

Building 779 Cluster Closure Project

Health And Safety Plan

Developed by:
Rocky Mountain Remediation Services, L.L.C.
Safe Sites of Colorado, L.L.C.

REVISION 0

September 29, 1997



B779-A-00003

**BUILDING 779 CLUSTER DECOMMISSIONING PROJECT
HEALTH AND SAFETY PLAN**

REVISION 0

SEPTEMBER 29, 1997

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TABLE OF CONTENTS

1. GENERAL INFORMATION	6
1.1 SCOPE AND APPLICABILITY	6
1.2 PROJECT DESCRIPTION	6
2. HEALTH & SAFETY STRATEGY	8
2.1 AUTHORIZATION BASIS STRATEGY	8
2 1 1 REDUCTION OF CONTROLS	8
2 1 2 EVALUATION OF NEW ACTIVITIES/HAZARDS	9
2.2 CRITICALITY SAFETY	9
2.3 OVERVIEW OF HAZARDS	10
2.4 WORKER SAFETY	10
2 4 1 ENHANCED WORK PLANNING	11
2.5 INTEGRATED SAFETY MANAGEMENT (ISM)	12
2.6 PRELIMINARY HAZARD ANALYSIS	14
3. ORGANIZATIONAL RESPONSIBILITIES	22
3 1 PROJECT MANAGER	22
3.2 SITE SAFETY OFFICER	22
3.3 RADIOLOGICAL SAFETY ORGANIZATION	22
3 3.1 RADIOLOGICAL SAFETY AUTHORITY	22
3 3 2 RADIOLOGICAL SAFETY TECHNICAL SUPERVISOR	22
3 3 3 RADIOLOGICAL CONTROL TECHNICIANS (RCTS)	22
3 3 4 RADIOLOGICAL ENGINEERING	24
3.4 DECOMMISSIONING MANAGERS	24
3.5 SITE WORKERS	24
3.6 VISITORS	24
4. HAZARD ASSESSMENT	25
4 1 DEVELOPMENT OF AN ACTIVITY HAZARD ASSESSMENT	25
4 2 MONITORING FOR HAZARDOUS CONSTITUENTS	25
4 2 1 CHEMICAL HAZARD MONITORING	25
4 2.2 RADIOLOGICAL HAZARD MONITORING	25
4.3 DETERMINING THE HAZARDS AND CONTROLS	26
5. TRAINING REQUIREMENTS	31
6. PERSONAL PROTECTIVE EQUIPMENT (PPE) PROGRAM	34
7. MEDICAL SURVEILLANCE	34

8. SITE CONTROL MEASURES	35
8.1 SITE COMMUNICATIONS	35
8.2 WORK ZONES	35
8.3 HOUSEKEEPING	35
8.4 SITE SECURITY	35
8.5 SANITATION	35
9. DECONTAMINATION PROCEDURES	37
10. EMERGENCY RESPONSE	37
10.1 PRE-EMERGENCY PLANNING	37
10.2 COMMUNICATION	37
10.3 SAFE DISTANCES AND PLACES OF REFUGE	37
10.4 EVACUATION ROUTES	37
10.5 EMERGENCY MEDICAL TREATMENT AND FIRST AID	38
10.6 PPE AND EMERGENCY EQUIPMENT	38
11. POST CONSTRUCTION ACTIVITIES	39
12. MANAGEMENT ASSESSMENTS	40
13. RECORDKEEPING REQUIREMENTS	42

APPENDIX A —ACTIVITY HAZARD ANALYSIS

FIGURES

2-1	Enhanced Work Planning Process
2-2	Integrated Safety Management Process
3-1	Decommissioning Project Organization
8-1	Building 779 Cluster Layout

TABLES

2-1	PHA Overview Planning Phase
2-2	PHA Overview Abatement Phase - Asbestos/Lead
2-3	PHA Overview Abatement Phase - Be/Radiological
2-4	PHA Overview Dismantlement And Decommissioning Phase
4-1	Hazards and Associated Procedures/Documents
5-1	Project Training Matrix
12-1	Management Assessment Schedule

ACRONYMS

ACM	Asbestos Containing Material
AHA	Activity Hazard Analysis or Job Safety Analysis (JSA)
ALARA	As Low As Reasonably Achievable
Be	Beryllium
CFR	Code Of Federal Regulations
D&D	Decontamination And Decommissioning
DOE	U S Department Of Energy
ESH&Q	Environmental Safety Health And Quality
EWP	Enhanced Work Planning
HASP	Health And Safety Plan
HSP	Health And Safety Practices
IH&S	Industrial Hygiene And Safety
ISM	Integrated Safety Management
IWCP	Integrated Work Control Program
LCO	Limiting Condition of Operation
LO/TO	Lockout/Tagout
LS/DW	Life Safety/Disaster Warning
MAP	Management Assessment Program
OSHA	Occupational Safety And Health Administration
PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
PHA	Preliminary Hazards Analysis
RCM	Radiological Control Manual
RCT	Radiological Control Technician
RFETS	Rocky Flats Environmental Technology Site
RMRS	Rocky Mountain Remediation Services, L. L. C
RWP	Radiological Work Permit
SSOC	Safe Sites of Colorado, L L C

1. GENERAL INFORMATION

1.1 Scope And Applicability

The purpose of this Health And Safety Plan (HASP) is to identify, mitigate, and control/eliminate potential safety and health hazards associated with the Building 779 Closure Project. Procedures and controls will be identified in this HASP that will help prevent and reduce the risk of personnel injury and/or illness and property and/or environmental damage/impacts. This HASP is applicable to all decommissioning work related activities performed on Building 779 and its supporting facilities. Major activities include, but are not limited to

- Sampling, characterization, and removal of chemical, hazardous, and radiological materials and waste
- Glovebox and associated equipment and utilities removal
- Major decontamination activities
- Building and structure dismantlement

All project personnel and subcontractors will utilize the 779 Closure Project Health & Safety Plan, subcontractor safety plans, Contract Section 01700, U S Department of Energy (DOE) Orders 5480 9a (to be replaced by 440 1), the DOE Hoisting and Rigging Manual, the DOE Construction Manual, the DOE Handbook For Occupational Health And Safety During Hazardous Waste Activities, and the Rocky Flats Environmental Technology Site (RFETS) Health And Safety Practices (HSP) Manual as the upper tier documents to govern health and safety of the workers during the decommissioning process. The Building 779 Closure Project Safety Handbook will be used as a reference document. Occupational Safety And Health Act (OSHA) Standards 29 Code of Federal Regulations (CFR) 1910 and 1926 will be utilized in conjunction with other approved company and sub-tier-specific documents to ensure worker protection and safety. From a radiological standpoint, the DOE Radiological Control Manual (RCM), 10 CFR 835 and the RFETS-specific RCM (Site RCM) will be utilized for worker radiological safety.

No task (excluding walkdowns or general work tasks such as LCO, Non-LCO surveillances and other tasks as designated by the Technical Support Manager) will be performed in support of this project until an Activity Hazard Analysis (AHA) (reference Appendix A) has been written and approved that addresses the task or activity. The AHA will identify the principal steps involved and the sequence of work activities, the potential safety and health hazards associated with each step, the specific controls associated with each potential hazard, the task-specific special equipment to be used in performing the activity, and monitoring.

1.2 Project Description

The scope of the project consists of the removal of numerous components, associated equipment, and building structure materials in 12 buildings which contain the following type of materials:

- Lead lined-gloveboxes
- Non lead lined gloveboxes
- All associated utilities
- Piping, valves, panels, and other structural components
- Ventilation ducting and hoods
- Miscellaneous containers, furnaces, tool boxes, and drums
- Any other items or components to allow total decommissioning of the rooms This can include characterization activities, decontamination of equipment and building structures, draining and decontamination of piping, removal of concrete structures, ceiling tiles, framing, filters, room bracing, etc

This project will result in the generation of hazardous, mixed, low-level waste, industrial, and transuranic wastes as described in the project's Waste Management Plan. The project has conducted a Reconnaissance Level Characterization that identified hazardous, chemical, and radiological contaminants in the various rooms and structures. As equipment is being removed from these rooms and structures, additional characterization surveys will be performed as required.

2. Health & Safety Strategy

Safety is the primary concern at the site. As stated in the Lessons Learned from PUREX, "Worker health and safety, always a DOE and contractor concern, has been elevated in recent years to even more important status. Often, worker safety and health aspects of older facility safety documentation will prove to be the area wherein such documentation falls short of modern standards. It is extremely important that worker safety and health considerations, comparable to or exceeding the levels demanded by OSHA, be incorporated into newer revisions or supplements of safety documentation."

The Defense Nuclear Facility Safety Board Technical Report # 15, *Operational Formality for Department of Energy Nuclear Facilities and Activities* describes two key items that must be developed, understood and agreed upon in order to achieve the required formality of operations to perform closure work:

- the analysis of a specific scope of work and resulting controls to form the basis for ensuring safe nuclear operations and
- the adoption of practices or safety program commitments to ensure that the work is performed to generally accepted safety standards

These tailored controls and other safety-related commitments are identified and applied to a defined scope of work. Defense in depth is implemented primarily through a series of barriers that should never be jeopardized before harm can occur to people or the environment.

In addition to the above principles, the authorization basis must facilitate site closure (i.e. the AB is concise enough to allow line managers to safely and efficiently perform work).

Therefore the health and safety strategy consists of the following:

An integrated safety management process will be implemented that is structured around five core principles: (1) define the scope of work, (2) analyze hazards, (3) develop and implement controls, (4) perform work within controls, and (5) provide feedback and continuous improvement. The process will facilitate work by identifying key hazards up front and incorporating risk management into the job planning process.

2.1 Authorization Basis Strategy

The majority of the existing AB documentation at Rocky Flats requires changes and references to supporting programs in order to safely perform facility closure activities. The Category 2 Nuclear Facility to be closed will have the Authorization Basis modified to address the defined scope of closure work qualitatively judged to pose the bounding hazards associated with closure. This will establish a safety envelope with a suite of controls adequate to address known hazards of anticipated closure activities.

2.1.1 Reduction of Controls

The authorization basis controls will contain the tailored set of safety management system elements necessary to protect personnel and the environment. Each major infrastructure program (configuration control, quality assurance, conduct of operations, radiological control, etc.) will be addressed.

The authorization bases will enable this graded approach through three methods

A portion of the Limiting Conditions of Operations (LCOs) will be revised to use applicability statements, or other permissives to allow controls to be eliminated as the hazard is eliminated

In many cases, the safety bases will rely on site programs, which utilize a graded approach so that when the hazard is eliminated, the control is eliminated. For example, as contamination areas are decontaminated, the surveys and controls required by the Radiation Control Program will be eliminated as well

Finally, in some cases, as a hazard is eliminated, a written Justification of Continued Operations (JCO) will be necessary to document why controls are no longer appropriate, and with DOE approval, the controls will be eliminated

At some point in the facility closure, it is expected that the authorization basis will contain only the program controls necessary to protect the worker against normal industrial hazards in a radiological facility. Because of the low amounts of Plutonium necessary to recategorize Category 2 nuclear facilities to Category 3 nuclear facility, or recategorize Category 3 nuclear facilities to radiological facility status, it would be extremely difficult to change status until late in the closure process. However with few or no nuclear facility controls (e.g. LCOs), there would be little efficiency gained through category changes, since the controls would have already been eliminated, and cost savings are minimal

2.1.2 Evaluation of new activities/hazards

Closure activities not specifically addressed by the AB will be evaluated against that envelope using the unreviewed safety question (USQ) process. The AB controls suite will be adjusted as respective hazards are reduced or new ones introduced. The authorization basis safety envelope may require adjustment (via the USQ or the annual AB update process) with RFFO concurrence as configuration of the facility is changed, new activities are planned, or new hazards are identified. The work will be performed under the defined safety controls and programs by trained workers. Reviews and authorization to proceed with activities will ensure recognition of the AB safety envelope

The nature of closure activities requires continuous reviews and feedback to verify proper hazard identification and operational controls. Through these reviews, process improvements are expected. The facility maintains the current approved safety bases for Bldg 779

2.2 Criticality Safety

Building 779 currently has some room-use restrictions which will be alleviated as one of the first steps within the project through the movement/installation of several criticality detectors. Then as criticality risks are reduced, an evaluation will be performed to evaluate the quantity, location, and form of fissile material within the facility, along with the nature of activities to be performed. Based on this evaluation, engineering judgment and calculations will be used to determine the feasibility of a criticality incident. When enough material has been removed to determine that the potential for a criticality is not credible, the system will be taken out of service. Communications with employees will be a crucial component of these changes within the facility

2.3 Overview of Hazards

A number of hazards are already known to exist in the Building 779 facility. The main hazard is radiological contamination. Building 779 was a research and development facility since the mid 1960's. During that period, a number of leaks and spills have occurred. It has always been standard operating practice to decontaminate an area after an upset event, although the level of decontamination is often not known. Measuring these levels today, after layers of paint, and in the presence of elevated background radiation levels would reveal only the hot spots. It will therefore be assumed that an area is contaminated, unless otherwise known and verified.

A number of chemicals have been used in Building 779. Most of these chemicals are documented and have been removed. The remainder of the chemicals in the facility are believed to have been identified and entered in the chemical tracking system.

Beryllium is known to be left from past operations, although in a limited number of gloveboxes. Machine, hydraulic, and lubricating oil and greases exist in various machines, gearboxes, and equipment. PCB is also likely to be encountered in equipment and electrical devices. Due to the age of the facilities, considerable amounts of asbestos are present in the insulation and building materials. Lead is also present in the glovebox shielding, and some of the building materials.

Aside from the radiological and chemical hazards, Building 779 has the normal industrial hazards expected of any chemical processing/lab area.

2.4 Worker Safety

Worker involvement is also a key consideration and significant Lessons Learned from PUREX. "Worker involvement and a graded approach to the levels of safety analysis required for various deactivation tasks are keys to making the safety analysis process useful, efficient, and satisfactory to all concerned. The graded approach is cost effective in that it does not demand a high level of analysis for simple jobs already covered in established procedures. Worker involvement is also cost-effective in that it provides a higher level of assurance that workers are participating willingly and without hesitation in the jobs that are required for facility deactivation."

Safety will be enhanced through the implementation of several key programs:

- Management Leadership and Employee Participation
 - Establishment of safety councils, sharing of lessons learned, Management Safety Walkdowns, Safety Meetings, Employee Recognition
- Workplace Analysis
 - Development of Activity Hazard Analyses, Safety Inspections
- Accident and Record Analysis
 - Accident Investigations, Tracking and Trending of safety data
- Hazard Prevention and Control
 - Evaluation of work areas, Activity Hazard Analyses, implement controls
- Emergency Response
 - Conduct drills/exercises, reinforce proper response to emergencies
- Safety and Health Training

2 4 1 Enhanced Work Planning

Enhanced Work Planning (EWP) is the natural implementing vehicle to involve workers, and to incorporate the five key elements of the Defense Nuclear Facility Safety Board recommendation 95-2. These key elements -- work scope reviewed and prioritized, work scope analyzed for hazards and categorized based on risk, controls established based on hazards, risk, and experience of workers, work performed safely, efficiently, with appropriate degree of supervision, and continuous improvement and lessons learned -- encompass the essence of an effective, efficient, and safety conscience work process. EWP also serves as a tool to implement the Integrated Safety Management (ISM) process. The ISM process explains how safety is integrated into management and work practices at all levels.

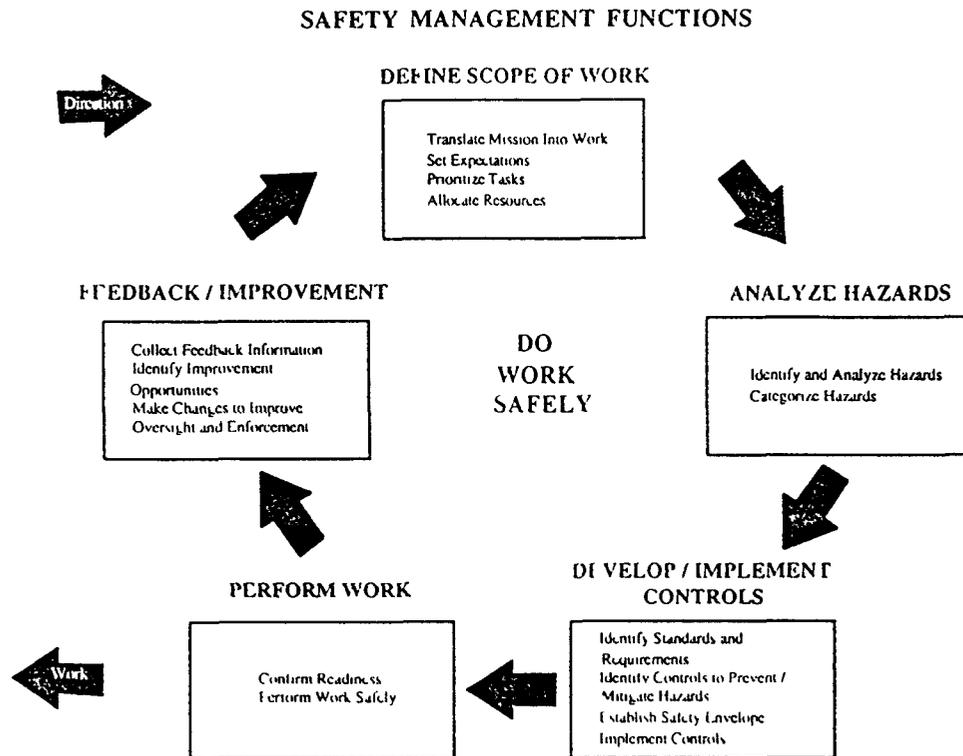


Figure 2-1 Enhanced Work Planning Process

The RFETS Enhanced Work Planning program is designed to provide a safer, more efficient work environment by

- Encouraging worker participation in the initial work planning process to enhance the effectiveness of safety and work efficiency
- Ensuring hazard analysis and controls are appropriate for the job
- Improving worker knowledge of safety requirements
- Fostering teamwork between hourly and salary personnel
- Improving the technical accuracy and work ability of work packages

- Balancing the degree of work instruction, skill-of-craft, and worksite supervision
- Reducing the overall time to plan, review, and approve work packages
- Promoting realistic resource-loaded schedules
- Enhancing job coordination and improving the efficient execution of the work
- Continuous improvement through real-time feedback

Enhanced Work Planning considers the entire work process and continually asks the questions necessary to implement a safer, more efficient work control process. However, in the traditional approach to the work control process, technical specialists, management, and workers are given work packages for review during various phases of the work planning process. When changes are made by one or more of the reviewers, the package must be reviewed again by all parties. This sequential review process is inefficient and tends to create conflict between planners, reviewers, and workers. Enhanced Work Planning is designed to improve the traditional work control process, primarily through extensive communication and feedback from the appropriate mix of personnel responsible for the work.

2.5 Integrated Safety Management (ISM)

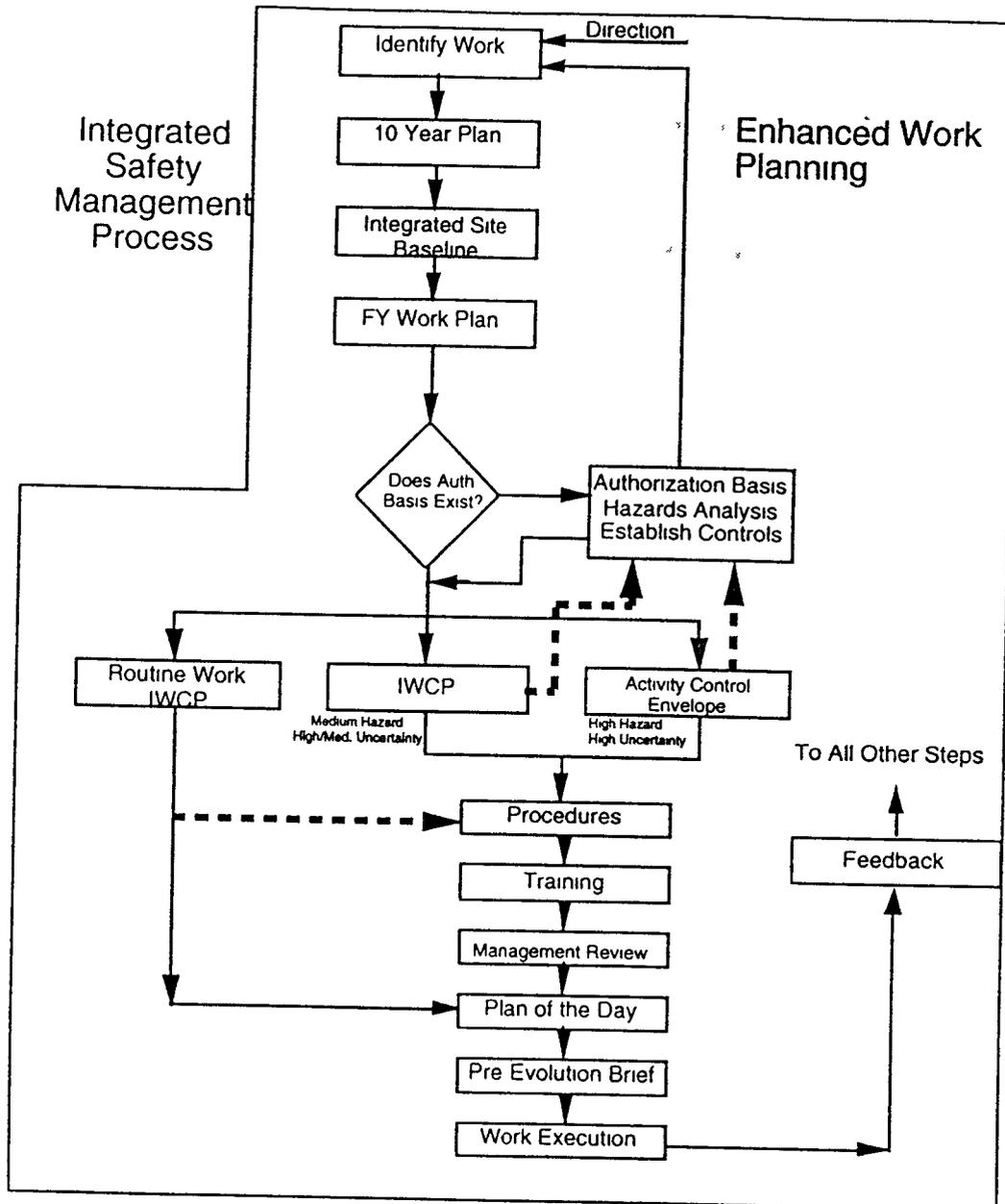
Each of the above subsections combine and work together to form the Integrated Safety Management process which is essential for safe operations at RFETS. This process establishes a single defined safety and environmental management system that integrates standards and requirements into the work planning and execution processes to effectively protect the public, worker, and the environment. K-H and its subcontractors are committed to using a single integrated system to perform all work safely at the site. This integrated system combines a diverse group of people and risk graded infrastructure programs to satisfy the multiple safety environmental and health needs uniformly.

In this process, lower risk activities would be considered Routine Work, with a basic Integrated Work Control Procedure (IWCP), and no Activity Control Envelope (ACE) required for safe completion of the work. On the other end of the spectrum, more complex, high risk work would require the preparation of an ACE as well as some manner of demonstrating readiness for this activity. Routine work would encompass activities such as removal of lighting, elimination of furniture, cleaning of floors for RCRA closure, etc. High Risk work would encompass activities such as glovebox removal, stripout of plenums, etc. Figure 1-2 identifies the flowchart for implementation of the Integrated Safety Management Process.

The engineering package development and IWCP process has been combined to develop work instructions for the 779 Closure Project.

Based on input from the project team, walkdowns, characterization data and applicable building documents, an engineering package will be developed for each work area. The engineering packages will contain detailed work instructions for all the closure activities. The packages include engineered radiation controls, health & safety practices, and waste

Figure 2-2 Integrated Safety Management Process



management requirements, in addition to the decontamination, disassembly, and size reduction instructions. Work instructions will be written such that they can be used directly as the IWCP. Isometric drawings, piping and instrument drawings, and photographs will be used as tools to supplement the work instructions.

2.6 Preliminary Hazard Analysis

During the initial planning stages for the D&D of 779, a Preliminary Hazard Analysis Overview was conducted to evaluate the potential health and safety hazards for the project. This PHA includes an evaluation of the types of hazards associated with each phase of the project. Potential health hazards could include lead, asbestos, radioactive materials, beryllium, acids or other hazardous materials, and/or chemicals. Other potential hazards may include hoisting and rigging, scaffolding usage, lockout/tagout concerns, fall protection issues and confined space entries. Due to the potential hazardous materials and chemical exposure to the workers, characterization of asbestos, lead, beryllium, acids, Polychlorinated Biphenyls (PCBs), uranium, plutonium and radioactive contaminants will be accomplished in accordance with approved Building 779 Reconnaissance Level Characterization survey plans and Site procedures.

Table 2-1 Preliminary Hazard Analysis Overview

Planning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Perform building walkdowns to identify IWCP work steps	Tripping, falling exposure to chemicals hazardous substances and/or radioactive materials. Also, exposure to noise hazards	No planning lack of communicating between work groups improper use of RWPs not following room or building instructions	<ul style="list-style-type: none"> • Develop AHAs • Conduct effective pre-evolution briefings • Follow all building instructions • Ensure all personnel have been properly trained before entry • Adequate RWPs are developed and followed
Move office equipment and furniture to prepare for D&D activities	Back strains pinch points extremity injuries due to falling objects or moving vehicles	Improper lifting of equipment careless handling of equipment improper planning and walkdowns No continuing observations or use of the buddy system	<ul style="list-style-type: none"> • Proper training conducted and documented • Use of the buddy system • Proper use of forklifts and trucks including operating alarm systems and brakes • Planning meetings and briefings completed • Proper use of AHA • Adequate RWPs are developed and followed
Perform hazard analysis characterization activities. This includes asbestos Beryllium chemical lead and radiological sampling	Overexposure to substances accidental inhalation of substances absorption into skin of substances eye and skin irritation exposure to radiologic contamination	Improper or no use of prescribed PPE RWP Lack of proper planning not following sampling procedures correctly improper transport or handling of samples	<ul style="list-style-type: none"> • Follow AHA • Wear prescribed PPE properly • Conduct planning meetings and briefings • Follow RWP • Ensure all required training has been completed

Table 2-2 Preliminary Hazard Analysis Overview

Abatement Phase - Asbestos/Lead

Major Work Task	Hazard	Cause	Preventive Measures
Perform asbestos and lead abatement and clean up activities	Exposure to asbestos airborne and surface contamination fibers that are lung hazards Exposure to lead materials is hazardous to internal organs of the body Exposure to radiological contamination	Improper clean up techniques including Improper tent , decontamination or PPE usage Improper ventilation usage Improper waste handling and disposal Improper or no use of RWPs	<ul style="list-style-type: none"> •Obtain the services of a certified state abatement inspector or Certified Industrial Hygienist to plan and supervise the abatement project •Ensure all workers are trained as asbestos workers •Ensure all RFETS asbestos/lead prerequisites are met prior to job commencing •Develop and implement an AHA(s) for the job •Ensure all medical training and PPE prerequisites are met •Ensure the proper air monitoring sampling is performed during the course of the job by IH&S personnel •Ensure all posting and clearance sampling is performed •Adequate RWP developed and followed

Table 2-3 Preliminary Hazard Analysis Overview

Abatement Phase - Be/Radiological

Major Work Task	Hazard	Cause	Preventative Measures
Perform Be decontamination and clean up activities	Exposure to Be contamination in the air or surface which is a lung hazard Exposure to radiological contamination	Improper use of decontamination equipment can cause extremity or limb damage of workers Improper clean up techniques including Improper tent (if reqd) decontamination or PPE usage Improper ventilation usage Improper waste disposal and handling Improper training in the use of decontamination equipment can injure the user and coworkers Improper or no use of RWPs	<ul style="list-style-type: none"> •Ensure all workers are trained as Be workers •Ensure all RFETS Be prerequisites are met prior to job commencing •Develop and implement a decontamination plan and AHA(s) for the job •Ensure all medical equipment training and PPE req are met •Ensure the proper air monitoring sampling is performed during the course of the job by IH&S personnel •Ensure all posting and clearance sampling is performed •Adequate RWP developed and followed
Perform radiological decontamination operations	Exposure to radioactive materials internally and externally Cell damage and damage to internal body organs can occur with overexposure to radioactive materials Improper use of scrubbing or other decontamination equipment can injure extremity or other limbs of workers by causing gash or cutting wounds	Improper clean up techniques including Improper tent , decontamination or PPE usage Improper ventilation usage Improper waste disposal and handling No or improper training in the proper use of decontamination equipment	<ul style="list-style-type: none"> •Ensure all workers are trained as rad workers •Ensure all RFETS rad prerequisites are met prior to job commencing •Develop and implement AHA(s) for the job •Ensure all medical equipment training and PPE req are met •Ensure the proper air and smear monitoring sampling is performed •Follow the RWP instructions including AIA RA review if required

Table 2-4 Preliminary Hazard Analysis Overview

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Deenergize work areas and remove cables and wiring	Electrical shock to body cutting of extremities or body parts using wire strippers or other hand tools, falling off ladder or scaffolding, if used Exposure to radiological contamination	LO/TO not used properly, all workers not informed of LO/TO status Improper use of hand tools, ladders or scaffolding Improper lighting in room can cause improper use of equipment as well Improper or no use of RWPs	<ul style="list-style-type: none"> •Utilize lockout and tagout procedures properly •Inspect all hand tools before use •Ensure all workers are trained in ladder scaffolding and fall protection measures before using this equipment •Develop and utilize task specific AHAs •Perform work area walkdown and conduct proper planning meetings and briefings •Ensure all worker training is current •Adequate RWP developed and followed
Move equipment out of rooms or area and transport utilizing forklifts pallet jacks or pick up trucks	Back injuries, pinching and extremity damage by dropping or falling objects Internal and external body injuries by vehicle impact Eye injuries by poking or dust particles in eye Noise hazards Exposure to radiological contamination	Improper lifting techniques job flow not planned properly, pre job walkdowns not performed vehicle alarm systems not working buddy system not used lack of attention to detail worker fatigue or no use or improper use of PPE Improper or no use of RWP	<ul style="list-style-type: none"> •Perform pre job walkdowns •Develop AHAs for job •Use buddy system •Ensure vehicle alarm and braking systems are working properly •Utilize PPE properly •Perform proper lifting techniques •Perform pre job warm up exercises before lifting •Do not attempt to move items that are stacked too high •Cover all sharp edges with taping material •Adequate RWP developed and followed

Table 2-4 Preliminary Hazard Analysis Overview (Continued)

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Cut out piping systems in rooms or work areas	Cutting of body limbs or body parts with mechanical equipment Piping falling on feet, pinch points of rolling pipe, liquid splashes if piping is not drained springing of piping into body when cut Exposure to radiological contamination	Improper use of mechanical equipment including no training of equipment being used piping not rigged or restrained properly piping not drained prior to cutting Improper or no use of RWP	<ul style="list-style-type: none"> •Proper training with cutting equipment •Develop and utilize AHA for job tasks •Rig and restrain piping properly •Utilize pipe caps after cutting to keep debris from falling out and cover sharp edges of pipes after cutting •Ensure piping has been properly taken out of service •Utilize proper PPE as described in the AHA and RWP •Adequate RWP/ALARA review developed and followed
Rig piping and equipment out of rooms	Bodily injuries due to falling objects or pinching of workers due to space limitations Exposure to radiological contamination	No rigging plan improper rigging techniques improper worker body positioning Improper or no use of RWPs	<ul style="list-style-type: none"> •Develop rigging plan •Comply with all RFETS standards for rigging • Develop AHA and implement •Perform pre job walkdown and conduct pre evolution •Walkdown rigging path all phases •Perform pre and post job inspections on all rigging equipment •Ensure all workers are properly trained •Adequate RWP developed and followed

Table 2-4 Preliminary Hazard Analysis Overview (Continued)

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Packaging waste into containers for storage and shipment	Pinching of extremities on container lids, barrels rolling on feet, back strains, foot injuries as vehicle wheels impact or roll onto extremities, cuts/gashes of hands by tooling Exposure to radiological contamination	Improper lifting and handling techniques, wrong tooling used to put lids on containers, pallet jack or forklift ramming into workers job rushed or not planned properly Improper or no use of RWPs	<ul style="list-style-type: none"> •Develop AHA and implement •Review lessons learned from previous waste handling operations •Develop proper tool list before starting job •Ensure all waste containers are properly staged before starting job •Ensure all building notifications are made before moving and handling waste •Follow all RFETS requirements for waste handling and movement • Adequate RWP developed and followed
Cut out and remove gloveboxes in rooms or work areas	Pinch points, foot and hand injuries cutting of hands/arms, eye and head injuries burning of skin or extremities Exposure to radiological contamination	Improper use of grinders or no guards on grinders cramped working conditions, bad lighting limited vision breaking of leaded glass plasma slag burns through clothing, improper use of PPE Improper or no use of RWPs	<ul style="list-style-type: none"> •Proper training with cutting equipment •Develop and utilize AHA for job tasks •Rig and restrain gloveboxes properly •Utilize pipe caps on glovebox piping after cutting •Ensure gloveboxes have been properly taken out of service before work starts •Utilize proper PPE as described in the AHA •Perform tooling inspections before each use • Adequate RWP/ALARA review developed and followed

Table 2-4 Preliminary Hazard Analysis Overview (Continued)

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Construct and utilize scaffolding to perform job tasks	Fall hazards workers struck by falling objects hand injuries Exposure to radiological contamination	No use of fall protection improper training, no use of PPE improper use of tooling improper rigging and transport of scuffing pieces, no scaffold inspections scaffold collapse Improper or no use of RWPs	<ul style="list-style-type: none"> •Proper training for scaffold erection and use •Fall protection and rigging training •Proper use of PPE •Develop AHA •Perform documented scaffolding inspections •Ensure all scaffolding is tagged properly •Ensure all toeboards and siderails are in place •Adequate RWP developed and followed
Perform decontamination operations using scabbling machines hydrolazing techniques hand wiping methods or by applying stripcoat decontamination paint	Extremity injuries of hand and feet by gouging, cutting or impact Inhalation ingestion or skin exposure to radioactive materials and ammonia vapors Electrocutation Falls	Improper or no training on equipment used for decontamination improper work area ventilation improper use of PPE no job planning No LO/TO of work area No fall protection	<ul style="list-style-type: none"> •Conduct mock up training on decontamination equipment and stripcoat operations •Develop AHA for job tasks •Ensure work area is properly ventilated before applying stripcoat •Ensure LO/TO operations have been performed •Wear prescribed PPE as determined by IH&S and Rad Protection •Utilize fall protection when required •Follow all AHA and RWP requirements
Perform final cleanup of building/structure	Tripping falls head wounds pinch points punctures contusions skin contamination inhalation absorption of radioactive materials	Housekeeping falling objects non use of PPE improper use of PPE sharp edges or sharp objects not protected no fall protection improper ladder use	<ul style="list-style-type: none"> •Perform weekly housekeeping inspections •Utilize fall protection when applicable •Develop AHA for job task •Utilize PPE properly and as described by IH&S and Rad Protection •Follow all ALARA reviews AHAs and RWP

Table 2-4 Preliminary Hazard Analysis Overview (Continued)
Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Perform final survey of building	Falls, head wounds, electric shock abrasions, cuts, pinches	No fall protection, improper use of instrumentation, working in tight spaces, tripping hazards, bad housekeeping , improper termination of wiring	<ul style="list-style-type: none"> •Develop AHA •Perform pre job walkdowns •Utilize fall protection when required •Complete ladder training as required •Utilize two person rule when working in elevated locations •Procure confined space permits and training when required •Follow all AHA and RWP requirements
Perform demolition activities of building/structure	Body contusions, head injuries, suffocation, fatalities breathing hazards	Wetting of concrete surfaces not utilized barriers not used properly, thorough inspections of work area not performed prior to demolition activities lack of attention to detail	<ul style="list-style-type: none"> •Develop job AHA •Perform pre job walkdowns •Utilize PPE as prescribed by IH&S •Maintain wetting of debris with fire hoses as demolition occurs

3. Organizational Responsibilities

3.1 Project Manager

The project manager is responsible for overall management and compliance with federal, state, and local health and safety requirements and policies, plans and procedures for this project

The project manager must ensure adequate and available resources are maintained to ensure compliance and safety of every worker (reference Figure 3-1 for a detailed review of the project organizational chart)

3.2 Site Safety Officer

The Site Safety Officer or designee is responsible for verifying compliance with all applicable safety and health requirements, and coordinating all required health and safety monitoring and sampling. The Site Safety Officer shall review and approve all AHAs

The Site Safety Officer is also responsible for the development of the HASP, assisting with development of AHAs and providing technical guidance with respect to all applicable health and safety requirements

3.3 Radiological Safety Organization

3.3.1 Radiological Safety Authority

Radiological Safety Authority - is responsible for the overall radiological safety while closure activities are being performed during the Building 779 Closure Project and is responsible for the overall implementation of the RFETS radiological control program

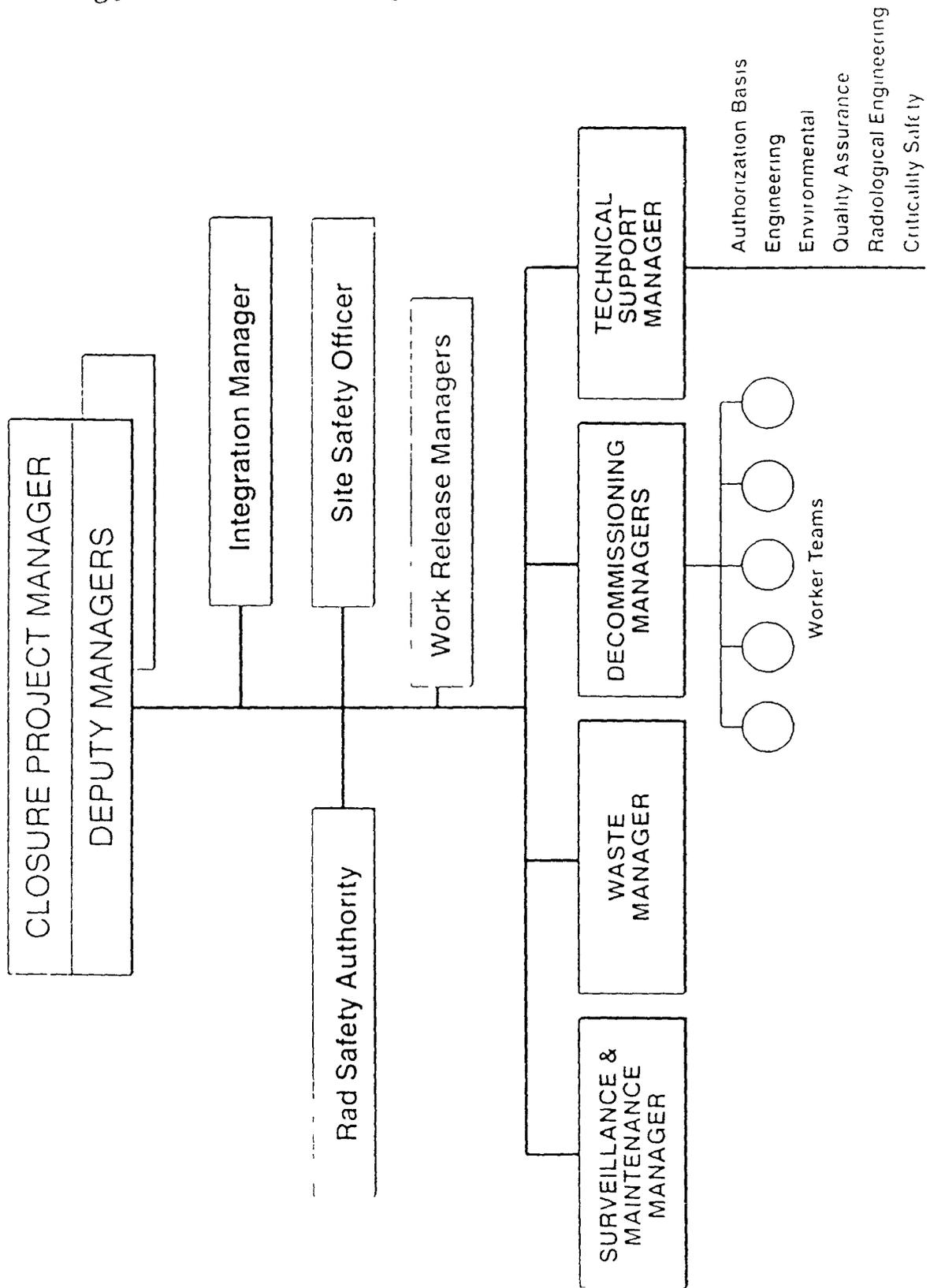
3.3.2 Radiological Safety Technical Supervisor

Radiological Safety Technical Supervisor - ensures compliance with the Radiological Work Permit (RWP) and applicable procedures, and serves as the technical point of contact for the RCTs assigned to closure projects. Reviews Radiological Surveys as required to support the project's schedule

3.3.3 Radiological Control Technicians (RCTs)

Radiological Control Technicians (RCTs) - provide radiological monitoring for personnel exposure hazards. Performs pre-job and other radiological surveys. Ensures compliance to the RWP and ensures appropriate actions are taken in response to radiological emergencies or contamination events

Figure 3-1 Building 779 Closure Organization



3 3 4 Radiological Engineering

Radiological Engineering - defines the engineering, administrative, and work activity controls for identified radiological hazards. Defines personal protective equipment (PPE) requirements for non-routine radiological hazards. Defines requirements for the release of property or materials according to HSP 18 10 and Radiological Operating Instructions 3 02, and Radiological Engineering Procedure 1003

3 4 Decommissioning Managers

Decommissioning Managers - supervise the activities of craft personnel. Conduct pre-evolution job briefings, responsible for AHA development, approvals and briefings, and perform/assist in site-specific HASP training as necessary

3 5 Site Workers

Site workers - comply with the task-specific HASP, AHAs, and applicable RFETS practices, procedures, and policies. Report any accidents, injuries, or near misses immediately to the Team Supervisor. Assist with development of AHAs. Assure all required training is current

3 6 Visitors

Visitors entering the work area during field activities will receive a briefing on the requirements of this HASP. In addition, visitors must have received General Employee Radiological Training or be escorted, wear dosimetry and other PPE, as required by the RWP, HASP, and AHAs. Normally, visitors will not perform hands on work activities. Training for visitors shall be commensurate with the areas being visited and meet the requirements of the site RCM, Article 622 or 657

Visitors who enter any area of the activities where they may be exposed to hazards of the project must be trained on the requirements of this Project HASP. Visitors who enter the work area or sign in under the RWP, who do not meet the minimum training requirements shall not be permitted to perform hands on work and must be escorted by a site worker who meets minimum training requirements

4. Hazard Assessment

4.1 Development of an Activity Hazard Assessment

For tasks which pose exposure to, with, or around potential health and safety hazards, an Activity Hazard Analysis (AHA) will be developed to describe the hazards as well as the actions necessary to eliminate or mitigate those hazards. This AHA will be developed through an Enhanced Work Planning session, which will include the craft involved in the work, the supervisor of that team, the Site Safety Officer if industrial hazards are present, and the Radiological Site Authority, if radiological hazards are present.

The first step in this process will be to identify the hazards which exist. It is important to remember that hazards other than those already known and characterized may exist. For example, a team may find unexpected contamination, either radiological or chemical, while involved in closure activities. Therefore, special care must be taken to ensure that all potential hazards are included in the analysis.

Once the hazards are identified, the guidance documents concerning these hazards must be reviewed. Table 4-1 identifies a number of potential hazards and the guidance documents to facilitate this process. A *Building 779 Closure Project Safety Handbook* will also be issued to all employees, giving basic guidance on industrial safety concerns. It is the strategy in this project to comply with all Federal, State and DOE regulations. RFETS requirements which are above and beyond these Federal, State and DOE requirements will be considered for implementation. If it is determined that a RFETS-imposed control is inappropriate for the task at hand (i.e. incorrect, overly conservative, etc.) a waiver will be requested, and once approved, the project will continue. At the same time the waiver is requested, a Document Modification Request will be issued for the procedure as well, to correct the issue for future projects. Hazards not identified on this list should be reviewed with the Site Safety Officer, or the Radiological Safety Authority, as applicable for the mitigative actions.

From these two steps, the hazards and necessary mitigative actions are determined, and an Activity Hazard Analysis is written and reviewed by the team performing the work. Concurrence is then obtained from the Supervisor, Site Safety Officer, and Radiological Safety Authority, or their designees.

4.2 Monitoring for Hazardous Constituents

4.2.1 Chemical Hazard Monitoring

The need for chemical hazard monitoring will be determined by the Site Safety Officer or designee. All air sampling and monitoring will be performed in accordance with approved National Institute of Occupational Safety and Health or OSHA sampling methods using either direct reading instrumentation or personal air sampling as directed by the IH&S lead or designee. All instrumentation used will be calibrated in accordance with factory recommendations.

4.2.2 Radiological Hazard Monitoring

Air monitoring within the work areas will be performed using portable Continuous Air Monitors (CAMs). The use of portable CAMs allows the project flexibility in monitoring locations resulting in more effective monitoring. Training on the use and response of these monitors will be provided to all project personnel. Personnel monitoring for

radiological hazards will be identified in RWPs and the ALARA job reviews. All radiological monitoring will be performed in accordance with the procedures contained in the RFEIS HSP Manual, RFETS Radiological Control Manual, and the Radiological Operating Instructions (ROI).

4.3 Determining the hazards and controls

For each activity, hazards will be identified. The table below is comprised of the typical hazards which may be identified, and point the reader to the appropriate document which delineates the requirements which mitigate that hazard.

It is important to recognize that there may be additional hazards from those identified below. Work teams will interact closely with the Radiological Safety Authority as well as the Site Safety Officer to ensure that appropriate mitigative actions are in place prior to work progressing.

Table 4-1 Hazards and Associated Procedures/Documents

Title	Procedure#
Construction Safety And Health Requirements	1-C18-IISP-24 01
Administration Of Industrial Hygiene And Safety Design Review	1-E77-HSP-2 10
Aerosol Spray Cans	HSP 11 02
Alara Goals In Reducing Personnel Radiation Doses	HSP 18 18
Alara Job Review	ALARA PROGRAM PLAN
Ambulance Service	HSP 4 12
Application Of Floor Paint And Sealers	HSP/FLP 34 04
Area Monitoring Dosimetry Program	1-R81-HSP-18 23
Assessing Occupational Radiation Exposure Histories	1-P20-HSP-18 14
Batteries	1-P79-HSP-15 01
Beryllium Protection	1-15310-HSP-13 04
Breathing Air	1-F13-HSP-7 05
Building Indoctrination And Reindoctrination	HSP 10 02
Carcinogen Control	HSP 13 03
Chemical Tracking	1-B44-HSP-9 12
Compressed Gas Cylinders	1-62300-HSP-11 01
Confined Space Entry	1-E36-HSP-6 04, 29CFR1926 21, 29CFR1910 146, AND CONFINED SPACE ENTRY PROGRAM
Control Of Field Radiography Using Sealed Radioactive Sources	1-S39-HSP-18 13
Control Of Radiation-Generating Devices	1-I83-HSP-18 05
Control Of Radioactive Sources	1-P21-HSP-18 04
Controlling Introduction Of Combustibles	HSP-FLP-31 04
Cranes	29CFR1926 550
Criteria And Actions For Potential Intakes	1-M96-HSP-18 19
Domestic Water	1-15310-HSP-13 06
Electrical Hazardous (Special Occupancies) Locations	1-62300-HSP-15 10, 29CFR1926 400
Electrical Precautions	HSP/FLP 31 02, 29CFR1926 400
Electrical Safety Practices	HSP 15 00, 29CFR1926 400
Emergency Alarms And Response	1-N02-HSP-18 15
Emergency Medical Response	HSP-4 02, 29CFR1926 23
Emergency Response And Spill Control	1-N08-HSP-21 04

Table 4-1. Hazard and Associated Procedures/Documents (Continued)

Title	Procedure#
Emergency Shower And Eye Wash Requirements	1-B93-HSP-7 04
Ergonomics	1-P44-HSP-13 09
Excavations And Trenching	1-B37-HSP-12 08, 29CFR1926 650
Existing Electrical Utilization Systems Requirements	1-62300-HSP-15 09
Exits (Means Of Egress)	HSP 22 01
Explosives Safety	HSP-19 03
External Radiation Dosimetry	1-E96-HSP-18 07
Eye And Face Protection Program	1-62300-HSP-7 01, 29CFR1926 102
Fall Protection And Equipment	HSP22 05, 29CFR1926 104
Fire Barriers	1-X48-HSP-33 01, 29CFR1926 24, 150
Fire Dampers	HSP/FLP 34 10, 29CFR1926 24, 150
Fire Lane Identification	HSP-FLP 32 05, 29CFR1926 24, 150
Fire Prevention Inspection	HSP-FLP-31 06, 29CFR1926 24, 150
Fire Reporting	HSP 32 04, 29CFR1926 24, 150
Fire Signs And Symbols	HSP/FLP 32 03, 29CFR1926 24, 150
Fire Systems Impairments	1-N20-HSP-34 01, 29CFR1926 24, 150
Fire Watches	1-65000-HSP-34 06, 29CFR1926 24, 150
Flammable Liquid Storage Cabinets	HSP-FLP-32 02, 29CFR1926 24, 150
Floors, Stairways	1-62300-HSP-22 07, 29CFR1926 500
Freight And Passenger Elevators	1-D71-HSP-22 04
Glovebag Practices	1-I81-HSP-18 16
Glovebox Fire Protection	HSP/FLP 34 07
Gloveboxes, Hoods, And B-Boxes	1-M95-HSP-18 11
Hand And Portable Power Tools	HSP-12 10
Handling And Storage Of Flammable And Combustible Liquids For Fire Safety	1-X45-HSP-32 01
Hazard Assessment Inventory	1-15310-HSP-9 13
Hazardous Waste Operations	1-62200-HSP-21 03
Hazards And Deficiencies Abatement Management Process	1-E35-HSP-1 06
Head Protection	HSP 7 07
Hearing Conservation	1-I87-HSP-7 06, 29CFR1926 52, 101
Hoisting And Rigging	1-K71-HSP-12 02, 29CFR1926 251
Hot Work	1-W13-HSP-31 10
Housekeeping And Sanitation	1-62200-HSP-13 08, 29CFR1926 25, 27
Industrial Hygiene	HSP-13 01
Industrial Robots And Robotic Systems	HSP 12 04, 29CFR1926 600
Interior Finish	1-X57-HSP-33 05
Ladders	1-K59-HSP-22 02, 29CFR1926 1050

Table 4-1 Hazard and Associated Procedures/Documents (Continued)

Title	Procedure#
Laser Safety	HSP 16 01
Lead Control Program	1-15310-HSP-13 07
Lighting	29CFR1926 56
Lockout/Tagout	1-15320-HSP-2 08, 29CFR1926 417
Machine Safe Guarding	HSP-12 09
Maintenance Line Distribution Work	1-M26-HSP-15 05
Material Storage Label	HSP-9 01, 29CFR1926 250
Means Of Egress	1-X50-HSP-33 04
Non-Emergency Use Of Fire Hydrants	HSP/FLP 32 08
Occupancy Restriction Order	1-65000-HSP-31 13
Occupational Foot Protection	1-A71-HSP-7 02
Occupational Safety And Health Rights And Responsibilities	HSP 5 05
Operators Card For Special Equipment	HSP 6 08
Storage Of Plutonium For Fire Safety	1-W89-HSP-31 11
Personnel Protective Equip	29CFR1926 28, 100
Physical Examinations	1-66100-HSP-4 09
Physical Hazards, Barricades, And Accident Prevention Signs And Tags	1-62300-HSP-10 01
Plastic House Fire Protection	1-X65-HSP-34 09
Portable Fire Extinguishers	1-PRO-011-HSP-34 02
Portable Fuel-Fired Heaters	HSP/FLP 31 09
Power Transmission And Distribution	1-15320-HSP-15 08
Powered Industrial Trucks	HSP 9 06, 29CFR1926 600
Pressure Vessels, Pressure Systems And Relief Devices	1-62300-HSP-11 03
Protection From Reproductive Hazards	1-A81-HSP-4 13
Radioactive Contamination Control And Decontamination	1-P03-HSP-18 12
Radioactive Material Transfer And Unrestricted Release Of Property And Waste	1-P73-HSP-18 10
Radiological Assistance Plan	HSP-18 17
Radiological Control Policy And Responsibilities	1- N72-HSP-18 00
Radiological Control Training And Qualification	1-Q26-HSP-5 06
Radiological Deficiency Report	1-H02-HSP-3 02
Radiological Decontamination	HSP 18 02, 18 12, 6 07

Table 4-1 Hazard and Associated Procedures/Documents (Continued)

Title	Procedure#
Radiological Requirements For Entering And Exiting Areas Controlled For Radiological Purposes	1-C55-HSP-18 02
Radiological Work Permits	1-N71-HSP-6 07
Red Tag Procedures	HSP 2 06
Respiratory Protection	1-N07-HSP-7 03, 29CFR1926 103
Roofing Operations	HSP/FLO 31 08
Safe Handling Of Asbestos	1-62200-HSP-9 09
Safe Work Apparel	1-A69-HSP-8 01
Safety Meetings And Safety Inspections	1-A68-HSP-2 01
Scaffolds	1-B54-HSP-22 03, 29CFR1926 451
Self-Monitoring	1-M94-HSP-18 09
Signs, Signals, Barricades	29CFR1926 200
Spray Painting Using Toxic, Flammable, And Combustible Materials	1-X58-HSP-34 08
Storage And Disposal Of Nonplutonium Metal Fines	HSP-9 02
Surface Water Monitoring And Control	HSP-20 02
Temporary Outside Above-Ground Fuel Storage	HSP/FLP 32 06
Tools, Hand And Power	29CFR1926 300
Toxic Chemical Control	HSP 13 05
Transfer And Storage Of Pyrophoric Metals Other Than Plutonium For Fire Safety	1-X46-HSP-31 12
Transfer Of Hazardous Liquids	HSP-9 10
Transuranium Registry	HSP-4 04
Use Of Production Equipment For Development Tasks	HSP 2 09
Ventilation To Control Hazardous Materials	HSP-2 14, 29CFR1926 57
Welding, Cutting, And Brazing	HSP 12 11, 29CFR1926 350
Welding Permits	HSP/FLP 31 10
Work Platforms	HSP 22 06

5. Training Requirements

Training is an important component of safety within the 779 Closure Project. In order to determine the appropriate training, a team of people reviewed the entire list of available training at RFEIS, and determined a "base set" of training for each grouping of employees based on their job activities. This "base set" can be either the RFEIS version of the course, or an equal course provided by an outside organization. In order to reduce overall project costs, the implementation of "block training" methods will be utilized if appropriate. All project field personnel shall receive pre-construction safety and health orientation in accordance with 1-C18-HSP-24 01, Section 8.1 and receive the "base set" training (or appropriate requalification) in accordance with the Building 779 Project Training Matrix, Table 5-1. Retraining frequencies will be maintained in accordance with the Training User's Manual.

In addition to this "base set", other courses were identified as potentially required, and were identified to be provided on an "As Needed" basis. To determine if additional training is required, a review will be performed of the training necessary for safe performance prior to each task, during the creation of the AHA. Any training which is in addition to the "base set" training will be identified on the AHA form and must be completed prior to starting the activity.

In addition to "base set" training and job specific training, job site-specific training shall be performed as part of pre-job briefings, AHA briefings, "tool-box" safety training, or regular safety meetings. Briefings shall be conducted whenever this HASP is technically revised and where it impacts field conditions, when new AHAs are developed or when AHAs are revised due to work conditions changing.

As new training requirements are identified at RFEIS, the Technical Support Manager with the training department will review the requirement against the work being performed in this project. If applicable, the training will be added to the Project Training Matrix.

Figure 5-1 Bldg 779 Project Training Matrix

Activity	Closure Project Mgmt	Site Safety Officer	Radiological Safety Authority	Work Release Managers	Surveillance and MIP Page	Waste Management	Decommissioning Manager	Contig Control Authority	Technical Support Manager	Secretary/Clerical Support	Stationary Operating Eng's	Process Specialists/EOs	D&D Workers	Building Trades	RCTs
Initial Review	X	AN	X	X	X	X	AN	X	X	X	X	AN	AN	AN	X
Design Review	X	AN	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Commissioning	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Shutdown	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Final Review	X	X	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Post-Project	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Emergency	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Training	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Documentation	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Quality Assurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Health and Safety	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Environmental	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Regulatory	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Public Affairs	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Security	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Legal	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Insurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Finance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Human Resources	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Information Systems	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Engineering	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Construction	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Shutdown	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Final Review	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Post-Project	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Emergency	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Training	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Documentation	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Quality Assurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Health and Safety	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Environmental	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Regulatory	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Public Affairs	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Security	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Legal	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Insurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Finance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Human Resources	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Information Systems	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Engineering	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Construction	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Shutdown	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Final Review	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Post-Project	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Emergency	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Training	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Documentation	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Quality Assurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Health and Safety	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Environmental	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Regulatory	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Public Affairs	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Security	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Legal	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Insurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Finance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Human Resources	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Information Systems	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Engineering	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Construction	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Shutdown	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Final Review	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Post-Project	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Emergency	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Training	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Documentation	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Quality Assurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Health and Safety	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Environmental	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Regulatory	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Public Affairs	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Security	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Legal	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Insurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Finance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Human Resources	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Information Systems	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Engineering	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Construction	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Shutdown	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Final Review	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Post-Project	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Emergency	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Training	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Documentation	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Quality Assurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Health and Safety	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Environmental	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Regulatory	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Public Affairs	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Security	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Legal	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Insurance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Finance	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Human Resources	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Information Systems	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Engineering	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Construction	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN
Operations	X	AN	X	X	X	X	AN	X	X	X	AN	AN	AN	AN	AN

Figure 5-1 Bldg 779 Project Training Matrix

Course	Closure Project Mgmt	Site Safety Officer	Radiological Safety Authority	Work Release Manager	Surveillance and MRP Mgr	Waste Manager	Decommissioning Manager	Config Control Authority	Technical Support Manager	Secretary/Clerical Support	Stationary/Operating Eng's	Process Specialists/E.O.s	D&D Workers	Building Trades	RCTs
Site Safety	AN	AN					AN					AN	AN	AN	AN
Supervisor Qualification								X							
SOE Qualification					X						X				
PAOP		AN					AN				AN	AN	AN	AN	AN
Tamper Indicating Devices		AN					AN				AN	AN	AN	AN	AN
Welding Safety		AN					AN				AN	AN	AN	AN	AN
WSPAC						X	X				AN	X	X	X	X
Working Surveillance Respirator	AN	AN	AN	AN	AN	AN	X	AN	AN		X	X	X	X	X
Basic Surveillance (Beryllium)		AN					AN				AN	AN	AN	AN	AN
Basic Surveillance (Lead)		AN					AN				AN	AN	AN	AN	AN
Basic Surveillance (Asbestos)		AN					AN				AN	AN	AN	AN	AN
Supervisor	AN	AN	AN	AN	AN	AN	AN	AN	AN		AN	AN	AN	AN	AN
Technician	AN	AN	AN	AN	AN	AN	X	AN	AN		X	X	X	X	X

Additional courses may require additional courses not identified here

Additional courses may require additional courses not identified here

6 Personal Protective Equipment (PPE) Program

PPE for the project will be selected by an IH&S personnel for the specific hazards to be encountered. Workers will be trained in the use, maintenance, and disposal of the PPE assigned to them in accordance with 29 CFR 1910.132 and the RFEIS respiratory protection program.

As job conditions dictate, the Site Safety Officer will evaluate the specific PPE for that particular task(s). This may involve the use of level A (the most protective), level B, level C, or level D (the least protective) PPE. When prescribing PPE, the following factors will be considered:

- Permeability, degradability, penetrability by specific agents expected for the job task(s)
- Heat/cold (thermal effects)
- Durability
- Flexibility
- Ease of decontamination
- Compatibility with other equipment
- Special conditions (fire, explosive, electrical, chemical, radiological, O₂ deficient atmospheres, etc.)

At a minimum, personnel performing D&D activities shall wear the following personal protective equipment:

- Safety Glasses with Side Shields
- Hard Hats (in posted hard hat areas)
- Safety Shoes
- Appropriate work clothes, and
- Additional PPE as prescribed by the RWP and AHA

7. Medical Surveillance

Project personnel who are or may be exposed to hazardous substances or health hazards will receive hazardous waste worker medical surveillance as specified below:

Exposure to	Medical Surveillance Required:
Lead	Baseline blood test for lead and zinc protoporphyrin, in accordance with 29 CFR 1926.62
Beryllium	Evaluated for inclusion in the Be medical surveillance program
Asbestos	Medical monitoring requirements as defined in 29 CFR 1926.1101 and the site-specific Health And Safety Manual, (HSP-9.09)
Haz. Waste Worker	Medical monitoring requirements as defined in 29 CFR 1926.65
Nuclear Worker	Medical monitoring requirements as defined in DOE 5480.8A

8. Site Control Measures

8.1 Site Communications

Project personnel will have access to telephones and/or radios located in the immediate area. Emergency information will be communicated to the Building 779 Cluster by way of the Life Safety/Disaster Warning (LS/DW) system (reference Figure 8-1 to view a map of the Building 779 Cluster layout)

8.2 Work Zones

The project site will be posted as a work area and access to the area will be limited to those personnel working on the project. Additional work zones such as regulated areas for lead, asbestos, Be, and radiological hazards will be established in accordance with the applicable requirements and will be indicated in the AHAs. Building 779 Maintenance and Surveillance personnel will require access due to ongoing activities, however, they will be required to comply with the applicable portions of this HASP and the associated AHAs. Operations and Maintenance personnel shall be briefed on the HASP and sign in on the briefing form.

8.3 Housekeeping

During the decommissioning process of the Building 779 Cluster, housekeeping will be of utmost importance throughout the project. HSP 13.08 and OSHA Standard 1926.25 will be utilized as the minimum standards for housekeeping.

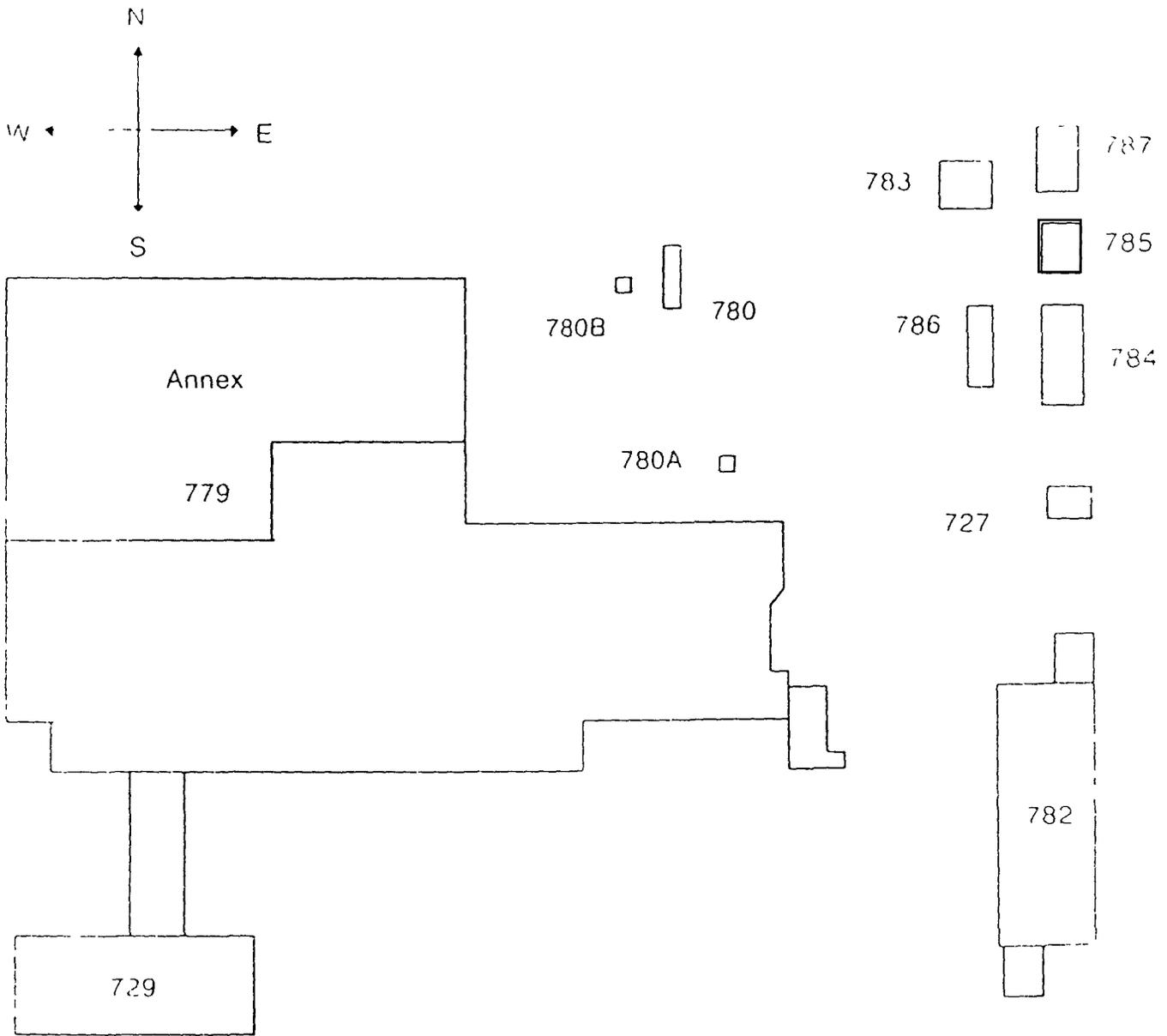
8.4 Site Security

The Building 779 Clusters are in a controlled access area. Entry into the Building 779 Clusters is limited to personnel requiring access, for routine operations, maintenance, and performing activities addressed by this plan. Personnel requiring access must have completed the required training, medical surveillance, and wearing the prescribed PPE, as well as signed-in on the RWP and AHA, as applicable.

8.5 Sanitation

Sanitation facilities, potable water, and change locations will be available and located in close proximity of work areas, and ensure compliance with 29 CFR 1926.51.

Figure 8-1 Building 779 Layout



- 727 Emergency diesel generator facility serving building 779
- 729 Facility containing filter plenums and emergency diesel generator
- 779 Research and Development Center
- 780 Paint/Storage Facility
- 780A Metal Storage Facility
- 780B Gas Bottle Storage Facility
- 782 Filter Plenum Exhaust Enclosure For Building 779 Exhaust
- 783 Building 779 Cooling Tower Pump House
- 784 Building 779 Cooling Tower Support Facility (A) (C) (D)
- 785 Building 779 Cooling Tower Support Facility
- 786 Building 779 Cooling Tower West Chiller
- 787 Building 779 Cooling Tower East Chiller (A) (B) (C) (D)

9. Decontamination Procedures

Specific decontamination procedures, as applicable and depending on the hazard, will be addressed in the site Radcon Manual, the site HSPs, and the project-specific HASP

Hazard	Decontamination Regulation
RADIOLOGICAL	Decontamination for potential radiological contamination will be performed in accordance with the applicable procedures in the HSP Manual and Radiological Operating Instructions Manual and as specified in the RWP
LEAD	Decontamination of lead will be performed in accordance with 29 CFR 1926 62 (g), (h), (i), and project-specific Lead Compliance Plans
ASBESTOS	Removal of ACMs will be performed in accordance with 29 CFR 1926 1101, Environmental Protection Agency 40 CFR 763 and the HSP Manual
BERYLLIUM (Be)	Decontamination for Be will be performed in accordance with the RFETS HSP Manual, (HSP 13 04)

10. Emergency Response

10 1 Pre-Emergency Planning

All field project personnel will be informed of the emergency response procedures contained in this plan and the site-specific Building 779 Emergency Plan, (BEPLAN-14 779) Building 779 management will be aware of project activities by way of the 779 Plan-of-the-Day meeting

10 2 Communication

In the event of an incident requiring emergency response, call extension 2911 by telephone Also, report emergencies to the 779 Configuration Control Administrator and the Project Manager These personnel can be reached via phone, radio and pager communications, using the facility call list

10.3 Safe Distances And Places Of Refuge

In the event of an incident requiring emergency evacuation of the facility, all personnel will evacuate, follow LS/DW instructions and assemble at the designated 779 assembly areas All alarms and response procedures shall be followed in Building 779 and supporting facilities

10 4 Evacuation Routes

Evacuation routes are posted at various locations within the building(s) and project personnel will be informed of the routes during pre-evolution briefings

10.5 Emergency Medical Treatment And First Aid

Emergency medical assistance can be obtained by calling extension 2911 by phone. Site Emergency Response personnel will determine if off-site medical transportation and assistance is required. Individuals requiring non-emergency medical treatment or first aid will be transported to the Occupational Health Clinic, Building 122 for treatment. The Configuration Control Administrator and the Project Manager shall be immediately notified of any such incidents.

10.6 PPE And Emergency Equipment

The project will maintain available the PPE necessary to perform work as outlined in the AHA. In addition, fire extinguishers will be available at the project site. The RFETS Fire Department and HazMat Team maintains a supply of additional emergency equipment.

11. Post Construction Activities

- A The Project Manager shall prepare a final report detailing the safety and health performance during the construction activity or project. The final report shall be in the form of self-assessment and will evaluate the safety and health performance of all subcontractors, lower-tier subcontractors, and vendors.
- B The final report shall include the following
 - 1 Copy of the Daily Log maintained by the Site Safety Officer
 - 2 Copies of all accident and incident investigation reports
 - 3 Total number of first-aid cases incurred
 - 4 Total number of Radiological Deficiency Reports
 - 5 Copies of the OSHA 200 Logs for the project and all subcontractor personnel
 - 6 Final totals of employee hours worked for the project and all subcontractor personnel
 - 7 Copies of all OSHA, DOE, and Rocky Flats safety and health training records, safety meeting reports, and attendance roster associated with the performance of the construction project or activity

12. Management Assessments

It is important to perform periodic assessments on the activities being conducted to determine adherence to applicable requirements and implementation of best management practices. The Management Assessment Program (MAP) is the tool to be used to perform such assessments for this project. The MAP identifies and documents findings, observations, and noteworthy practices, initiates required corrective actions, and reports the effectiveness, adequacy, efficiency, and economy of programs, activities, and processes to the appropriate level of management.

Assessments shall be based on a graded approach commensurate with

- The relative importance or risk to safety, safeguards, security, and the environment,
- The magnitude of any hazard involved
- The life cycle stage of the facility
- The programmatic mission of the facility
- The particular characteristics of the facility, and
- Any other relevant factor

The performance of MAP assessments is not restricted to those personnel who have an organizational title of manager or supervisor but may include others, such as leads, subject matter experts, etc.

The assessments scheduled to be performed during this project are listed Table 12-1. The master list will be held by the Technical Support Manager. This list may be modified by the Project Manager as appropriate to support the overall goals and objectives of the project.

FIGURE 12-1 MANAGEMENT ASSESSMENT SCHEDULE

	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98	Jan-99	Feb-99	Mar-99	Apr-99	May-99	Jun-99	Jul-99	Aug-99	Sep-99	Oct-99
Decontamination & Decommissioning	X	X	X						X												X				
Training & Qualifications						X													X						
Occupational Safety and Health (Includes Life Safety Code)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Radiation Protection					X			X			X			X			X			X			X		
Waste Management				X						X						X						X			
Emergency Preparedness							X												X						
Nuclear Safety				X						X						X						X			
Criticality Safety					X																		X		
Conduct of Operations		X											X												

13. Recordkeeping Requirements

- A Occurrences shall be reported via the current RFETS Occurrence Reporting procedure. Lessons learned from previous occurrences, both at RFETS, as well as from other sites, shall be shared with the project team during safety meetings.
- B Any individual experiencing an injury or illness shall report to the Occupational Health department for evaluation.
- C All accident and incident investigation reports shall be completed as required by the Health & Safety Practices Manual.

Note: RFETS requires that all occupational injuries or illnesses, motor vehicle accidents resulting in more than \$500.00 damage, personal injury, property damage incidents, or fires resulting in \$1,000.00 or more in damage be investigated and reported.

- D A properly completed Individual Accident/Incident Report shall be submitted to Project Manager within 24 hours of the accident or incident.
- E The following information shall be provided to the Project Manager by the third working day of each month or at the completion of the construction activity, whichever comes first:
 - 1 Requested information pertinent to first-aid cases
 - 2 Employee hours worked
 - 3 OSHA incidence rates for the project in progress or completed
- E The same statistical information shall be submitted for any construction subcontractor, lower-tier subcontractor, and vendor who has performed work on the project.
- F Any subcontractor performing construction at RFETS shall maintain and make available for review an up-to-date OSHA 200 Log pertinent to construction activities at RFETS.
- G The following records shall be maintained for subcontractors, lower-tier subcontractors, and vendors during the performance of the project:
 - 1 First-aid cases
 - 2 Employee hours worked
 - 3 OSHA 200 Logs
 - 4 OSHA incident rates

