	< 205	< 60	<455
284	Shelves	< 18	< 205	< 60	<455
285	Shelves	< 18	< 205	< 60	<455
286	Floor	< 18	< 205	< 60	<455
287	Floor	< 18	< 205	< 60	<455
288	Floor	< 18	< 205	< 60	<455
289	Floor	< 18	< 205	< 60	<455
290	Floor	< 18	< 205	< 60	<455
291	Floor	< 18	< 205	< 60	<455
292	Tool Box	< 18	< 205	< 60	<455
293	Tool Box	< 18	< 205	< 60	<455
294	Floor	< 18	< 205	< 60	<455
295	Floor	< 18	< 205	< 60	<455
296	Shelves	< 18	< 205	< 60	<455
297	Shelves	< 18	< 205	< 60	<455
298	Shelves	< 18	< 205	< 60	<455
299	Shelves	< 18	< 205	< 60	<455
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301	Shelves	< 18	< 205	< 60	<455
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303	Shelves	< 18	< 205	< 60	<455
304	Shelves	< 18	< 205	< 60	<455
305	Shelves	< 18	< 205	< 60	<455
306	Floor	< 18	< 205	< 60	<455
307	Floor	< 18	< 205	< 60	<455
308	Floor	< 18	< 205	< 60	<455
309	Floor	< 18	< 205	< 60	<455
310	Floor	< 18	< 205	< 60	<455
311	Floor	< 18	< 205	< 60	<455
312	Floor	< 18	< 205	< 60	<455
313	Floor	< 18	< 205	< 60	<455
314	Floor	< 18	< 205	< 60	<455
315	Floor	< 18	< 205	< 60	<455
316	Floor	< 18	< 205	< 60	<455

968 Survey Information

317	Floor	< 18	< 205	< 60	<455
318	Floor	< 18	< 205	< 60	<455
319	Floor	< 18	< 205	< 60	<455
320	Floor	< 18	< 205	< 60	<455
321	Wall	< 18	< 205	< 60	<455
322	Wall	< 18	< 205	< 60	<455
323	Floor	< 18	< 205	< 60	668
324	Shelf	< 18	< 205	< 60	<455
325	Floor	< 18	< 205	< 60	729
326	Shelf	< 18	< 205	< 60	<455
327	Floor	< 18	< 205	< 60	<455
328	Cabinet	< 18	< 205	< 60	<455
329	Cabinet	< 18	< 205	< 60	<455
330	Cabinet	< 18	< 205	< 60	<455
331	Cabinet	< 18	< 205	< 60	<455
332	Cabinet	< 18	< 205	< 60	<455
333	Floor	< 18	< 205	< 60	<455
334	Floor	< 18	< 205	< 60	<455
335	Floor	< 18	< 205	< 60	<455
336	Cabinet	< 18	< 205	< 60	<455
337	Cabinet	< 18	< 205	< 60	<455
338	Cabinet	< 18	< 205	< 60	<455
339	Cabinet	< 18	< 205	< 60	<455
340	Cabinet	< 18	< 205	< 60	<455
341	Floor	< 18	< 205	< 60	<455
342	Wall	< 18	< 205	< 60	<455
343	Floor	< 18	< 205	< 60	<455
344	Cabinet	< 18	< 205	< 60	<455
345	Cabinet	< 18	< 205	< 60	<455
346	Cabinet	< 18	< 205	< 60	<455
347	Cabinet	< 18	< 205	< 60	<455
348	Cabinet	< 18	< 205	< 60	<455
349	Cabinet	< 18	< 205	< 60	<455
350	Floor	< 18	< 205	< 60	684
351	Floor	< 18	< 205	< 60	<455
352	Floor	< 18	< 205	< 60	636
353	Wall	< 18	< 205	< 60	<455
354	Wall	< 18	< 205	< 60	<455
355	Wall	< 18	< 205	< 60	<455
356	Wall	< 18	< 205	< 60	<455
357	Floor	< 18	< 205	< 60	<455
358	Floor	< 18	< 205	< 60	<455
359	Floor	< 18	< 205	< 60	<455
360	Floor	< 18	< 205	< 60	597
361	Floor	< 18	< 205	< 60	<455
362	Floor	< 18	< 205	< 60	651

968 Survey Information

363	Floor	< 18	< 205	< 60	<455
364	Table	< 18	< 205	< 60	<455
365	Table	< 18	< 205	< 60	<455
366	Table	< 18	< 205	< 60	<455
367	Table	< 18	< 205	< 60	<455
368	Table	< 18	< 205	< 60	<455
369	Table	< 18	< 205	< 60	<455
370	Table	< 18	< 205	< 60	<455
371	Table	< 18	< 205	< 60	<455
372	Cabinet	< 18	< 205	< 60	<455
373	Cabinet	< 18	< 205	< 60	<455
374	Cabinet	< 18	< 205	< 60	<455
375	Cabinet	< 18	< 205	< 60	<455
376	Cabinet	< 18	< 205	< 60	<455
377	Cabinet	< 18	< 205	< 60	<455
378	Floor	< 18	< 205	< 60	963
379	Floor	< 18	< 205	< 60	<455
380	Floor	< 18	< 205	< 60	<455
381	Floor	< 18	< 205	< 60	<455
382	Floor	< 18	< 205	< 60	<455
383	Floor	< 18	< 205	< 60	1170
384	Floor	< 18	< 205	< 60	1368
385	Floor	< 18	< 205	< 60	<455
386	Floor	< 18	< 205	< 60	<455
387	Floor	< 18	< 205	< 60	1098
388	Floor	< 18	< 205	< 60	1032
389	Tire Machine	< 18	< 205	< 60	<455
390	Air Compressor	< 18	< 205	< 60	<455
391	Air Compressor	< 18	< 205	< 60	<455
392	Floor	< 18	< 205	< 60	<455
393	Floor (AP2)	< 18	< 205	< 60	1239
394	Floor	< 18	< 205	< 60	1083
395	Floor	< 18	< 205	< 60	<455
396	Floor	< 18	< 205	< 60	<455
397	Floor	< 18	< 205	< 60	1218
398	Gang Box	< 18	< 205	< 60	<455
399	Gang Box	< 18	< 205	< 60	<455
400	Gang Box	< 18	< 205	< 60	<455
401	Gang Box	< 18	< 205	< 60	<455
402	Gang Box	< 18	< 205	< 60	<455
403	Gang Box	< 18	< 205	< 60	<455
404	Wall	< 18	< 205	< 60	<455
405	Slide Door	< 18	< 205	< 60	<455
406	Slide Door	< 18	< 205	< 60	<455
407	Floor	< 18	< 205	< 60	<455
408	Shelf	< 18	< 205	< 60	<455

968 Survey Information

409	Shelf	< 18	< 205	< 60	<455
410	Shelf	< 18	< 205	< 60	<455
411	Shelf	< 18	< 205	< 60	<455
412	Shelf	< 18	< 205	< 60	<455
413	Locker	< 18	< 205	< 60	<455
414	Locker	< 18	< 205	< 60	<455
415	Locker	< 18	< 205	< 60	<455
416	Locker	< 18	< 205	< 60	<455
417	Locker	< 18	< 205	< 60	<455
418	Locker	< 18	< 205	< 60	<455
419	Locker	< 18	< 205	< 60	<455
420	Locker	< 18	< 205	< 60	<455
421	Locker	< 18	< 205	< 60	<455
422	Locker	< 18	< 205	< 60	<455
423	Locker	< 18	< 205	< 60	<455
424	Locker	< 18	< 205	< 60	<455
425	Floor	< 18	< 205	< 60	<455
426	Floor	< 18	< 205	< 60	966
427	Floor	< 18	< 205	< 60	1143
428	Floor	< 18	< 205	< 60	<455
429	Floor	< 18	< 205	< 60	1053
430	Floor	< 18	< 205	< 60	1083
431	Floor	< 18	< 205	< 60	<455
432	Floor	< 18	< 205	< 60	1254
433	Floor	< 18	< 205	< 60	<455
434	Floor	< 18	< 205	< 60	<455
435	Floor	< 18	< 205	< 60	1170
436	Floor	< 18	< 205	< 60	<455
437	Floor	< 18	< 205	< 60	<455
438	Floor	< 18	< 205	< 60	1322
439	Floor	< 18	< 205	< 60	<455
440	Floor	< 18	< 205	< 60	<455
441	Floor	< 18	< 205	< 60	1386
442	Floor	< 18	< 205	< 60	<455
443	Floor	< 18	< 205	< 60	915
444	Floor	< 18	< 205	< 60	<455
445	Floor	< 18	< 205	< 60	963
446	Table	< 18	< 205	< 60	<455
447	Table	< 18	< 205	< 60	<455
448	Table	< 18	< 205	< 60	<455
449	Table	< 18	< 205	< 60	<455
450	Shelves	< 18	< 205	< 60	<455
451	Shelves	< 18	< 205	< 60	<455
452	Shelves	< 18	< 205	< 60	<455
453	Shelves	< 18	< 205	< 60	<455
454	Shelves	< 18	< 205	< 60	<455

968 Survey Information

455	Shelves	< 18	< 205	< 60	<455
456	Shelves	< 18	< 205	< 60	<455
457	Shelves	< 18	< 205	< 60	<455
458	Shelf	< 18	< 205	< 60	<455
459	Shelf	< 18	< 205	< 60	<455
460	Shelf	< 18	< 205	< 60	4837
461	Shelf	< 18	< 205	< 60	999
462	Wall	< 18	< 205	< 60	<455
463	Shelves	< 18	< 205	< 60	<455
464	Shelves	< 18	< 205	< 60	<455
465	Shelves	< 18	< 205	< 60	<455
466	Shelves (total beat 7638)*	< 18	< 205	< 60	7638
467	Shelves	< 18	< 205	< 60	<455
468	Locker/Shelves	< 18	< 205	< 60	<455
469	Locker/Shelves	< 18	< 205	< 60	<455
470	Locker/Shelves	< 18	< 205	< 60	<455
471	Locker/Shelves	< 18	< 205	< 60	<455
472	Locker/Shelves	< 18	< 205	< 60	<455
473	Locker/Shelves	< 18	< 205	< 60	<455
474	Wall	< 18	< 205	< 60	<455
475	Door; Sliding	< 18	< 205	< 60	<455
476	Door; Sliding	< 18	< 205	< 60	<455
477	Door; Sliding	< 18	< 205	< 60	<455
478	Door	< 18	< 205	< 60	<455
479	Wall	< 18	< 205	< 60	<455
480	Wall	< 18	< 205	< 60	<455
481	Locker	< 18	< 205	< 60	<455
482	Locker	< 18	< 205	< 60	<455
483	Locker	< 18	< 205	< 60	<455
484	Locker	< 18	< 205	< 60	<455
485	Locker	< 18	< 205	< 60	<455
486	Locker	< 18	< 205	< 60	<455
487	Floor	< 18	< 205	< 60	1251
488	Floor	< 18	< 205	< 60	<455
489	Floor	< 18	< 205	< 60	<455
490	Floor	< 18	< 205	< 60	1239
491	Floor	< 18	< 205	< 60	<455
492	Floor	< 18	< 205	< 60	<455
493	Floor	< 18	< 205	< 60	1110
494	Floor	< 18	< 205	< 60	<455
495	Fork Truck	< 18	< 205	< 60	<455
496	Table/Floor	< 18	< 205	< 60	1005
497	Shelf	< 18	< 205	< 60	<455
498	Shelf	< 18	< 205	< 60	<455
499	Cabinet	< 18	< 205	< 60	<455
500	Cabinet	< 18	< 205	< 60	<455

980 Survey Information Interior

SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
1	Section 1, 1-18	< 18	< 205	< 60	< 455
2	Section 1, 1-18	< 18	< 205	< 60	< 455
3	Section 1, 1-18	< 18	< 205	< 60	585
4	Section 1, 1-18	< 18	< 205	< 60	1065
5	Section 1, 1-18	< 18	< 205	< 60	645
6	Section 1, 1-18	< 18	< 205	< 60	1068
7	Section 1, 1-18	< 18	< 205	< 60	618
8	Section 1, 1-18	< 18	< 205	< 60	1008
9	Section 1, 1-18	< 18	< 205	< 60	798
10	Section 1, 1-18	< 18	< 205	< 60	1131
11	Section 1, 1-18	< 18	< 205	< 60	< 455
12	Section 1, 1-18	< 18	< 205	< 60	< 455
13	Section 1, 1-18	< 18	< 205	< 60	< 455
14	Section 1, 1-18	< 18	< 205	< 60	< 455
15	Section 1, 1-18	< 18	< 205	< 60	< 455
16	Section 1, 1-18	< 18	< 205	< 60	< 455
17	Section 1, 1-18	< 18	< 205	< 60	< 455
18	Section 1, 1-18	< 18	< 205	< 60	< 455
19	Section 2, 19-23	< 18	< 205	< 55	< 610
20	Section 2, 19-23	< 18	< 205	< 55	< 610
21	Section 2, 19-23	< 18	< 205	< 55	< 610
22	Section 2, 19-23	< 18	< 205	< 55	< 610
23	Section 2, 19-23	< 18	< 205	< 55	< 610
24	Section 3, 24-39	< 18	< 205	< 60	< 455
25	Section 3, 24-39	< 18	< 205	< 60	< 455
26	Section 3, 24-39	< 18	< 205	< 60	< 455
27	Section 3, 24-39	< 18	< 205	< 60	< 455
28	Section 3, 24-39	< 18	< 205	< 60	1008
29	Section 3, 24-39	< 18	< 205	< 60	927
30	Section 3, 24-39	< 18	< 205	< 60	897
31	Section 3, 24-39	< 18	< 205	< 60	918
32	Section 3, 24-39	< 18	< 205	< 60	840
33	Section 3, 24-39	< 18	< 205	< 60	900
34	Section 3, 24-39	< 18	< 205	< 60	1023
35	Section 3, 24-39	< 18	< 205	< 60	951
36	Section 3, 24-39	< 18	< 205	< 60	< 455
37	Section 3, 24-39	< 18	< 205	< 60	< 455
38	Section 3, 24-39	< 18	< 205	< 60	< 455
39	Section 3, 24-39	< 18	< 205	< 60	< 455
40	Section 4, 40-57	< 18	< 205	< 60	< 455

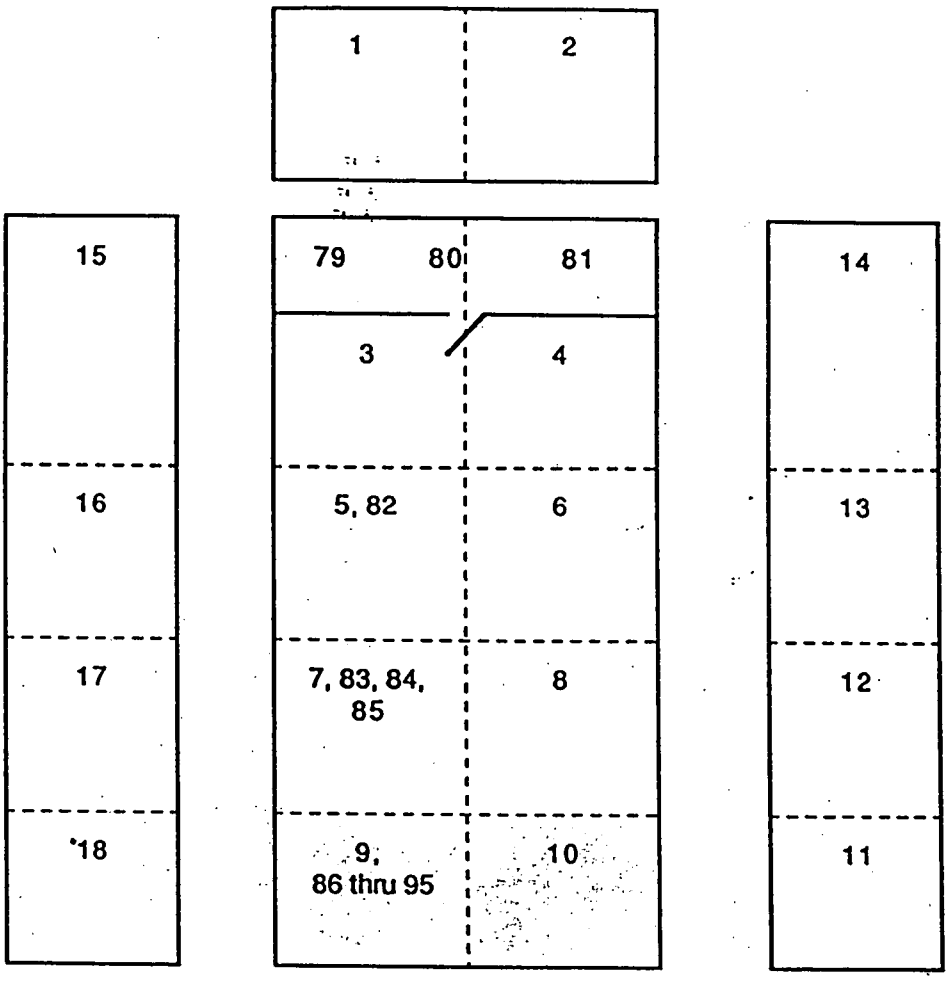
980 Survey Information Interior

SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
41	Section 4, 40-57	< 18	< 205	< 60	< 455
42	Section 4, 40-57	< 18	< 205	< 60	< 455
43	Section 4, 40-57	< 18	< 205	< 60	< 455
44	Section 4, 40-57	< 18	< 205	< 60	< 455
45	Section 4, 40-57	< 18	< 205	< 60	< 455
46	Section 4, 40-57	< 18	< 205	< 60	< 455
47	Section 4, 40-57	< 18	< 205	< 60	< 455
48	Section 4, 40-57	< 18	< 205	< 60	< 455
49	Section 4, 40-57	< 18	< 205	< 60	< 455
50	Section 4, 40-57	< 18	< 205	< 60	< 455
51	Section 4, 40-57	< 18	< 205	< 60	< 455
52	Section 4, 40-57	< 18	< 205	< 60	< 455
53	Section 4, 40-57	< 18	< 205	< 60	< 455
54	Section 4, 40-57	< 18	< 205	< 60	< 455
55	Section 4, 40-57	< 18	< 205	< 60	< 455
56	Section 4, 40-57	< 18	< 205	< 60	< 455
57	Section 4, 40-57	< 18	< 205	<55	< 610
58	Section 5, 58-75	< 18	< 205	<55	< 610
59	Section 5, 58-75	< 18	< 205	<55	< 610
60	Section 5, 58-75	< 18	< 205	<55	< 610
61	Section 5, 58-75	< 18	< 205	<55	< 610
62	Section 5, 58-75	< 18	< 205	<55	< 610
63	Section 5, 58-75	< 18	< 205	<55	< 610
64	Section 5, 58-75				
65	Section 5, 58-75	< 18	< 205	<55	< 610
66	Section 5, 58-75	< 18	< 205	<55	< 610
67	Section 5, 58-75	< 18	< 205	<55	< 610
68	Section 5, 58-75	< 18	< 205	<55	< 610
69	Section 5, 58-75	< 18	< 205	<55	< 610
70	Section 5, 58-75	< 18	< 205	<55	< 610
71	Section 5, 58-75	< 18	< 205	<55	< 610
72	Section 5, 58-75	< 18	< 205	<55	< 610
73	Section 5, 58-75	< 18	< 205	<55	< 610
74	Section 5, 58-75	< 18	< 205	<55	720
75	Section 5 End	< 18	< 205	<55	< 610
76	Sink Drain	< 18	< 205	< 60	608
77	Sink Drain	< 18	< 205	< 60	502
78	Sink Drain	< 18	< 205	< 60	622
79	Rack	< 18	< 205	< 60	< 455
80	Rack	< 18	< 205	< 60	< 455

980 Survey Information Interior

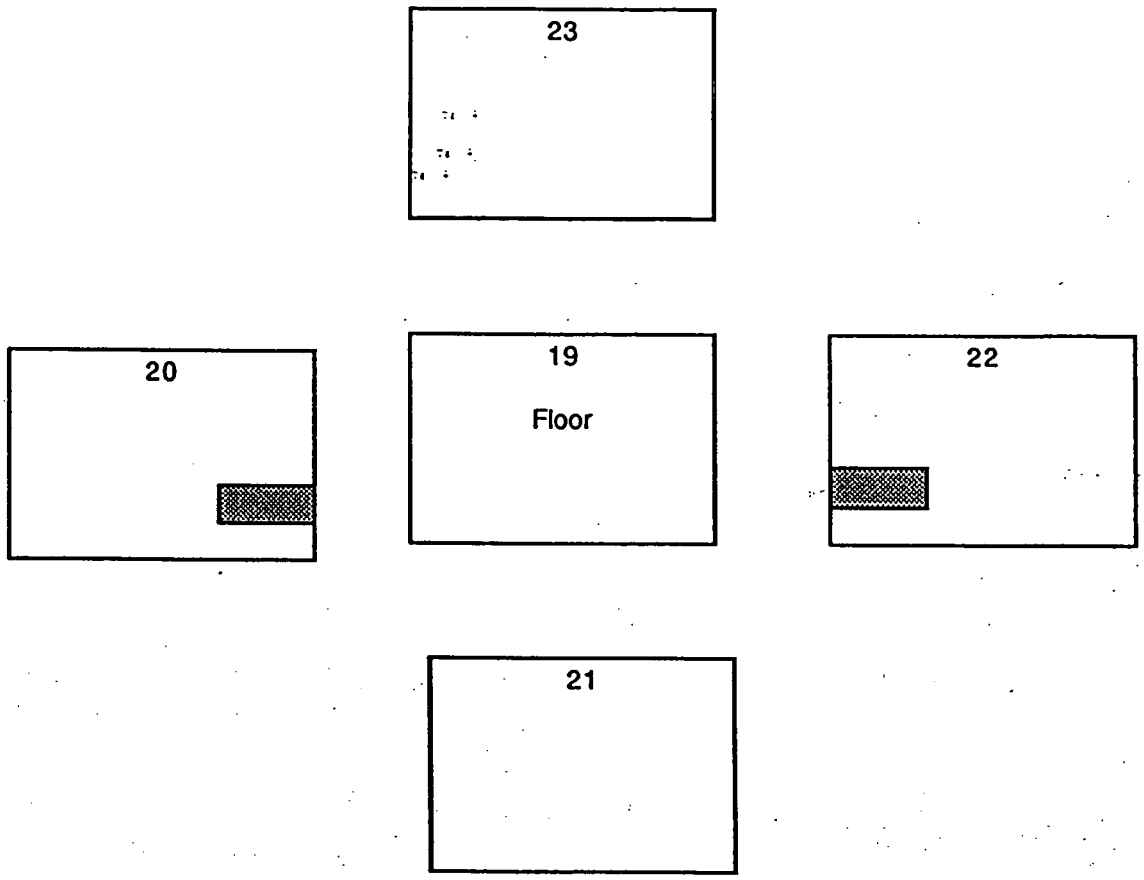
SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
81	Rack	< 18	< 205	< 60	< 455
82	Rack	< 18	< 205	< 60	< 455
83	Beaker	< 18	< 205	< 60	< 455
84	Downdraft	< 18	< 205	< 60	< 455
85	Beaker	< 18	< 205	< 60	
86	Compressor	< 18	< 205	< 60	< 455
87	Compressor	< 18	< 205	< 60	< 455
88	Compressor	< 18	< 205	< 60	< 455
89	Compressor	< 18	< 205	< 60	< 455
90	Compressor	< 18	< 205	< 60	< 455
91	Compressor	< 18	< 205	< 60	< 455
92	Compressor	< 18	< 205	< 60	< 455
93	Compressor	< 18	< 205	< 60	< 455
94	Compressor	< 18	< 205	< 60	< 455
95	Compressor	< 18	< 205	< 60	< 455
96	Shelves	< 18	< 205	< 60	< 455
97	Shelves	< 18	< 205	< 60	< 455
98	Shelves	< 18	< 205	< 60	< 455
99	Shelves	< 18	< 205	< 60	< 455
100	Shelves	< 18	< 205	< 60	< 455
101	Shelves	< 18	< 205	< 60	< 455
102	Shelves	< 18	< 205	< 60	< 455
103	Shelves	< 18	< 205	< 60	< 455
104	Shelves	< 18	< 205	< 60	< 455
105	Shelves	< 18	< 205	< 60	< 455
106	Shelves	< 18	< 205	< 60	< 455
107	Shelves	< 18	< 205	< 60	< 455
108	Shelf	< 18	< 205	< 60	< 455
109	Beaker	< 18	< 205	< 60	< 455

Interior of Building 980 - Section 1



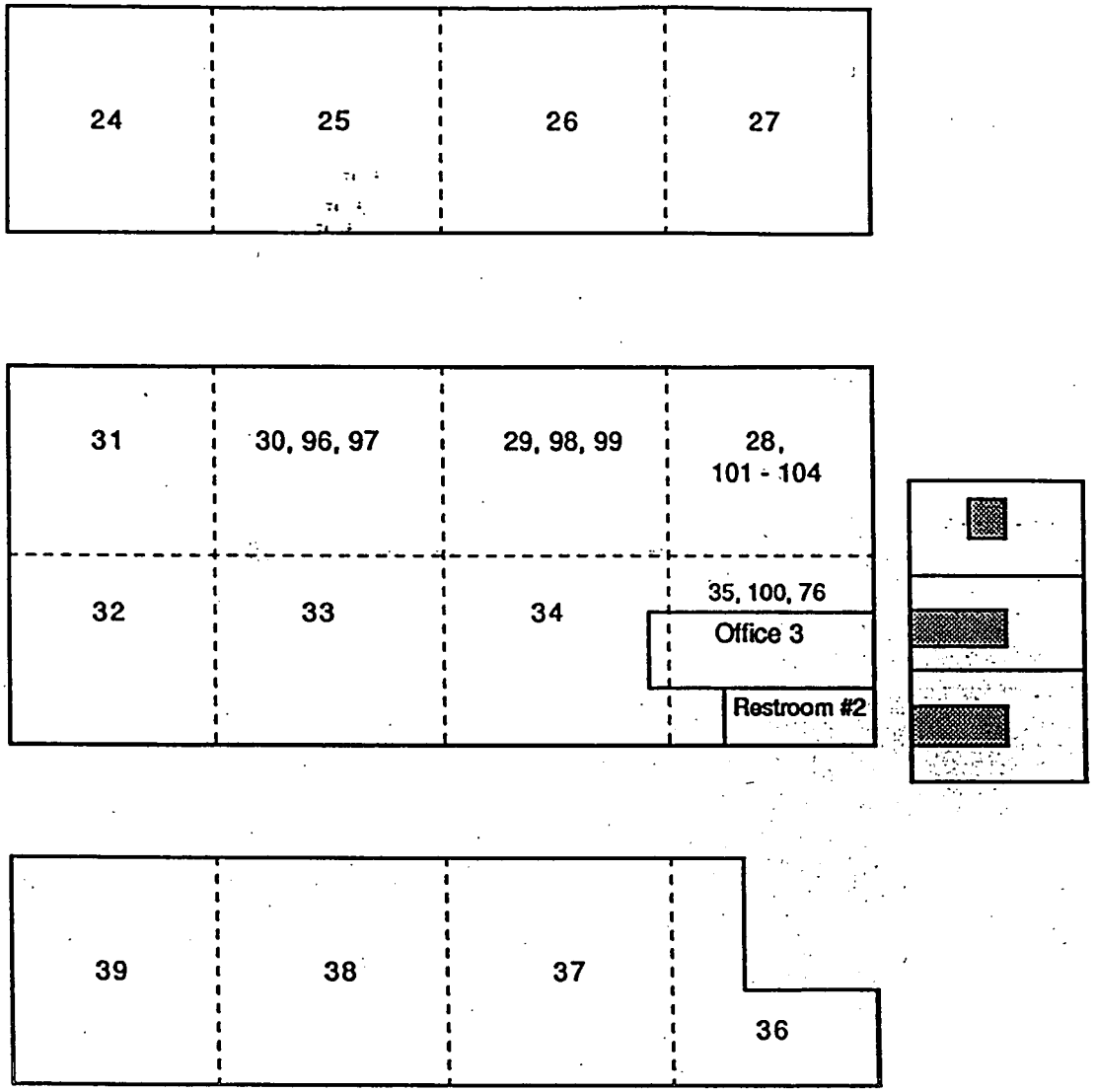
6 m. x 6 m. grids

Interior of Building 980 - Section 2



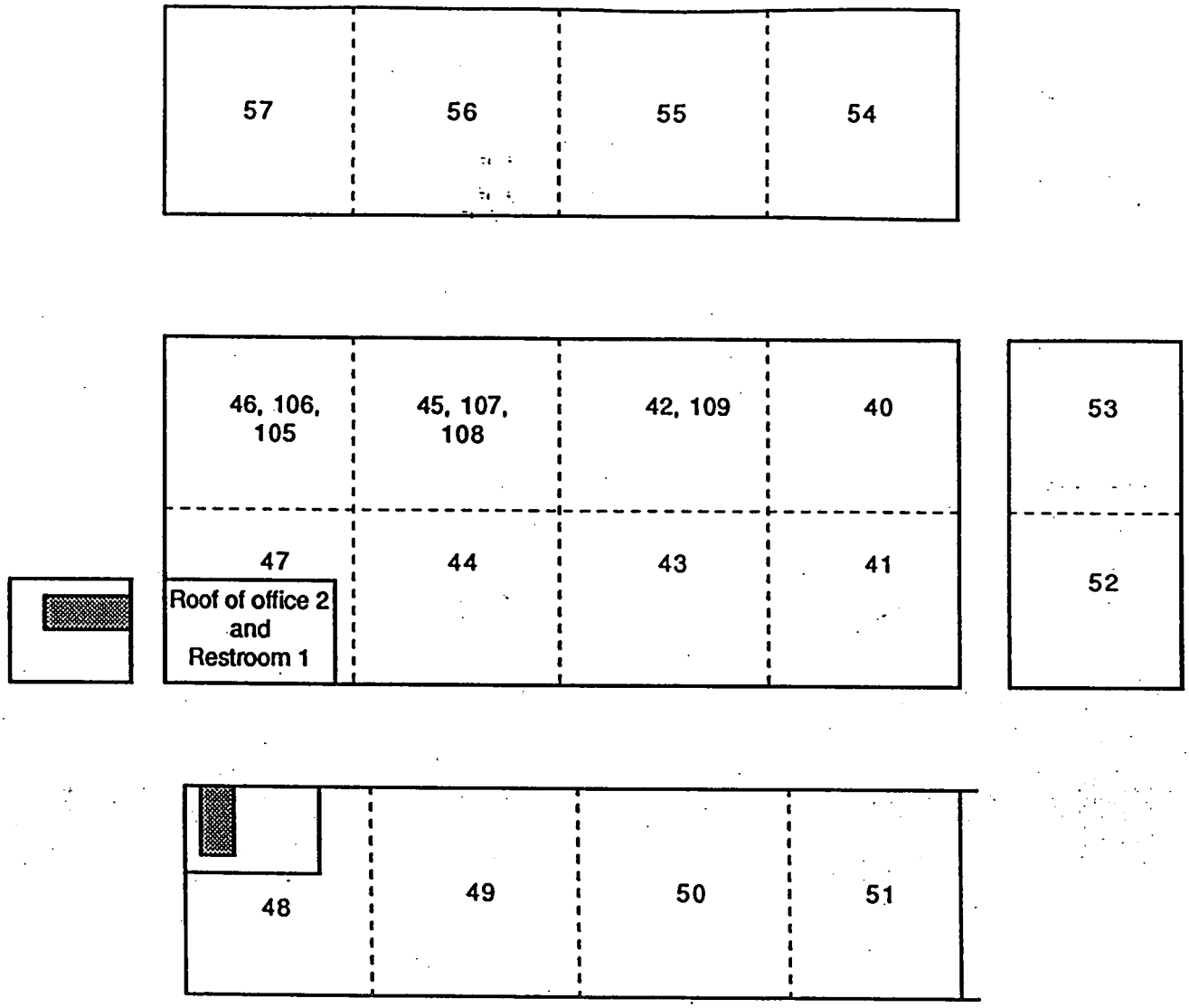
6 m. x 6 m. grids

Interior of Building 980 - Section 3



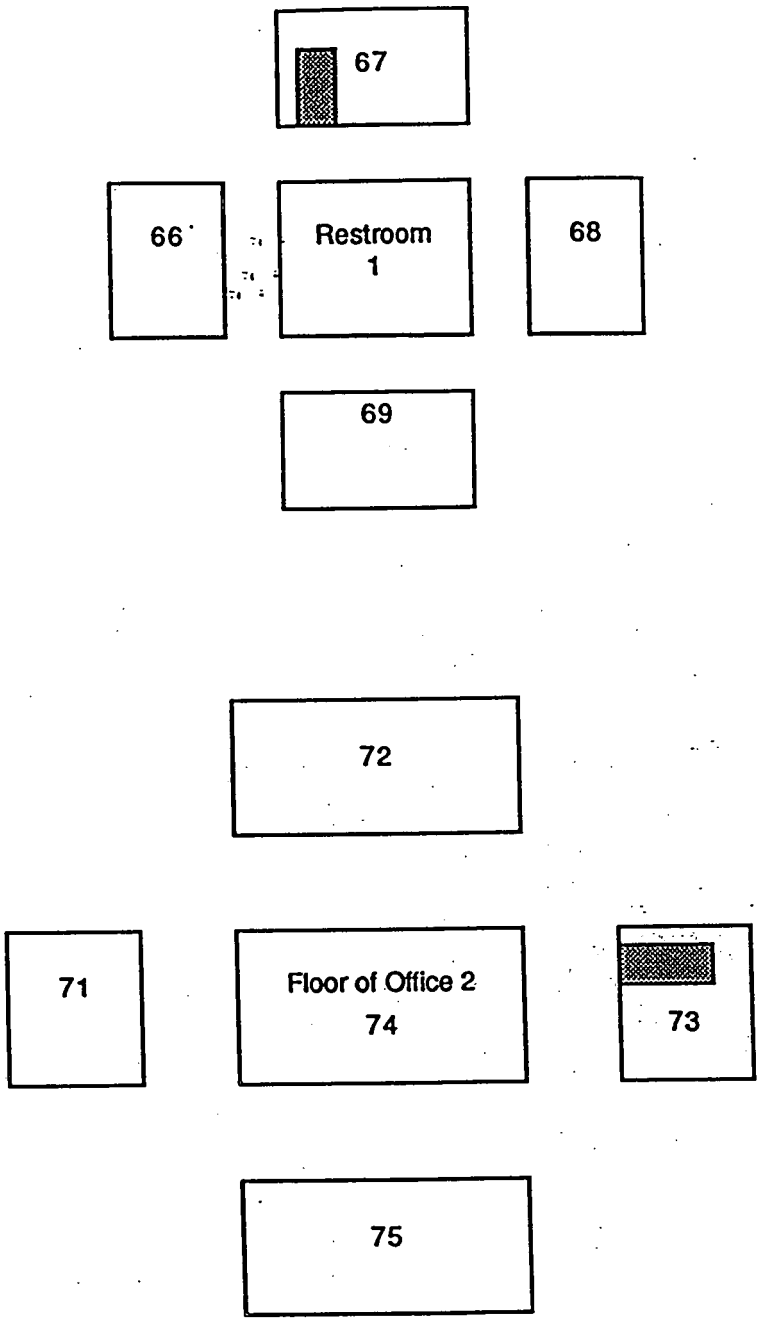
6 m. x 6 m. grids

Interior of Building 980 - Section 4

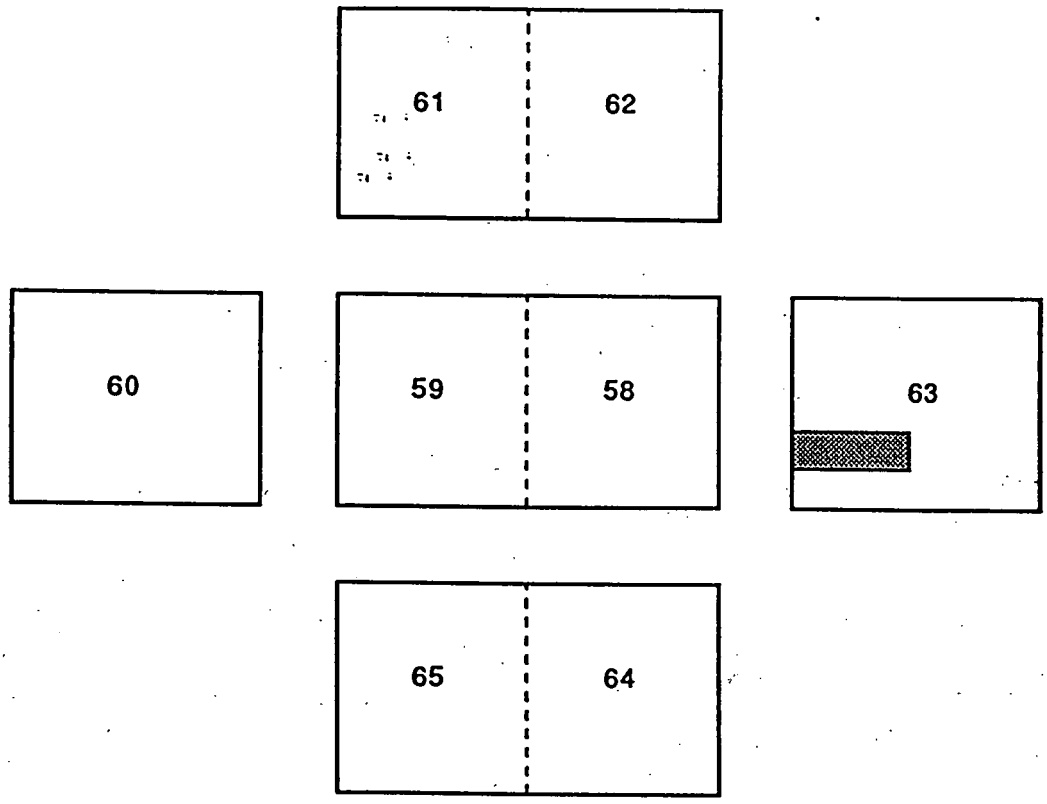


6 m. x 6 m. grids

Interior of Building 980 - Interior Rooms



Interior of Building 980 - Section 5



4 m. x 6 m. grids

980 Survey Information Exterior

SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm^2	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm^2	TOTAL BETA/ GAMMA dpm/100 cm^2
1	Exterior of 980 Building	< 18	< 205	102	< 455
2	Exterior of 980 Building	< 18	< 205	190	< 455
3	Exterior of 980 Building	< 18	< 205	190	< 455
4	Exterior of 980 Building	< 18	< 205	102	< 455
5	Exterior of 980 Building	< 18	< 205	246	< 455
6	Exterior of 980 Building	< 18	< 205	102	< 455
7	Exterior of 980 Building	< 18	< 205	246	< 455
8	Exterior of 980 Building	< 18	< 205	102	< 455
9	Paint on Door	< 18	< 205	102	< 455
10	Paint on Door	< 18	< 205	102	< 455
11	Paint on Wall	< 18	< 205	246	< 455
12	Paint on Wall	< 18	< 205	210	< 455
13	Paint on Wall	< 18	< 205	174	< 455
14	Paint on Wall	< 18	< 205	102	< 455
15	Door is Painted	< 18	< 205	102	< 455
16	Door is Painted	< 18	< 205	66	< 455
17	Door is Painted	< 18	< 205	66	< 455
18	Door is Painted	< 18	< 205	102	< 455
19	Door is Painted	< 18	< 205	<60	< 455
20	Door is Painted	< 18	< 205	<60	< 455
21	Door is Painted	< 18	< 205	<60	< 455
22	Door is Painted	< 18	< 205	<60	< 455
23	Door is Painted	< 18	< 205	<60	< 455
24	Door is Painted	< 18	< 205	<60	< 455
25	Door is Painted	< 18	< 205	90	< 455
26	Door is Painted	< 18	< 205	<60	< 455
27	Door is Painted	< 18	< 205	<60	< 455
28	Door is Painted	< 18	< 205	<60	< 455
29	Door is Painted	< 18	< 205	<60	< 455
30	Door is Painted	< 18	< 205	<60	< 455
31	Door is Painted	< 18	< 205	78	< 455
32	Door is Painted	< 18	< 205	90	< 455
33	Door is Painted	< 18	< 205	72	< 455
34	Door is Painted	< 18	< 205	< 60	< 455
35	Door is Painted	< 18	< 205	< 60	< 455
36	Door is Painted	< 18	< 205	72	< 455
37	Door is Painted	< 18	< 205	< 60	< 455
38	Door is Painted	< 18	< 205	< 60	< 455

980 Survey Information Exterior

SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
39	Door is Painted	< 18	< 205	< 60	< 455
40	Door is Painted	< 18	< 205	84	< 455
41	Door is Painted	< 18	< 205	< 60	< 455
42	Door is Painted	< 18	< 205	< 60	< 455
43	Door is Painted	< 18	< 205	< 60	< 455
44	Door is Painted	< 18	< 205	< 60	< 455
45	Door is Painted	< 18	< 205	< 60	< 455
46	Door is Painted	< 18	< 205	< 60	< 455
47	Door is Painted	< 18	< 205	< 60	< 455
48	Door is Painted	< 18	< 205	72	< 455
49	Door is Painted	< 18	< 205	90	< 455
50	Door is Painted	< 18	< 205	< 60	< 455
51	Door is Painted	< 18	< 205	< 60	< 455
52	Door is Painted	< 18	< 205	78	< 455
53	Door is Painted	< 18	< 205	< 60	< 455
54	Door is Painted	< 18	< 205	< 60	< 455
55	Door is Painted	< 18	< 205	108	< 455
56	Door is Painted	< 18	< 205	< 60	< 455
57	Door is Painted	< 18	< 205	< 60	< 455
58	Door is Painted	< 18	< 205	90	< 455
59	Door is Painted	< 18	< 205	< 60	< 455
60	Door is Painted	< 18	< 205	< 60	< 455
61	Door is Painted	< 18	< 205	< 60	< 455
62	Door is Painted	< 18	< 205	78	< 455
63	Door is Painted	< 18	< 205	60	< 455
64	Door is Painted	< 18	< 205	< 60	< 455
65	Door is Painted	< 18	< 205	< 60	< 455
66	Door is Painted	< 18	< 205	66	< 455
67	Door is Painted	< 18	< 205	60	< 455
68	Door is Painted	< 18	< 205	< 60	< 455
69	Door is Painted	< 18	< 205	78	< 455
70	Door is Painted	< 18	< 205	< 60	< 455
71	Door is Painted	< 18	< 205	< 60	< 455
72	Door is Painted	< 18	< 205	78	< 455
73	Door is Painted	< 18	< 205	< 60	< 455
74	Door is Painted	< 18	< 205	< 60	< 455
75	Door is Painted	< 18	< 205	60	< 455
76	Door is Painted	< 18	< 205	< 60	< 455

980 Survey Information Interior

SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
1	Section 1, 1-18	< 18	< 205	< 60	< 455
2	Section 1, 1-18	< 18	< 205	< 60	< 455
3	Section 1, 1-18	< 18	< 205	< 60	585
4	Section 1, 1-18	< 18	< 205	< 60	1065
5	Section 1, 1-18	< 18	< 205	< 60	645
6	Section 1, 1-18	< 18	< 205	< 60	1068
7	Section 1, 1-18	< 18	< 205	< 60	618
8	Section 1, 1-18	< 18	< 205	< 60	1008
9	Section 1, 1-18	< 18	< 205	< 60	798
10	Section 1, 1-18	< 18	< 205	< 60	1131
11	Section 1, 1-18	< 18	< 205	< 60	< 455
12	Section 1, 1-18	< 18	< 205	< 60	< 455
13	Section 1, 1-18	< 18	< 205	< 60	< 455
14	Section 1, 1-18	< 18	< 205	< 60	< 455
15	Section 1, 1-18	< 18	< 205	< 60	< 455
16	Section 1, 1-18	< 18	< 205	< 60	< 455
17	Section 1, 1-18	< 18	< 205	< 60	< 455
18	Section 1, 1-18	< 18	< 205	< 60	< 455
19	Section 2, 19-23	< 18	< 205	< 55	< 610
20	Section 2, 19-23	< 18	< 205	< 55	< 610
21	Section 2, 19-23	< 18	< 205	< 55	< 610
22	Section 2, 19-23	< 18	< 205	< 55	< 610
23	Section 2, 19-23	< 18	< 205	< 55	< 610
24	Section 3, 24-39	< 18	< 205	< 60	< 455
25	Section 3, 24-39	< 18	< 205	< 60	< 455
26	Section 3, 24-39	< 18	< 205	< 60	< 455
27	Section 3, 24-39	< 18	< 205	< 60	< 455
28	Section 3, 24-39	< 18	< 205	< 60	1008
29	Section 3, 24-39	< 18	< 205	< 60	927
30	Section 3, 24-39	< 18	< 205	< 60	897
31	Section 3, 24-39	< 18	< 205	< 60	918
32	Section 3, 24-39	< 18	< 205	< 60	840
33	Section 3, 24-39	< 18	< 205	< 60	900
34	Section 3, 24-39	< 18	< 205	< 60	1023
35	Section 3, 24-39	< 18	< 205	< 60	951
36	Section 3, 24-39	< 18	< 205	< 60	< 455
37	Section 3, 24-39	< 18	< 205	< 60	< 455
38	Section 3, 24-39	< 18	< 205	< 60	< 455

980 Survey Information Interior

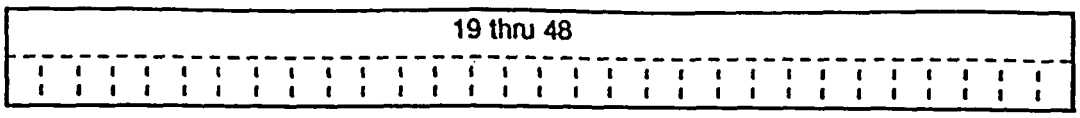
SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
39	Section 3, 24-39	< 18	< 205	< 60	< 455
40	Section 4, 40-57	< 18	< 205	< 60	< 455
41	Section 4, 40-57	< 18	< 205	< 60	< 455
42	Section 4, 40-57	< 18	< 205	< 60	< 455
43	Section 4, 40-57	< 18	< 205	< 60	< 455
44	Section 4, 40-57	< 18	< 205	< 60	< 455
45	Section 4, 40-57	< 18	< 205	< 60	< 455
46	Section 4, 40-57	< 18	< 205	< 60	< 455
47	Section 4, 40-57	< 18	< 205	< 60	< 455
48	Section 4, 40-57	< 18	< 205	< 60	< 455
49	Section 4, 40-57	< 18	< 205	< 60	< 455
50	Section 4, 40-57	< 18	< 205	< 60	< 455
51	Section 4, 40-57	< 18	< 205	< 60	< 455
52	Section 4, 40-57	< 18	< 205	< 60	< 455
53	Section 4, 40-57	< 18	< 205	< 60	< 455
54	Section 4, 40-57	< 18	< 205	< 60	< 455
55	Section 4, 40-57	< 18	< 205	< 60	< 455
56	Section 4, 40-57	< 18	< 205	< 60	< 455
57	Section 4, 40-57	< 18	< 205	<55	< 610
58	Section 5, 58-75	< 18	< 205	<55	< 610
59	Section 5, 58-75	< 18	< 205	<55	< 610
60	Section 5, 58-75	< 18	< 205	<55	< 610
61	Section 5, 58-75	< 18	< 205	<55	< 610
62	Section 5, 58-75	< 18	< 205	<55	< 610
63	Section 5, 58-75	< 18	< 205	<55	< 610
64	Section 5, 58-75				
65	Section 5, 58-75	< 18	< 205	<55	< 610
66	Section 5, 58-75	< 18	< 205	<55	< 610
67	Section 5, 58-75	< 18	< 205	<55	< 610
68	Section 5, 58-75	< 18	< 205	<55	< 610
69	Section 5, 58-75	< 18	< 205	<55	< 610
70	Section 5, 58-75	< 18	< 205	<55	< 610
71	Section 5, 58-75	< 18	< 205	<55	< 610
72	Section 5, 58-75	< 18	< 205	<55	< 610
73	Section 5, 58-75	< 18	< 205	<55	< 610
74	Section 5, 58-75	< 18	< 205	<55	720
75	Section 5 End	< 18	< 205	<55	< 610
76	Sink Drain	< 18	< 205	< 60	608

980 Survey Information Interior

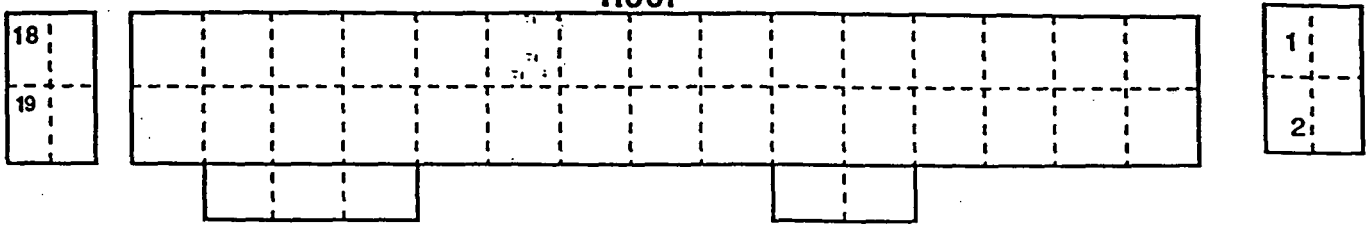
SWIP (S) #	LOCATION/DESCRIPTION	REMOVABLE ALPHA	REMOVABLE BETA/ GAMMA dpm/100 cm²	TOTAL ALPHA (FRISK / 60 SEC COUNT) dpm/100 cm²	TOTAL BETA/ GAMMA dpm/100 cm²
77	Sink Drain	< 18	< 205	< 60	502
78	Sink Drain	< 18	< 205	< 60	622
79	Rack	< 18	< 205	< 60	< 455
80	Rack	< 18	< 205	< 60	< 455
81	Rack	< 18	< 205	< 60	< 455
82	Rack	< 18	< 205	< 60	< 455
83	Beaker	< 18	< 205	< 60	< 455
84	Downdraft	< 18	< 205	< 60	< 455
85	Beaker	< 18	< 205	< 60	
86	Compressor	< 18	< 205	< 60	< 455
87	Compressor	< 18	< 205	< 60	< 455
88	Compressor	< 18	< 205	< 60	< 455
89	Compressor	< 18	< 205	< 60	< 455
90	Compressor	< 18	< 205	< 60	< 455
91	Compressor	< 18	< 205	< 60	< 455
92	Compressor	< 18	< 205	< 60	< 455
93	Compressor	< 18	< 205	< 60	< 455
94	Compressor	< 18	< 205	< 60	< 455
95	Compressor	< 18	< 205	< 60	< 455
96	Shelves	< 18	< 205	< 60	< 455
97	Shelves	< 18	< 205	< 60	< 455
98	Shelves	< 18	< 205	< 60	< 455
99	Shelves	< 18	< 205	< 60	< 455
100	Shelves	< 18	< 205	< 60	< 455
101	Shelves	< 18	< 205	< 60	< 455
102	Shelves	< 18	< 205	< 60	< 455
103	Shelves	< 18	< 205	< 60	< 455
104	Shelves	< 18	< 205	< 60	< 455
105	Shelves	< 18	< 205	< 60	< 455
106	Shelves	< 18	< 205	< 60	< 455
107	Shelves	< 18	< 205	< 60	< 455
108	Shelf	< 18	< 205	< 60	< 455
109	Beaker	< 18	< 205	< 60	< 455

Building 980 Exterior

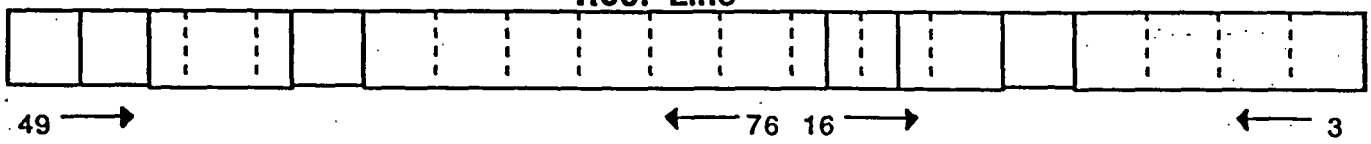
North Wall



Roof



Roof Line



3 m. x 3 m. abd
6 m. x 6 m. grids

ATTACHMENT 7.6

ASBESTOS CHARACTERIZATION REPORT

FOR BUILDING 980

Asbestos Characterization Report

Building 980

ADDENDUM TO 980 CLUSTER

Rocky Flats Environmental Technology Site

Prepared by:

Scientific Ecology Group for

Rocky Mountain Remediation Services

Revision 0
May 19, 1997

TABLE OF CONTENTS

TABLE OF CONTENTS 2

1.0 INTRODUCTION 3

2.0 ASBESTOS SURVEY 3
- 2.1 INSPECTION PROCEDURES 3
- 2.2 DESCRIPTION AND HAZARD ASSESSMENT OF ACM 3
- 2.3 DESCRIPTION OF MATERIALS TESTING NEGATIVE FOR ASBESTOS 4

1.0 INTRODUCTION

During the week of March 17-21, 1997 Building 980 was inspected for the presence of asbestos containing materials (ACM). The purpose of this inspection was to prepare for the demolition of this structure.

The asbestos inspection was conducted according to the guidelines set forth by the Asbestos Hazard Emergency Response Act (AHERA) and complies with the United States Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and State of Colorado regulations covering asbestos inspections.

The enclosed report contains the estimated quantities, physical assessment, location and descriptions of all materials either assumed or identified through sampling and analysis to be asbestos containing.

2.0 ASBESTOS SURVEY

2.1 INSPECTION PROCEDURES

Bulk samples were acquired to determine the presence of asbestos in building materials. Suspect materials were chosen based on historical significance or on the judgement of the accredited inspector. Each sample was assigned an individual number made up of the building number, the date the sample was acquired, the initials of the sampling technician, and a three digit number in sequence. Quality Control samples are designated in the Bulk Sample Data Table as (QC).

A total of twelve samples were acquired from suspected materials. These materials included surfacing materials, thermal systems insulation, and miscellaneous materials. All samples were acquired in a random manner representative of the suspected material. A cementitious material, stamped with the words "asbestos thermal board" and manufactured by Johns Manville, was assumed to be asbestos containing.

All bulk samples were analyzed by Reservoirs Environmental Services, Inc. (RESI) of Denver, Colorado. RESI is accredited through the National Institute of Standards and Technology (NIST) and participates in the NIST National Voluntary Laboratory Accreditation Program (NVLAP) as required by the EPA. Bulk samples were analyzed by Polarized Light Microscopy (PLM) in compliance with guidelines established by the EPA 40 CFR 763, Subpart F, Appendix A. Asbestos concentrations were visually estimated and reported in percent by layer of each sample.

2.2 DESCRIPTION AND HAZARD ASSESSMENT OF ACM

2.2.1 Cementitious "Mudded" Pipe Fitting Insulation

The fittings associated with the domestic water system were insulated with a cementitious mud that contained 3% chrysotile asbestos and 1% amosite asbestos. These five fittings are on a system located in the roof/attic area above the east restroom. The fittings and 20 linear feet of associated pipe insulation in the roof/attic area are loose, crumbling and damaged.

The EPA AHERA Hazard Assessment Category for the fitting insulation is "Damaged friable thermal systems insulation." This category was chosen due to the damaged fitting near the water heater on the east end of this space, and missing fittings elsewhere. Since the building is due for demolition, this material must be removed prior to demo. Care should be exercised to discover the missing pieces of insulation, which may have fallen into the wall cavities. Access to the roof/attic area should be limited to authorized personnel until such abatement takes place.

2.2.2 Cementitious "Transite" Board

Approximately 300 square feet of cementitious board, labeled "asbestos thermal board" was discovered on the wall at the east end of the east storage area, west of the truck bay. This material was not sampled and assumed to contain asbestos in a percentage greater than 1%.

The EPA AHERA Hazard Assessment Category for the cementitious board is "damaged miscellaneous material". This category was chosen due to the evidence of damage just north of the entry to the truck bay. The appropriate response action for this material is removal prior to demolition. Care must be exercised when working near this material so as to avoid further damage.

2.3 DESCRIPTION OF MATERIALS TESTING NEGATIVE FOR ASBESTOS

2.3.1 Drywall, Tape, and Joint Compound

The drywall, tape and joint compound in the office and restrooms were sampled and analyzed for asbestos. All sample results indicate there is no detectable asbestos present in the materials.

2.3.2 Black and Yellow Batt Insulation

The batt insulation installed in the south-east addition accessed by doors #4 and #5 was sampled and analyzed for asbestos. The sample results indicate that there is no detectable asbestos present in this material.

2.3.3 Black and Tan or Black and White Roofing Tar

The roofing sealer (tar) used on both the paint shop and "door #4" roofs on the south side of the building were sampled and analyzed for asbestos. The sample results indicate that there is no detectable asbestos in these materials.

BULK SAMPLE DATA TABLE

Sample Number	Sample Description and Location	Lab Result
980-031797-MS-001	Grey insulation, drywall, tape and joint compound; from office north wall, 8' west of NE corner, 4' from the floor.	ND
980-031797-MS-002	Drywall, tape, and joint compound; from office south wall, 3' west of SE corner, 4' from the floor.	ND
980-031797-MS-003	Drywall, tape, and joint compound; from rest room south wall, 8' east of SW corner, 5' from the floor.	ND
980-031797-MS-004	Drywall, tape, and joint compound; from office ceiling, 4' west of east wall, 4' north of south wall.	ND
980-031797-MS-005	TSI cementitious mud on a water pipe fitting; from east side rest room ceiling, 3' north of south wall, 10' west of east edge.	4%
980-031797-MS-006	Black fibrous and yellow fibrous batt insulation; from garage (door # 4) east wall, 5' south of NE corner, at base of window.	ND
980-031797-MS-007	Drywall, tape, and joint compound; from paint room, west side of devising wall, 2' north of door, 4' from the floor.	ND
980-031797-MS-008	Drywall, tape, and joint compound; from paint room, east side of devising wall, at top right corner of door jamb, 7' from the floor.	ND
980-031797-MS-009	Drywall, tape, and joint compound; from paint room, east side of devising wall, 2' north of south wall, 3' from the floor.	ND
980-031797-MS-010 (QC)	Drywall, tape, and joint compound, from paint room, east side of devising wall, 2' north of south wall, 3' from the floor.	ND
980-031897-MS-011	Black tar and white caulk; from building roof, (door # 4), at north edge, NE corner.	ND
980-031897-MS-012	Black tar and tan caulk; from paint shop roof, at north edge, NE corner.	ND

Note: ND means None Detected; TR means Trace.

Statement of Certification

The asbestos building inspection evaluation performed on **Building 980** was performed in accordance with applicable regulations, and employed only EPA AHERA accredited personnel.

Inspector: [redacted]

EPA Accreditation: [redacted]

State of Colorado Certification: [redacted]

I hereby attest and certify that I performed the asbestos building inspection evaluation on **Building 980** at Rocky Flats Environmental Technology Site

Signature: _____ Date: 5/19/97

ATTACHMENT 7:7

ASBESTOS CHARACTERIZATION REPORT

FOR BUILDING 968

Asbestos Characterization Report

Building 968

ADDENDUM TO 980 CLUSTER

Rocky Flats Environmental Technology Site

Prepared by:

Scientific Ecology Group for

Rocky Mountain Remediation Services

Revision 0
May 19, 1997

TABLE OF CONTENTS

TABLE OF CONTENTS 2

1.0 INTRODUCTION 3

2.0 ASBESTOS SURVEY 3
- 2.1 INSPECTION PROCEDURES 3
- 2.2 DESCRIPTION AND HAZARD ASSESSMENT OF ACM 3
- 2.3 DESCRIPTION AND LOCATION OF NON-ACBM BASED ON SAMPLING 4

BULK SAMPLE DATA TABLE 5

STATEMENT OF CERTIFICATION 6

1.0 INTRODUCTION

During the week of March 17-21, 1997, Building 968 was inspected for the presence of asbestos containing building materials (ACBM). The purpose of this inspection was to prepare for the demolition of this structure.

The asbestos inspection was conducted according to the guidelines set forth by the Asbestos Hazard Emergency Response Act (AHERA) and complies with the United States Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and State of Colorado regulations covering asbestos inspections.

The enclosed report contains the estimated quantities, physical assessment, location and descriptions of all materials either assumed or identified through sampling and analysis to be asbestos
containing.

2.0 ASBESTOS SURVEY

2.1 INSPECTION PROCEDURES

Bulk samples were acquired to determine the presence of asbestos in building materials. Suspect materials were chosen based on historical significance or on the judgement of the accredited inspector. Each sample was assigned an individual number made up of the building number, the date the sample was acquired, the initials of the sampling technician, and a three digit number in sequence. Quality Control samples are designated in the Bulk Sample Data Table as (QC).

A total of nine samples were acquired from suspected materials. These materials included surfacing materials, thermal systems insulation, and miscellaneous materials. All samples were acquired in a random manner representative of the suspected material.

All bulk samples were analyzed by Reservoirs Environmental Services, Inc. (RESI) of Denver, Colorado. RESI is accredited through the National Institute of Standards and Technology (NIST) and participates in the NIST National Voluntary Laboratory Accreditation Program (NVLAP) as required by the EPA. Bulk samples were analyzed by Polarized Light Microscopy (PLM) in compliance with guidelines established by the EPA 40 CFR 763, Subpart F, Appendix A. Asbestos concentrations were visually estimated and reported in percent by layer of each sample. Point count (PC) analysis was required for one bulk sample.

2.2 DESCRIPTION AND HAZARD ASSESSMENT OF ACM

2.2.1 TSI Cementitious "Mudded" Insulation

Cementitious mudded insulation on pipe fittings were present on the pipes associated with the domestic water system. These fittings/system were located in the restroom and the roof of the restroom. The nine fittings and fifteen feet of associated pipe insulation in the restroom were on the west wall riser and on the north wall water heater riser. This insulation was painted white. The twelve fittings and 20 feet of associated insulation on the roof of the restroom were located on the west end of this area, with a run extending 10 feet to the east.

The EPA AHERA Hazard Assessment Category for the insulation is "damaged friable thermal systems insulation." This category was chosen due to the deteriorated condition of the insulation

on the restroom roof. The appropriate response action for this material is removal prior to demolition. Care must be exercised to discover the location of the missing pieces of insulation, which may have fallen between walls.

2.3 DESCRIPTION AND LOCATION OF NON-ACBM BASED ON SAMPLING

2.3.1 Drywall, Tape , and Joint Compound

The drywall, tape, and joint compound located in the office and restroom areas was sampled. Based on the sampling results, no detectable asbestos was discovered.

2.3.2 Tar And Gravel Roofing Materials

Approximately 150 square feet of tar and gravel roofing materials installed on the lean-to on the southeast corner of the building, and stored on a palette on the northwest corner outside the building were sampled. Based on the analytical results, these materials contain no detectable amounts of asbestos.

2.3.3 Tan Window Putty

Approximately eight square feet of tan window putty installed on both outside and inside the multi-paned windows on both the east and west ends of the building, and on the east side of the office area was sampled. PLM analysis indicated trace amounts of asbestos. Point Count Analysis indicated the presence of less than 0.25% asbestos. Based on these results, this material is not asbestos containing by regulatory definition. However, workers should be cautioned to avoid disturbing this putty.

BULK SAMPLE DATA TABLE

Sample Number	Sample Description and Location	Lab Result
968-970318-MS-001	Drywall, tape and joint compound; from office devising wall, west side, 4' south of door, 4' from the floor.	ND
968-970318-MS-002	Drywall, tape, and joint compound; from office devising wall, west side, 4' north of SE corner, 3' from the floor.	ND
968-970318-MS-003	Drywall, tape, and joint compound; from office devising wall, east side, SW corner, 4' from the floor.	ND
968-970318-MS-004	Painted TSI cementitious mud on a water pipe fitting; from restroom, NW corner, top of water heater.	(A) ND (B) 3%
968-970318-MS-005	Drywall, tape and joint compound; from rest room ceiling, 4' north of south wall, 3' west of east wall.	ND
968-970318-MS-006 (QC)	Drywall, tape and joint compound; from rest room ceiling, 4' north of south wall, 3' west of east wall.	ND
968-970318-MS-007	Tar and gravel shingles with black mastic; from lean-to at SE corner of bldg. 6' east of west edge, 1' north of south edge.	ND
968-970318-MS-008	Tar and gravel shingles (2'x4'x1"); stored on north side of bldg. near NW entry.	ND
968-970318-MS-009	Tan window putty; from west side upper level window, 1st from the south, at base.	TR (PLM) 0.25% (PC)

Note: TR means trace.

ATTACHMENT 7.8

ASBESTOS CHARACTERIZATION REPORT

FOR BUILDING 965

Asbestos Characterization Report

Building 965

ADDENDUM TO 980 CLUSTER

Rocky Flats Environmental Technology Site

Prepared by:

Scientific Ecology Group for

Rocky Mountain Remediation Services

Revision 0
May 19, 1997

TABLE OF CONTENTS

TABLE OF CONTENTS 2

1. INTRODUCTION 3

2.0 ASBESTOS SURVEY 3
- 2.1 INSPECTION PROCEDURES 3
- 2.2 DESCRIPTION AND HAZARD ASSESSMENT OF ACM 3
- 2.3 DESCRIPTION OF NON-ACM BASED ON SAMPLE RESULTS 4
- BULK SAMPLE DATA TABLE 5
- STATEMENT OF CERTIFICATION 6

1. INTRODUCTION

During the week of March 17-21, 1997 Building 965 was inspected for the presence of asbestos containing building materials (ACBM). The purpose of this inspection was to prepare for the demolition of this structure.

The asbestos inspection was conducted according to the guidelines set forth by the Asbestos Hazard Emergency Response Act (AHERA) and complies with the United States Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and State of Colorado regulations covering asbestos inspections.

The enclosed report contains the estimated quantities, physical assessment, location and descriptions of all materials either assumed or identified through sampling and analysis to be asbestos containing.

2.0 ASBESTOS SURVEY

2.1 INSPECTION PROCEDURES

Bulk samples were acquired to determine the presence of asbestos in building materials. Suspect materials were chosen based on historical significance or on the judgement of the accredited inspector. Each sample was assigned an individual number made up of the building number, the date the sample was acquired, the initials of the sampling technician, and a three digit number in sequence. Quality Control samples are designated in the Bulk Sample Data Table as (QC).

A total of seven samples were acquired from suspected materials. These materials included surfacing materials and miscellaneous materials. All samples were acquired in a random manner representative of the suspected material.

All bulk samples were analyzed by Reservoirs Environmental Services, Inc. (RESI) of Denver, Colorado. RESI is accredited through the National Institute of Standards and Technology (NIST) and participates in the NIST National Voluntary Laboratory Accreditation Program (NVLAP) as required by the EPA. Bulk samples were analyzed by Polarized Light Microscopy (PLM) in compliance with guidelines established by the EPA 40 CFR 763, Subpart F, Appendix A. Asbestos concentrations were visually estimated and reported in percent by layer of each sample.

2.2 DESCRIPTION AND HAZARD ASSESSMENT OF ACM

At the time of inspection, suspected asbestos containing building materials included cementitious corrugated siding, ceiling tiles, drywall systems and cove base/adhesive.

2.2.1 Cementitious Corrugated Siding

Approximately 300 square feet of cementitious siding, or "Transite" discovered on the north exterior of the building. At the time of inspection, this material was in good condition and non-friable. Three locations had approximately three square inches of material missing, presumably fallen inside the walls.

The EPA AHERA hazard assessment category for the siding is "Miscellaneous asbestos containing material." The appropriate response action for the siding is removal by trained personnel prior to demolition.

2.3 DESCRIPTION OF NON-ACM BASED ON SAMPLE RESULTS

2.3.1 Drywall, Tape and Joint Compound

The drywall, tape and joint compound system on the interior walls of the structure were sampled and analyzed for asbestos. Sample results indicate there is no detectable asbestos present in these materials.

2.3.2 Ceiling Tiles

The 2' x 4' white ceiling tiles in the suspended ceiling system in the interior of the building were samples and analyzed for asbestos. Sample results indicate this material did not contain detectable amounts of asbestos.

2.3.3 Cove Base and Adhesive

The six-inch brown cove base and tan adhesive at the base of the interior walls was sampled and analyzed for asbestos. Sample results indicate that this material did not contain detectable amounts of asbestos.

BULK SAMPLE DATA TABLE

Sample Number	Sample Description and Location	Lab Result
965-970317-MS-001	2'x4" ceiling tile, white, with bird tracks and pin holes; 4' north of south wall, 8' east of west wall.	ND
965-970317-MS-002	Drywall, tape, and joint compound; from west wall, 11' south of NW corner, 4' from the floor.	ND
965-970317-MS-003	Drywall, tape, and joint compound; from NW corner, 5' from the floor.	ND
965-970317-MS-004	Drywall, tape and joint compound; from east wall, 5' south of NE corner, 3' from the floor.	ND
965-970317-MS-005	6' brown cove base and tan adhesive; from south wall, 2' west of garage door.	ND
965-970317-MS-006 (QC)	6' brown cove base and tan adhesive; from south wall, 2' west of garage door.	ND
965-970528-MS-007	Cementitious corrugated siding; from the north exterior, 2' east of the NE edge, 4' from the ground.	A: 50%

Note: ND means None Detected.

STATEMENT OF CERTIFICATION

The asbestos building inspection evaluation performed on **Building 965** was performed in accordance with applicable regulations, and employed only EPA AHERA accredited personnel.

Inspector: [redacted]

EPA Accreditation: [redacted]

State of Colorado Certification: [redacted]

I hereby attest and certify that I performed the asbestos building inspection evaluation on **Building 965** at Rocky Flats Environmental Technology Site

Signature: _____ Date: 5/19/97

ATTACHMENT 7.9

RECONNAISSANCE LEVEL CHARACTERIZATION PLAN

Rocky Mountain
Remediation Services, L.L.C.
. . . protecting the environment

RF/RMRS-97-038

Reconnaissance Level Characterization Plan For The Building 980 Cluster

JULY 1997

REVIEWED FOR CLASSIFICATION/UCNI
By

RECONNAISSANCE LEVEL CHARACTERIZATION PLAN

TABLE OF CONTENTS

TABLE OF CONTENTS 2

ACRONYMS 3

1.0 INTRODUCTION 4
- 1.1 PURPOSE 4
- 1.2 SCOPE 4
- 1.3 DATA LIFE CYCLE 4
- FIGURE 1-1 SITE MAP 5

2.0 PLANNING 6
- 2.1 CHARACTERIZATION OBJECTIVES 6

3.0 IMPLEMENTATION 8
- 3.1 HISTORICAL ASSESSMENT 9
  - 3.1.1 Asbestos 9
  - 3.1.2 Polychlorinated biphenyls (PCBs) 9
  - 3.1.3 Excess Chemicals 9
  - 3.1.4 Lead Paint 9
  - 3.1.5 Beryllium 9
  - 3.1.6 Radioactive Materials 9
  - 3.1.7 Hazard Assessment 10
  - 3.1.8 Hazardous Waste 10
  - 3.1.9 Sampling 10
- TABLE 3-1 BUILDING 980 CLUSTER SURVEY DESIGN 11

4.0 ASSESSMENT 12
- 4.1 DATA EVALUATION 12

5.0 REFERENCES 12

APPENDIX A RADIOLOGICAL SURVEY INSTRUCTIONS BUILDING 980 13
APPENDIX B RADIOLOGICAL SURVEY INSTRUCTIONS BUILDING 968 14
APPENDIX C RADIOLOGICAL SURVEY INSTRUCTIONS BUILDING 965 15
APPENDIX D RADIOLOGICAL SURVEY INSTRUMENTS 16

ACRONYMS

ACM	Asbestos containing material
AHA	Activity Hazard Analysis
AHERA	Asbestos Hazard Emergency Response Act
APO	Analytical Projects Office
Be	Beryllium
CDPHE	Colorado Department of Public Health and Environment
cm^2	Square Centimeters
DOE	U.S. Department of Energy
DOP	Decommissioning Operations Plan
dpm	Disintegrations per minute
DQO	Data Quality Objective
EPA	U. S. Environmental Protection Agency
MDA	Minimum Detectable Amount
PA	Protected Area
PCB	Polychlorinated biphenyl
PLM	Polarized Light Microscopy
RAD	Radioactive
RBA	Radiological Buffer Area
RCRA	Resource Conservation and Recovery Act
RFETS	Rocky Flats Environmental Technology Site
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RMRS	Rocky Mountain Remediation Services, L. L. C.
RWP	Radiological Work Permit
SAA	Satellite Accumulation Area
WSRIC	Waste Stream and Residue and Identification and Characterization

1.0 INTRODUCTION

The Department of Energy (DOE) established a goal to remove 2% of the total built square footage in fiscal year 1997. This project was chosen to help meet the 2% goal. The location of the B980 Cluster is identified in Figure 1-1. The 980 Cluster includes three buildings B980, B968, and B965.

1.1 PURPOSE

The purpose of this characterization plan is to outline the data requirements and methodology for obtaining characterization information about the 980 Cluster. The characterization effort identifies the type, quantity, condition, and location of radioactive and hazardous materials which are, or which may be, present as residual contamination in the 980 Cluster facilities. The compilation of facility information contained herein, in conjunction with the 980 Cluster project files established during this investigation, brings together pertinent data from various sources to serve as a practical reference for project use.

1.2 SCOPE

This document was prepared using the draft Decommissioning Protocol stet to ensure the data quality objective (DQO) process was used in determining sampling/survey requirements. The information presented in this plan specifically pertains to the Building 980 Cluster; the review of historical records and the collection of process knowledge information covers the operational time period for the facility from original construction to present.

The scope of this document is to gather enough characterization information to develop the 980 cluster Reconnaissance Level Characterization Report (RLCR).

1.3 DATA LIFE CYCLE

There are three aspects of the data life cycle that apply to the characterization process: Planning, Implementation, and Assessment. To produce a usable document (i.e. Reconnaissance Level Characterization Report) each of the three must be applied in sequence.

This planning process used the data quality objective (DQO) methods described in the Decommissioning Characterization Protocol procedure. The specific DQOs are discussed in Section 2.1 of this document.

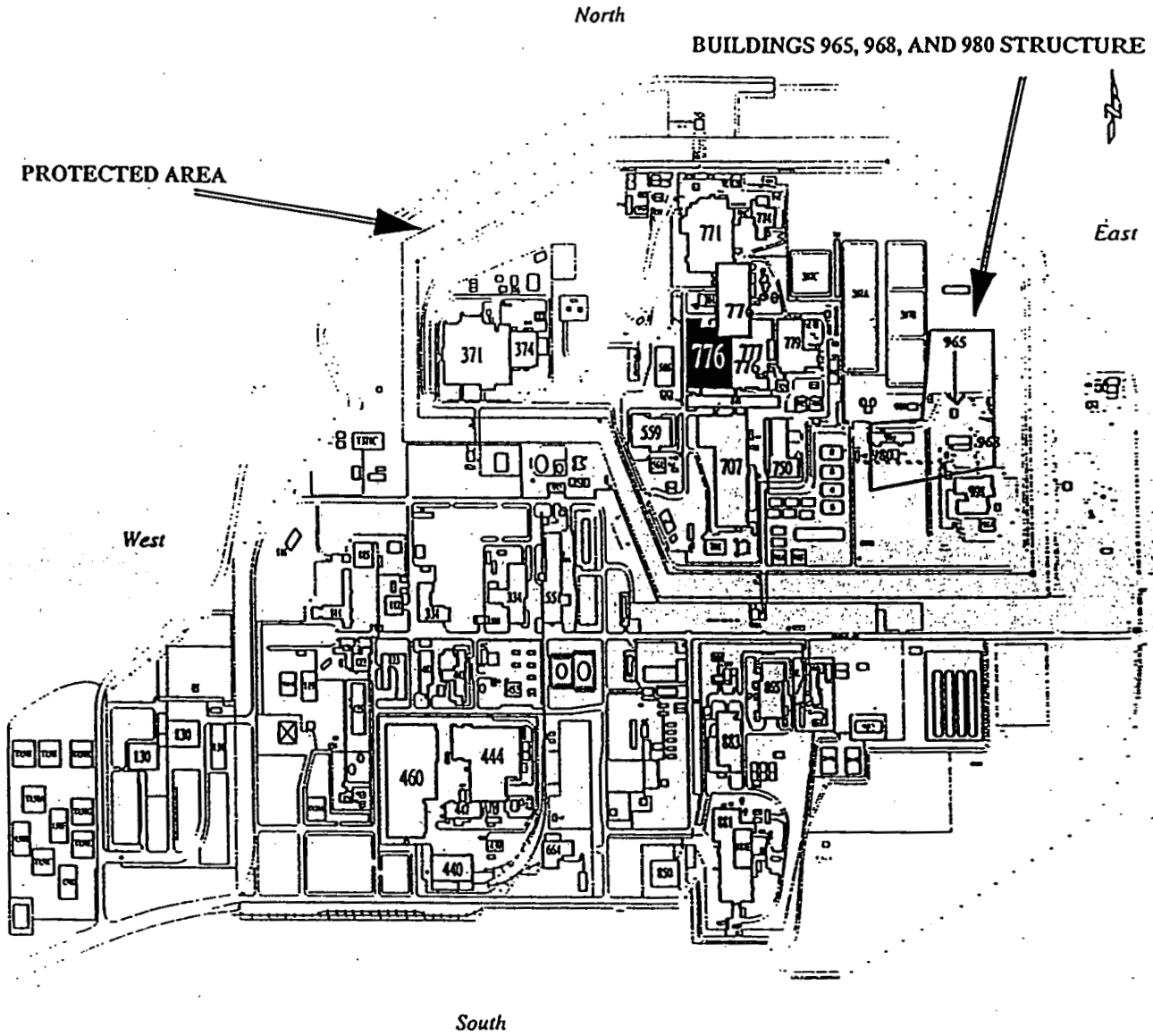
The second phase of the characterization process is implementation. This phase includes the assessment of historical documentation (scoping survey) concerning the operations of a site and any associated chemical or radiological inventory. Additionally, the physical survey is accomplished using the design as outlined during the planning phase.

The final phase of the life cycle is the assessment of information gathered during the implementation phase to ensure adequate information has been gathered to meet the users needs.

The following sections describe the three phases of the data life cycle used in developing the 980 Cluster Reconnaissance Level Characterization Report.

FIGURE 1-1 SITE MAP

Buildings 965, 968, And 980 D&D Area



2.0 PLANNING

To ensure the collection of usable data it is necessary to formulate the objectives of the project. For this plan, the DQO process was used by answering questions designed to go through the seven step process for a decommissioning project. The results of this DQO process are presented in the following sections.

2.1 CHARACTERIZATION OBJECTIVES

The reconnaissance level characterization (RLC) objectives are based on the questions presented in Sections 6.0 and 6.1 of the draft "Decommissioning Characterization Protocols".

This plan was developed to specify the data collection requirements necessary to provide a baseline of information for use during decommissioning activities. The information obtained by implementing this plan will be compiled into the RCLR. Ultimately, the data may be used to determine the risks to the environment and personnel during these activities. (dismantling, decommissioning, etc.).

The following questions and answers were used to develop the sampling requirements for this project.

1. **What is the end use of the facility or structure?**

   There is no end use of this facility. The decommissioning activities will remove all the walls and structural members leaving the building foundations in place. The utilities will be isolated, disconnected and removed back to an appropriate location.

2. **What types of chemical, physical/biological, or radiological hazard is being evaluated?**

   The following hazards were evaluated for their presence in the B980 Cluster:

   Asbestos
   PCBs
   Excess Chemicals
   Lead
   Beryllium
   Radioactive Materials

3. **What level of worker protection is required to perform characterization in the facility, structure or environs?**

   Safety shoes and safety glasses will be worn for all the activities. Other protective measures are identified in the job-specific Radiological Work Permit (RWP) or Activity Hazard Analysis (AHA).

   No unique or special protective clothing is required.

4. **What type of instrumentation is required?**

Radiological instrumentation is identified in Appendix D.

The other materials will be analyzed in a laboratory. The specific instrumentation is identified in the applicable lab procedures.

5. **Has all facility structural data been reviewed?**

All the available historical and facility information has been reviewed. A copy of this information is in the project file.

6. **Have all suspect materials been identified?**

Yes. Additional characterization of the suspected material is identified in this plan.

7. **Are there any regulatory and statistical drivers for sampling frequency?**

There are no known statistical drivers for sampling frequency for reconnaissance level information.

8. **Why is this characterization information being obtained?**

The reconnaissance level characterization information is being obtained to establish a baseline of hazards within the B980 Cluster. The baseline information will be summarized and presented to the DOE/RFFO in a Reconnaissance Level Characterization Report. The State uses the RLCR to determine the need for a Decommissioning Operations Plan (DOP).

9. **What decisions will be made from use of the data obtained for this plan?**

The decisions which will be made using this information is:

Is a DOP required (or not) for the B980 Cluster?

10. **What information is required to make the decision?**

A baseline of the hazards within the B980 Cluster is required. The types of hazards are identified in Question #2.

11. **What is the scope of this data gathering effort?**

This scope of the characterization is identified within the individual hazard discussions. (See Section 3)

12. **What is the basis for the decision?**

The decision to require (or not) a DOP is somewhat arbitrary. It is based on the risk associated with the identified hazards. The decision is made by the DOE/RFFO.

13. **What are the limits on decision errors?**

This question does not apply to the reconnaissance level characterization. Since there is no specified criteria or limits on which decisions are based.

14. **How will the survey design be optimized?**

If the DOE/RFFO decides they do not have enough characterization information (based on their review of the RLCR), additional information will be requested.

3.0 IMPLEMENTATION

This section provides information necessary to implement the requirements of the planning (DQO) task of this project.

3.1 HISTORICAL ASSESSMENT

A detailed examination of process knowledge and documents, relating to the Building 980 Cluster was initiated in March 1997. As part of this examination, a comprehensive survey of historical records was undertaken to determine the location and character of any radioactive and hazardous contaminants which were present in the area. The general conclusions drawn from this examination are as follows:

The Building 980 Cluster housed a significant quantity of warehouse materials and non-radioactively contaminated equipment. These materials and equipment are being removed prior to the decommissioning of the buildings.

Building 980 was constructed in 1957 and was used for storage, warehousing and as support shops for site construction activities. Building 965 was constructed in 1981 and provided carpentry services as well as equipment repair and storage. Building 968 was constructed in 1982 and was used for storage of excess parts to support the Protected Area (PA) maintenance activities and also served as a staging area for painting (mixing and blending) and motor pool activities.

Contamination is not expected from materials stored or processed in the Building 980 Complex. However, the east section of Building 980 presently houses a vacuum truck which was used to remove liquid and sludge from the Solar Ponds. The holding tank and vacuum system mounted on the truck was radiologically contaminated during the Solar Pond evolution.

The information collected in this section has been obtained from several sources, including past/current records and RFETS personnel with relevant Building 980 Cluster work experience or related knowledge.

The following sections discuss the hazardous materials which were evaluated to determine the need for further sampling and analysis or survey.

3.1.1 Asbestos

A complete asbestos inspection of the building will be conducted in accordance with Colorado Department of Public Health and Environment (CDPHE) and Asbestos Hazard Emergency Response Act (AHERA) regulations by a state certified inspector. Table 3-1 presents additional sampling requirements.

3.1.2 Polychlorinated biphenyls (PCBs)

Based on a review of the facilities' construction information, Building 980 is the only structure in the cluster that was erected prior to 1980. Using the Draft Decommissioning Characterization Protocols as a guide, B980 is the only structure which is suspected to contain PCB materials. The B980 Cluster facilities fluorescent lights and fluorescent light ballast will be removed and disposed in accordance with appropriate RFETS procedures. Records also indicate that a waterproof paint (gray) was used on the floor of B980. Samples of this paint will be collected and analyzed for PCBs.

3.1.3 Excess Chemicals

Although there were hazardous chemicals in the B980 Cluster facilities, all excess and hazardous chemicals have been removed from the B980 Cluster facilities during the deactivation process with the exception of some paints and cleaning solvents, which will be disposed of by the subcontractor. Because the chemicals have been removed and there are no known areas which have a buildup of chemical residue, no special chemical characterization is anticipated. Should a chemical be found during the decommissioning process, the chemical will be handled in accordance with existing chemical identification and handling procedures. There are no RCRA units associated with this project, therefore, no closure plans are required.

3.1.4 Lead Paint

It is assumed that the majority of painted surfaces associated with safety markings and fire protection systems contain lead. This assessment is based on previous sampling conducted by the Industrial Hygiene group and is documented in the Health and Safety Lead Abatement Plan files. This is the assumption made for the B980 Cluster decommissioning planning process. The first decommissioning effort in each area will be to wipe down and thoroughly clean all surfaces. This effort is to remove any dust which may contain contaminants. Computer modeling and leachability studies have demonstrated that lead in paint, if it exists, will not create a disposal problem. The amount of lead in the painted surfaces will be determined and compared to the previous model as necessary to support the decommissioning effort.

3.1.5 Beryllium

Based on a review of historical data, there is no evidence that beryllium (Be) was used in the B980 cluster. Therefore, no Be sampling will required under this plan.

3.1.6 Radioactive Materials

There are no areas within the B980 Cluster which are suspected to contain radioactive contamination. However, radiological surveys will be completed in each of the 3 buildings. The survey instructions are included as appendix A, B & C for the respective B980 Cluster buildings.

Radiological instrumentation (portable and fixed) for making direct field measurements and laboratory analysis respectively will be utilized during characterization activities. Instrumentation which is reliable, suited to the physical condition at the site, and capable of detecting the radiations of concern (at the required detection levels) will be chosen. Instrumentation which may be used for this project is presented in Appendix D. Additional equivalent instrumentation may be used if approved by radiological engineering.

3.1.7 Hazard Assessment

An assessment of the hazards that may be encountered during specific decommissioning activities will be performed through walkdowns and job safety analyses. This information will be incorporated into the planning process of each activity to ensure maximum protection of the worker.

3.1.8 Hazardous Waste

The Waste Stream and Residue and Identification and Characterization (WSRIC) Building books for 980, 965 and 968 were reviewed to determine the hazardous materials associated with the Cluster. The information indicates that the wastes generated from operations were removed from the buildings for disposal, or accumulated in Satellite Accumulation Areas (SAAs) for staging purposes. At this time there are no hazardous wastes being stored in the buildings. Hazardous product material identified during the walkdowns will be removed prior to the start of decommissioning.

3.1.9 Sampling

Table 3-1 "Building 980 Cluster Survey Design" lists the locations and the types of samples that are required for characterization purposes. A trained sampling team will be selected to perform the sampling activities required for characterization purposes. Analysis for characterization purposes will be performed using Environmental Protection Agency (EPA) approved procedures through laboratory facilities. Data Quality Objectives are established for the analytical methods referenced and are on file at the on-site Analytical Projects Office (APO) in Building 881. Sampling and analysis activities will be conducted in accordance with the "characterization protocols" which describe the methods for sampling and analysis for various contaminants of concern including lead, asbestos, PCBs, and radioactive constituents.

Table 3-1 includes the descriptions associated with each area, process information regarding the processes conducted in each room, radioactive and/or hazardous considerations (i.e., known materials associated with a specific process or area), and the confirmation analysis that will be performed. Lead and Asbestos surveys will be conducted by a state-certified inspector who will determine appropriate sampling locations.

TABLE 3-1 BUILDING 980 CLUSTER SURVEY DESIGN

Building & Area	Process Information	Rad/Haz Concerns	Confirmation Analysis	Sampling Locations
980 East Wall	Transite	Asbestos	Assumed To Be >1% Acm	None Required
980 Water Lines	Mud Pipe Fitting Insulation	Asbestos	PLM for Asbestos	Professional Judgement
980 Safety Railings	Yellow Safety Paint	Lead	Known to Contain Lead	None Required
980 Fire Water Systems	Red Safety Paint	Lead	Known to Contain Lead	None Required
980 Brown Beam Paint	Brown Paint	Lead	Known to Contain Lead	None Required
980 Grey Paint	Grey Paint	Lead	Known to Contain Lead	None Required
BUILDING 968	Exposed to Solar Ponds	Rad Contaminants	Rad Survey Joints	Instruction (Appendix B)
Building 980	Contains Vacuum Truck in RBA, Exposed to Solar Ponds	Rad Contaminants	Rad Survey Required	Instruction (Appendix A)
980 Floor Paint	Grey Paint	PCBs	SW-846 Method for PCB solids	Professional Judgement
968 Water Lines	Mud Pipe Fitting Insulation	Asbestos	PLM for Asbestos	Professional Judgement
968 Safety Railings	Yellow Safety Paint	Lead	Known to Contain Lead	None Required
968 Fire Water Systems	Red Safety Paint	Lead	Known to Contain Lead	None Required
968 Brown Beam Paint	Brown Paint	Lead	Known to Contain Lead	None Required
968 Grey Paint	Grey Paint	Lead	Known to Contain Lead	None Required
968 Tan Window Putty	Tan Putty from West Upper Window	Asbestos	PLM for Asbestos	Professional Judgement
965 Safety Railings	Yellow Safety Paint	Lead	Known to Contain Lead	None Required
965 Fire Water Systems	Red Safety Paint	Lead	Known to Contain Lead	None Required
965 Brown Beam Paint	Brown Paint	Lead	Known to Contain Lead	None Required
965 Grey Paint	Grey Paint	Lead	Known to Contain Lead	None Required
BUILDING 965	Exposed to Solar Ponds	Rad Contaminants	Rad Survey Joints	Instruction (Appendix C)

4.0 ASSESSMENT

The assessment stage of the Building 980 cluster data life cycle will include an evaluation of data and any conclusions that may be drawn from the data. The information collected will be detailed in the characterization report.

4.1 DATA EVALUATION

The data will be evaluated for completeness and adherence to the appropriate protocols.

5.0 REFERENCES

DOE/EM-0142P - Decommissioning Handbook

Decommissioning Characterization Protocols (June, 1997) (Draft)

MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual (Draft)

NUREG/CR5849 - Manual for Conducting Radiological Surveys in Support of License Termination (Draft)

APPENDIX A
RADIOLOGICAL SURVEY INSTRUCTIONS BUILDING 980

Building 980 Decommissioning Project
Characterization Survey Radiological Instructions

Location/Room: Interior of Bldg. 980 (except the radiological buffer area)

	Radiological Survey[2]			
Item/Area Description[1]	# of Alpha/Beta Swipes	# of Direct Alpha/Beta Measurements	Scan Survey[3]	Special Instructions
Floors/Walls ≤ 2 meters	A minimum of 1 measurement for each 50 m²	A minimum of 1 measurement for each 50 m²	N/A	Obtain measurements on floor & wall surfaces ≤ 2 meters throughout the bldg.
Fixed Equipment	A minimum of 30 measurements	A minimum of 30 measurements	N/A	Obtain biased measurements on horizontal surfaces of fixed equipment
Sink drains	A minimum of 1 measurement per sink drain	A minimum of 1 measurement per sink drain	N/A	Obtain measurements on accessible surfaces of drains.

Location/Room: Exterior of Bldg. 980

	Radiological Survey[2]			
Item/Area Description[1]	# of Alpha/Beta Swipes	# of Direct Alpha/Beta Measurements	Scan Survey[3]	Special Instructions
Item # 1 North facing walls	A minimum of 1 measurement for each 9 m²	A minimum of 1 measurement for each 9 m²	N/A	Obtain measurements on wall surfaces of the north side of the bldg.
Sheet metal seams on north facing walls	A minimum of 1 measurement for each 9m²	A minimum of 1 measurement for each 9 m²	N/A	Obtain biased measurements under the overlap of the sheet metal siding
Item # 2 Non-North facing walls	A minimum of 1 measurement for each 50 m²	A minimum of 1 measurement for each 50 m²	N/A	Obtain measurements on east, south & west wall surfaces & roof of the bldg.

Notes

[1] See attached map of building layout.
[2] Surveys to be performed in accordance with 4-K62-ROI-03.01, "Performance of Surface Contamination Surveys". Other radiological references are 1-P73-HSP-18.10, " Radioactive Material Transfer and Unrestricted Release of Property and Waste", 4-S23-ROI-03.02, "Radiological Requirements for Unrestricted Release", and 4-N83-REP-1108, "Radioactive Material Management Area (RMMA) Determination".
[3] Perform an alpha/beta scan survey of the percentage of the accessible surfaces, including fixed equipment, as listed.

Review and Approval

Prepared By: _____ Date:

APPENDIX B
RADIOLOGICAL SURVEY INSTRUCTIONS BUILDING 968

Building 968 Decommissioning Project
Characterization Radiological Instructions

Location/Room: Inside Bldg. 968

	Radiological Survey[2]			
Item/Area Description[1]	# of Alpha Beta Swipes	# of Direct Alpha Beta Measurements	Scan Survey[3]	Special Instructions
Item # 1 Floor	Approximately 1 measurement for each 9 m² area	Approximately 1 measurement for each 9 m² area	N/A	Record the survey location and the survey results on a Radiological Operations Contamination survey form and attach to this survey instruction.
Item # 2 Misc. Equipment	Approximately 1 measurement on a selected component within each 9m² survey location	Approximately 1 measurement on a selected component within each 9m² survey location	N/A	Record the survey location, name of the component and the survey results on a Radiological Operations Contamination survey form and attach to this survey instruction

Notes

[1] See attached map of building layout.
[2] Surveys to be performed in accordance with 4-K62-ROI-03.01, "Performance of Surface Contamination Surveys". Other radiological references are: 1-P73-HSP-18.10, " Radioactive Material Transfer and Unrestricted Release of Property and Waste", 4-S23-ROI-03.02, "Radiological Requirements for Unrestricted Release", and 4-N83-REP-1108, "Radioactive Material Management Area (RMMA) Determination".
[3] Perform an alpha/beta scan survey of the percentage of the accessible surfaces, including fixed equipment, as listed.

Review and Approval

Prepared By: _____ Date: _____

Reviewed By: _____ Date: _____

APPENDIX C
RADIOLOGICAL SURVEY INSTRUCTIONS BUILDING 965

Building 965 Decommissioning Project
Characterization Survey Radiological Instructions

Location/Room: Inside Bldg. 965

	Radiological Survey[2]			
Item/Area Description[1]	# of Alpha/Beta Swipes	# of Direct Alpha/Beta Measurements	Scan Survey[3]	Special Instructions
Floors/Walls ≤ 2 meters	A minimum of 1 measurement for each 50 m²	A minimum of 1 measurement for each 50 m²	N/A	Obtain measurements on floor & wall surfaces ≤ 2 meters throughout the bldg.
Fixed Equipment	A minimum of 10 measurements	A minimum of 10 measurements	N/A	Obtain biased measurements on horizontal surfaces of fixed equipment

Location/Room: Outside Bldg. 965

	Radiological Survey[2]			
Item/Area Description[1]	# of Alpha/Beta Swipes	# of Direct Alpha/Beta Measurements	Scan Survey[3]	Special Instructions
Walls ≤ 2 meters	A minimum of 1 measurement for each 50 m²	A minimum of 1 measurement for each 50 m²	N/A	Obtain measurements on wall surfaces ≤ 2 meters.

Notes

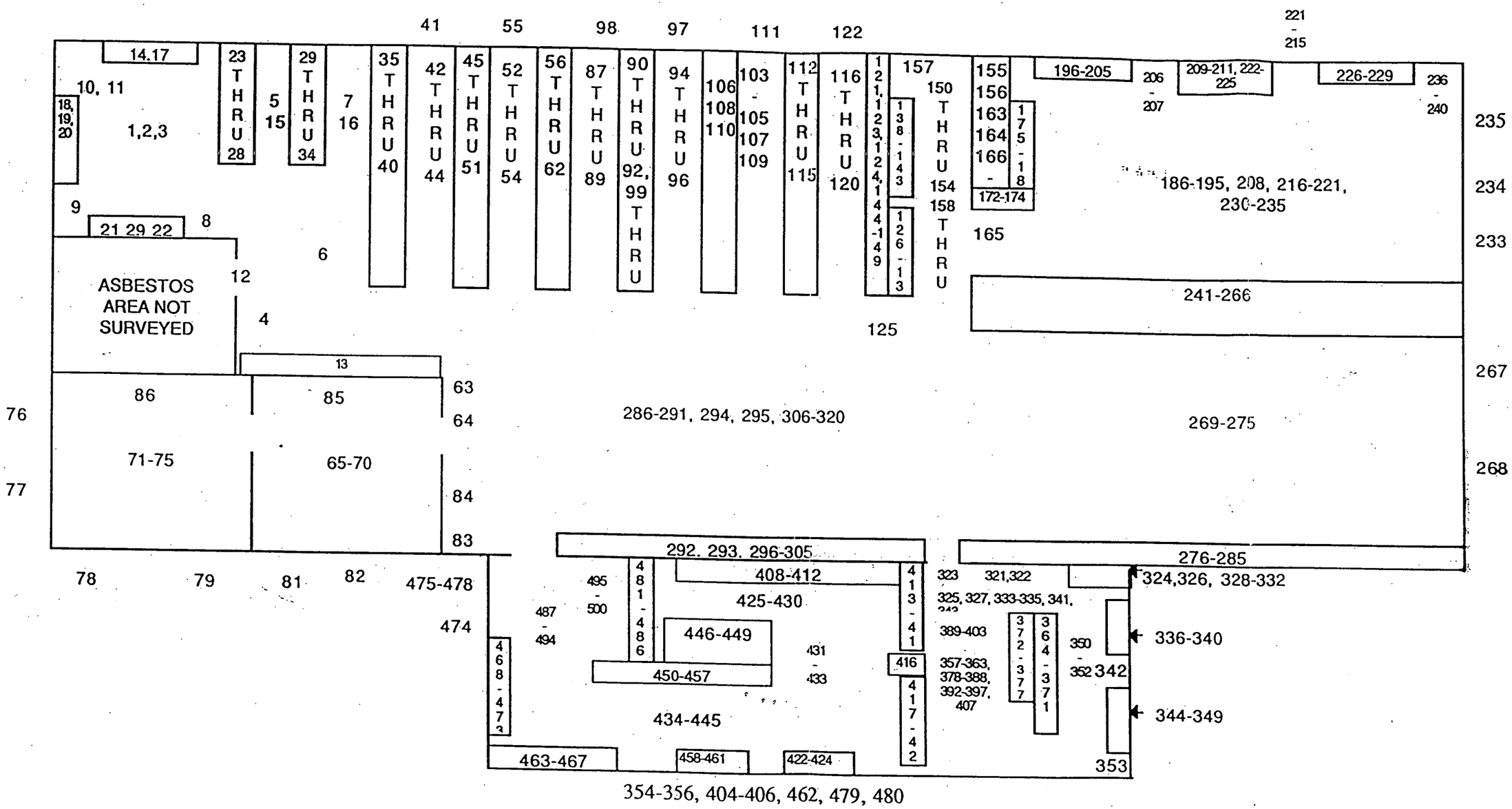
[1] See attached map of building layout.
[2] Surveys to be performed in accordance with 4-K62-ROI-03.01, "Performance of Surface Contamination Surveys". Other radiological references are 1-P73-HSP-18.10, " Radioactive Material Transfer and Unrestricted Release of Property and Waste", 4-S23-ROI-03.02, "Radiological Requirements for Unrestricted Release", and 4-N83-REP-1108, "Radioactive Material Management Area (RMMA) Determination".
[3] Perform an alpha/beta scan survey of the percentage of the accessible surfaces, including fixed equipment, as listed.

Review and Approval

Prepared By: _____ Date: _____

Reviewed By: _____ Date: _____

APPENDIX D
RADIOLOGICAL INSTRUMENTATION

Instrument	Count Type	Allowable Background Counts	Acceptable Application	MDA (dpm/100 cm^2)
Bicron w/ A100 Probe	60 sec. (alpha)	2	Direct Alpha Surveys	55
Bicron w/ B50 Probe	60 sec. (beta)	250	Direct Beta Surveys	610
NE Electra W/ DP6 Probe	60 sec. (alpha) 60 sec. (beta)	2 700	Direct Alpha Surveys Direct Beta Surveys	60 455
Eberline SAC-4	60 sec. (alpha)	1	Removable Alpha Swipes	18
Eberline BC-4	60 sec. (beta)	200	Removable Beta Swipes	205
LB-5100LW	60 sec. (alpha) 60 sec. (beta)	0.5 4	Simultaneous Removable Alpha and Beta Swipes	20 35

Building 968 Interior