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SITE-SPECIFIC
HEALTH AND SAFETY PLAN ADDENDUM
Building 807 Characterization and Removal Project
Sandia National Laboratories/New Mexico

December 2007
Revision 2

Prepared for:
Sandia National Laboratories/New Mexico
Department 04824
Albuquerque, New Mexico 87185-0908

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The following Site-Specific Health and Safety Plan (HASP) has been designed for the methods presently contemplated by Shaw Environmental, Inc. (Shaw) for execution of the proposed work. Therefore, the HASP may not be appropriate if the work is not performed by or using the methods presently contemplated by Shaw. In addition, as the work is performed, conditions different from those anticipated may be encountered and the HASP may have to be modified. Therefore, Shaw only makes representations or warranties as to the adequacy of the HASP for currently anticipated activities and conditions.

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Sandia National Laboratories/New Mexico

Accepted by:

Nick Durand — 12/13/07
Project Manager — Date
Department 04824

Alison Winstead — 12/13/07
SNL/NM Radiation Protection — Date
Department 041281

Fred Shelly — 12-14-07
SNL/NM Industrial Hygiene/Toxicology — Date
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Craig Hauber — 12/14/07
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Approved by:

Warren Houseman CIH — Date
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Shaw Environmental, Inc.

Earl Morse — 12/13/07
Project Manager — Date
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Shaw Environmental, Inc.

Date

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
FWV	Field Work Variance
GFCI	ground fault circuit interrupter
HASP	Health and Safety Plan
HE	High Explosives
HEPA	high-efficiency particulate air
HPT	Health Physics Technician
IC	Incident Command
ISMS	Integrated Safety Management System
JSA	job safety analysis
KAFB	Kirtland Air Force Base
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
POP	Project Operating Procedure
PPE	personal protective equipment
PVC	polyvinyl chloride
RCRA	Resource Recovery and Conservation Act
RCS	Radiological Controls Supervisor
RCT	Radiological Control Technician
RP	Radiation Protection
RPPM	Radiation Protection Program Manual
RW-II	Radiological Worker II
RWP	radiological work permit
Shaw	Shaw Environmental, Inc.
SNL/NM	Sandia National Laboratories/New Mexico
TA	Technical Area
TGSM	tailgate safety meeting

1.0 Introduction

This health and safety plan (HASP) is a site-specific addendum to the *Shaw Environmental Inc. [Shaw] Program Health and Safety Plan, Decontamination and Demolition Project, Sandia National Laboratories/New Mexico [SNL/NM]* (SNL/NM, 2006a or Current Revision). The HASP contains general information on the hazards and controls typically associated with building assessment and decontamination activities. The SNL/NM Integrated Safety Management System (ISMS) will be incorporated into this job task; ISMS includes definition of the scope of work; analysis and categorization of hazards; development and implementation of controls; performance of the work or task; and feedback and improvement. This addendum incorporates both federal Occupational Safety and Health Administration (OSHA) and State of New Mexico OSHA standards.

Job hazard safety evaluations for the planned tasks have been developed with SNL/NM, and this site-specific HASP addendum addresses the known and potential hazards associated with the Building 807 Characterization and Removal Project work scope. In the event that previously unknown contamination or hazards are identified, work activities in that location will be halted, pending submission and approval of a Field Work Variance (FWV) addressing the new condition. The FWVs are subject to the same level of review and approval as this plan.

All project personnel will review this HASP and adhere to its requirements, the applicable provisions of the Program HASP, and the most current version of the SNL/NM *Standard Specification Section 01065 Environment, Safety, and Health for Construction and Service Contracts* (SP 01065) (SNL/NM, 2005a or Current Revision). Site personnel will be briefed on the current revision of SP 01065 and advised that the most current version is available on the Shaw portal site (extranet.shawgrp.com/sites/sandiaDND/default.aspx). The Shaw Site Supervisor will have access to the portal and will be responsible for advising site personnel of new revisions to SP 01065. Visitors will be briefed on the HASP, its governing documents, and current project conditions at the time of their visit. All personnel will acknowledge that they are familiar with the hazards to which they may be exposed and the appropriate control measures.

This HASP addendum provides specific guidance for the safe execution of this work by Shaw in accordance with the Building 807 Characterization and Removal Work Plan (Work Plan) (SNL/NM, November 2006) and the applicable Shaw Project Operating Procedures (POP).

1.1 History

Building 807 at SNL/NM is currently adjacent to Technical Area (TA)-I, in the north-central portion of SNL/NM, on Kirtland Air Force Base (KAFB), New Mexico (Figure 1-1).

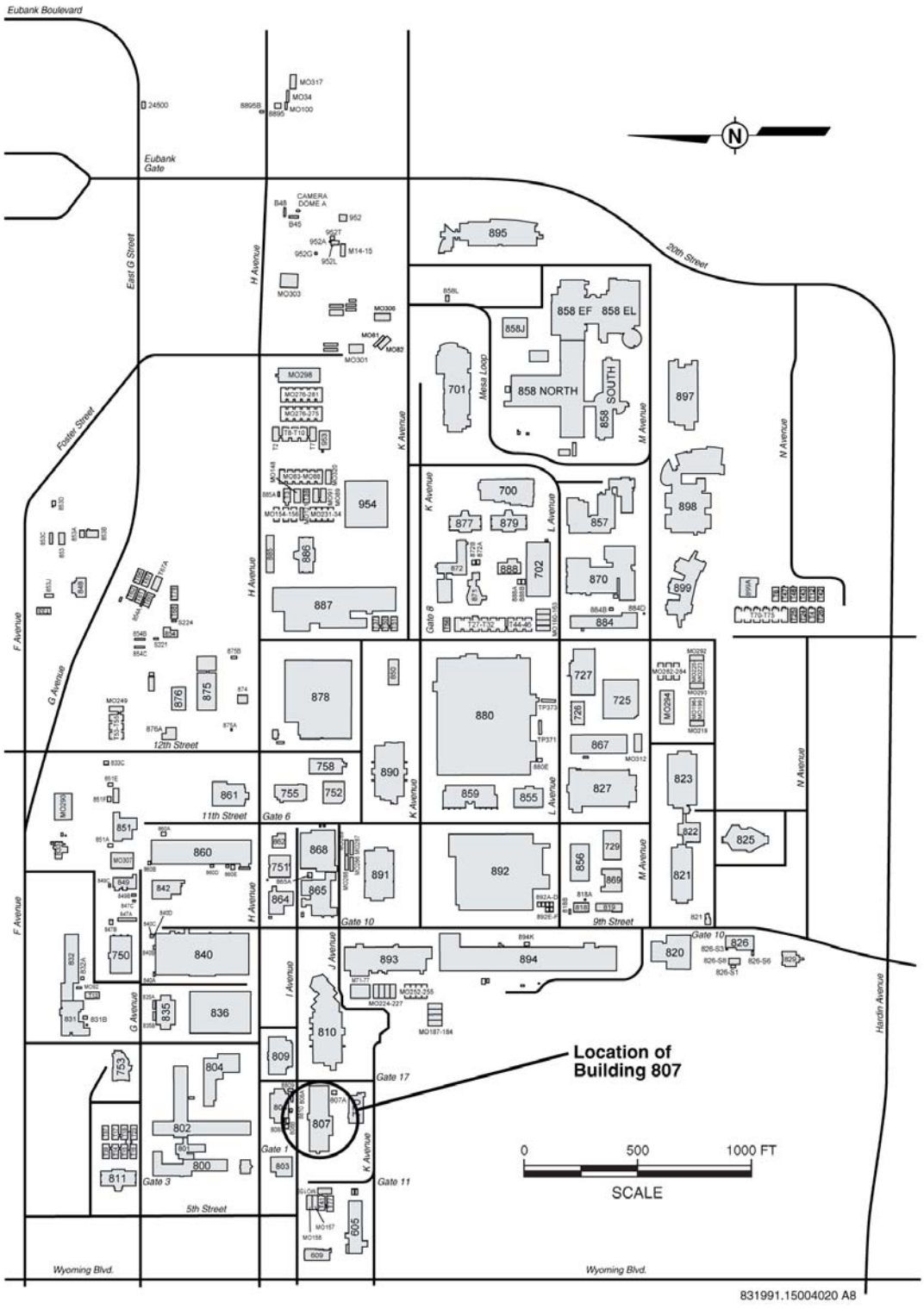

Figure 1-1
Location of Building 807
Sandia National Laboratories/New Mexico

Since the building was completed and occupied in 1966, it has served as a laboratory and administrative building for personnel supporting various programs at SNL/NM. The building housed a variety of light electronics, energetic materials, and radiological research laboratories. In 2000, a portion of the first floor was vacated and converted to unoccupied storage as a result of suspected "sick-building syndrome."

Constructed of masonry with a flat, poured concrete roof, Building 807 has a basement (Figure 1-2) and three main floors (Figures 1-3, 1-4, and 1-5). Access to the roof (Figure 1-6) is provided via the south interior stairway or the elevator. Access to the basement and the main floors is provided via the elevator and interior and exterior stairways. With few exceptions, rooms located outside of the hallways were, and are, used as administrative and office space, and interior rooms inside of the hallways were, or are, laboratories. Some of the former laboratory facilities have been remodeled and converted to different uses (typically administrative) over the life of the building.

System drains and local area ventilation are located in central utility chases on the longitudinal centerline of each of the main floors and in overhead mechanical spaces in the basement and on each floor. Drains are collected in horizontal headers that discharge to vertical headers in the central utility chases. The utility chases are located near the centerline of the building and are accessed from the north-south hallways at the center and each end of each floor. All laboratory drains discharge to a main header located in the overhead mechanical space of the basement that exits the east end of the building to the south and turns east to connect to the sanitary sewer system. Roof drainage occurs via a separate system that discharges to the street north and south of Building 807.

1.2 Potentially Impacted Locations

Seven rooms on the third floor, one room on the second floor, one room and the drains in the men's rest room on the first floor, and two locations in the basement are known to have the potential to be contaminated with radioactive materials, mercury, or polychlorinated biphenyls (PCB). Radioactive materials were used in Rooms 3049, 3111, and 3113 on the third floor and the neutron tube test cell in the basement. Mercury contamination is documented in Room 3003 and is suspected in Rooms 3013 and 3019. These rooms were used for energetic materials research and may also have contained small quantities of depleted uranium. Parts containing nickel-63 were previously stored in Room 3125 and are currently stored in Rooms 3067 and 3071. No destructive activities such as cutting, grinding, or polishing are performed on these parts. An occurrence report documents a mercury spill in Room 2098. Room 1011 was posted as a radiologically controlled area due to the presence and use of a radiation-generating

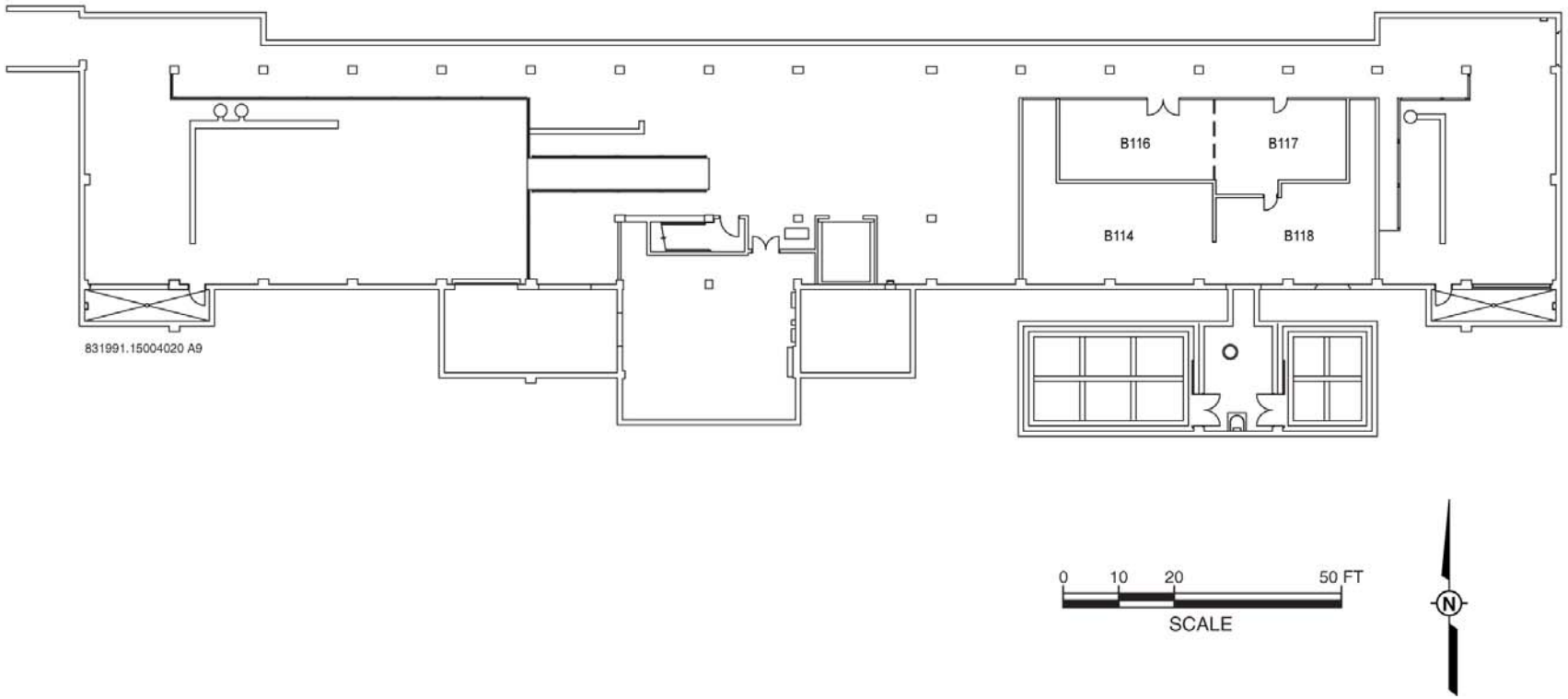

Figure 1-2
Building 807 Basement Layout
Sandia National Laboratories/New Mexico

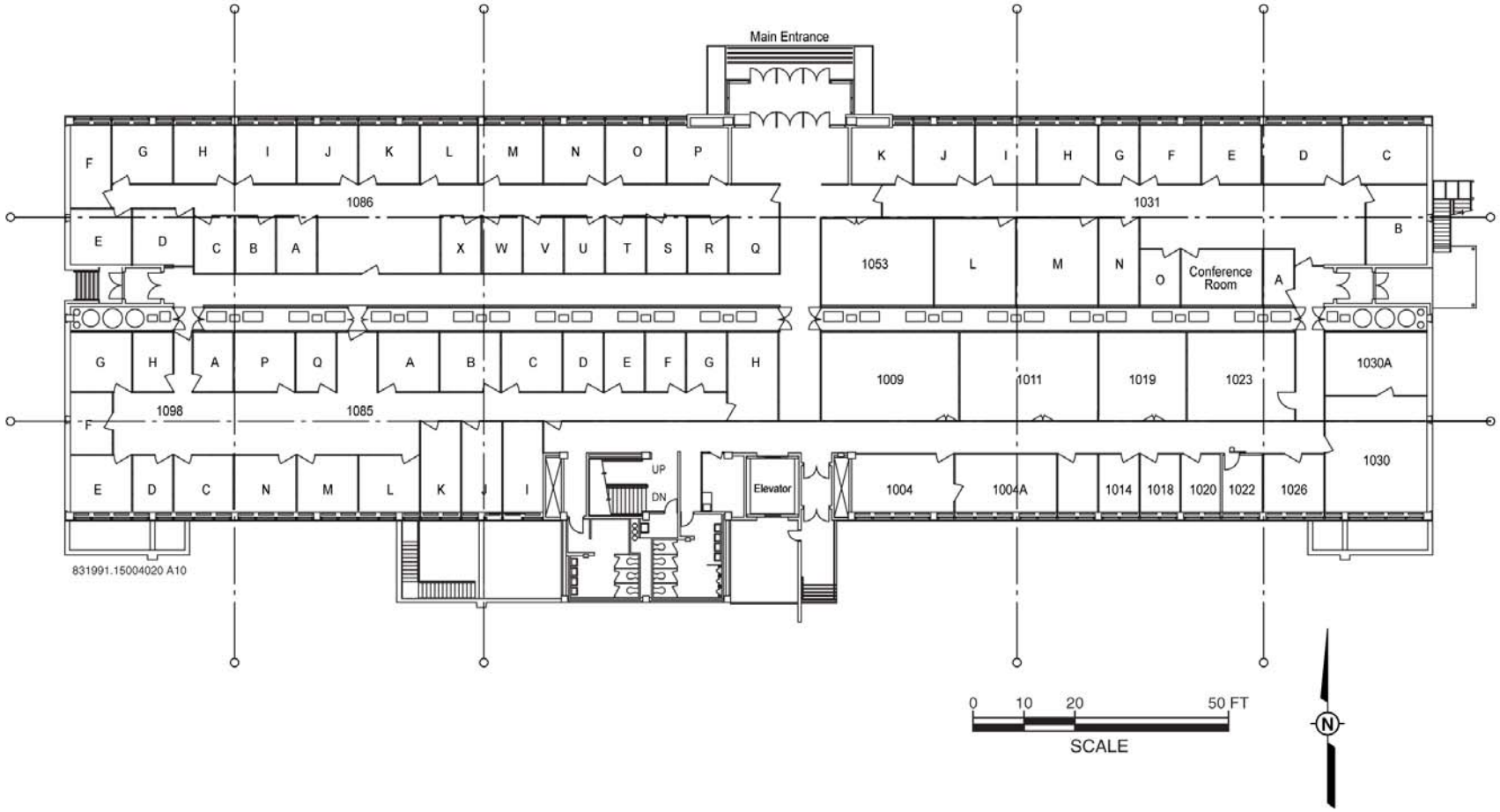

Figure 1-3
Building 807 First Floor Layout
Sandia National Laboratories/New Mexico

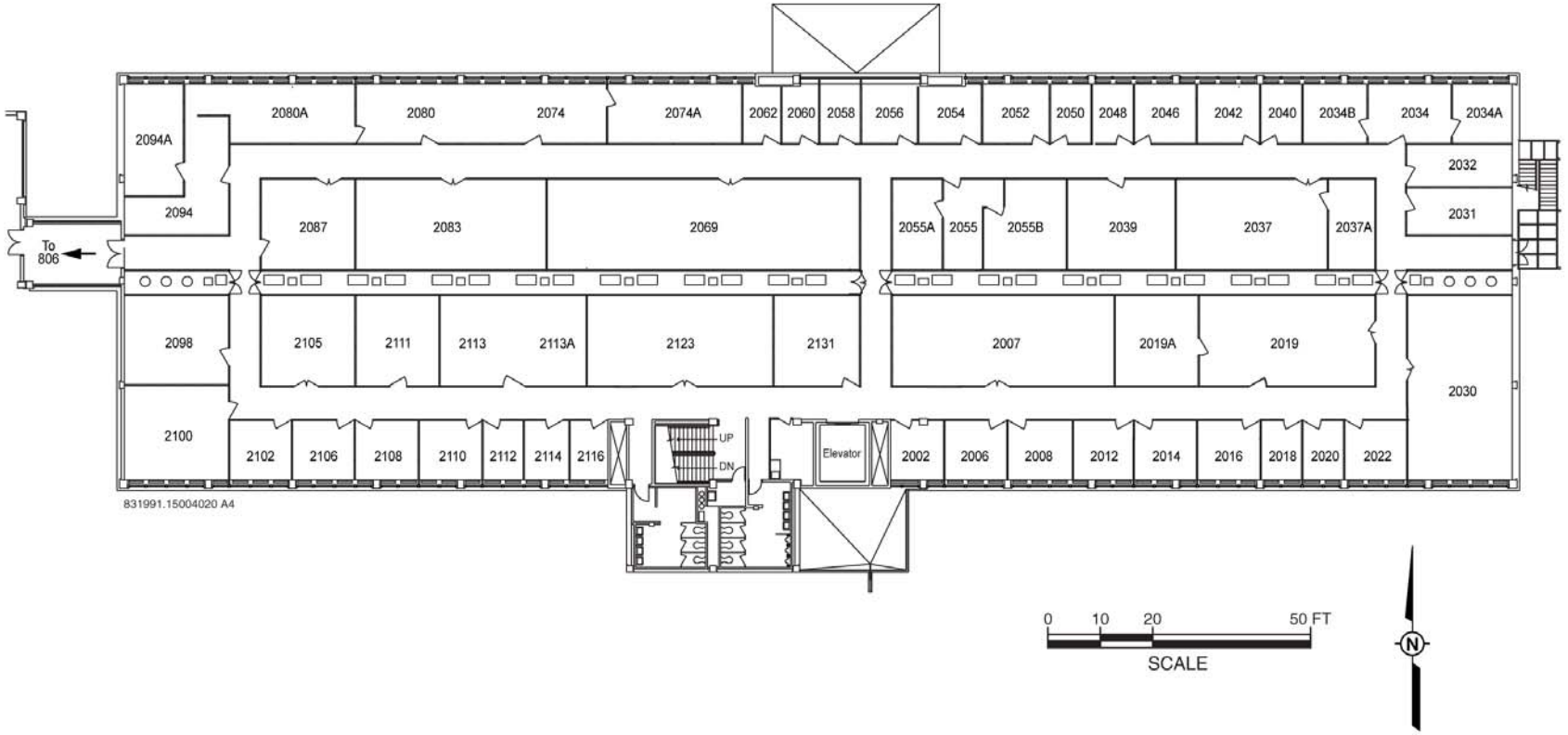

Figure 1-4
Building 807 Second Floor Layout
Sandia National Laboratories/New Mexico

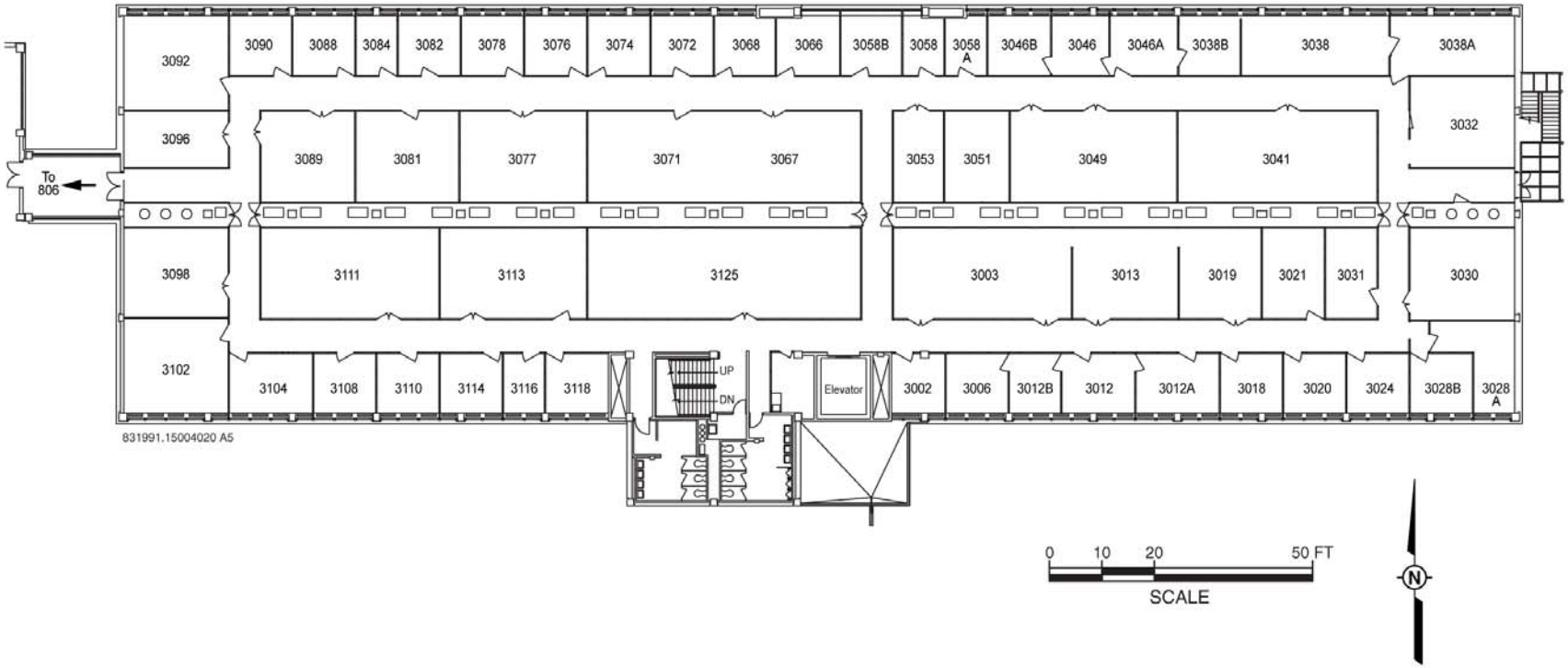

Figure 1-5
Building 807 Third Floor Layout
Sandia National Laboratories/New Mexico

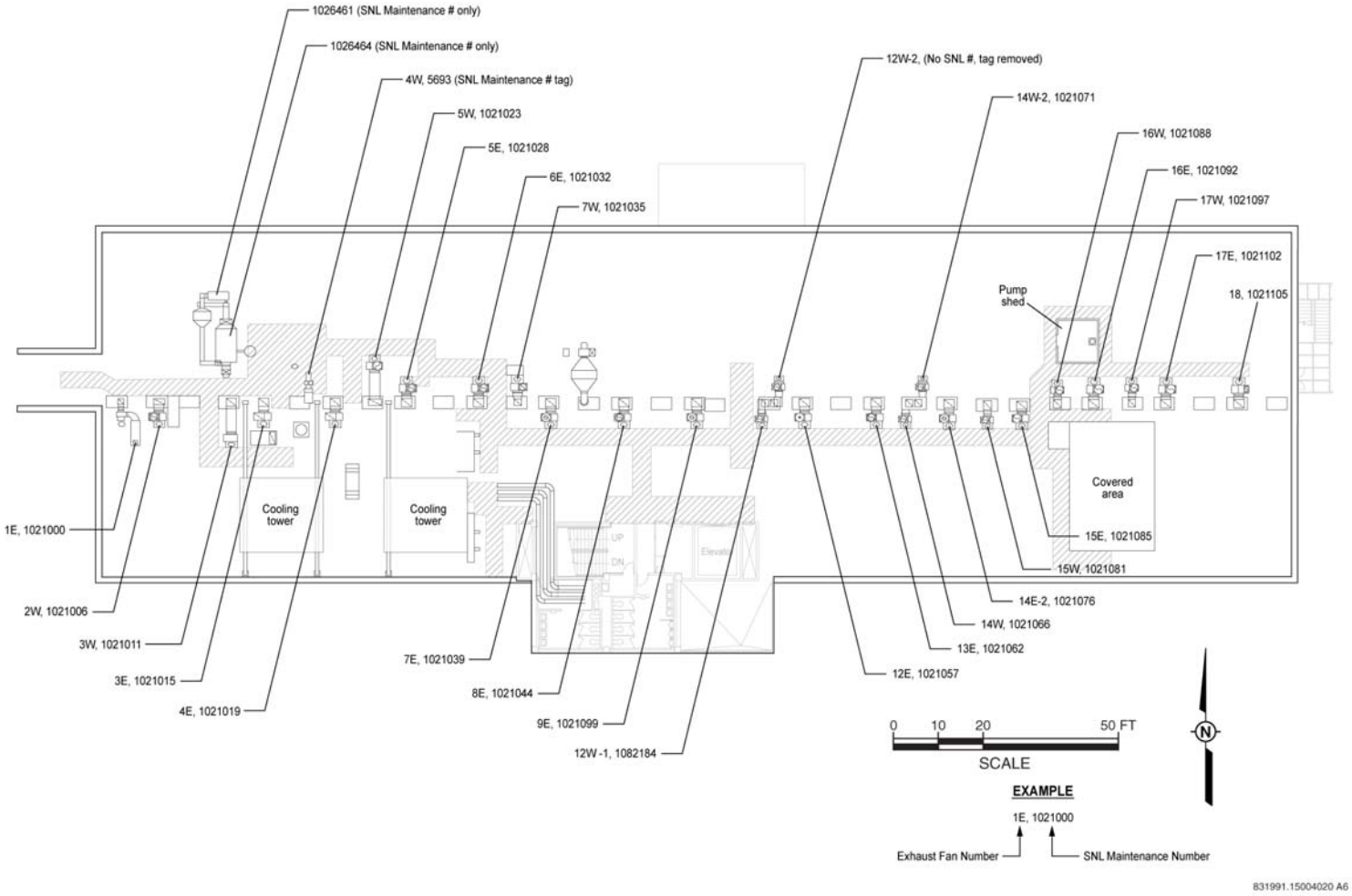

Figure 1-6
Building 807 Roof Layout
Sandia National Laboratories/New Mexico

Device until it was relocated out of the building in March of 1994; however, there is low probability for impact on the building structure. A documented PCB spill on the concrete floor of approximately 2 square meters is located in the basement equipment room and covered with red floor tile. Eight rooms have the potential to be impacted by explosive residue. The locations are Rooms 3003, 3013, 3019, 3030, 3041, 3049, 3051, and 3053. Prior to initiating work in these locations a separate Job Safety Analysis (JSA) will be reviewed by the entire crew specifically to address explosive hazards.

A neutron tube test cell has operated in two basement rooms (B114 and B118) since building commissioning. The operations conducted have a very low probability of radiological impact on the building structure, and all equipment and systems for this operation will be relocated by the owners.

A drain in the third floor, west-end, utility corridor is labeled, "potentially contains internal radioactive contamination," and an occurrence report documents a personnel contamination event in the basement caused by a laboratory drain line leak. The entire laboratory drain lateral in the basement overhead is labeled, "Caution Internal Radioactive Contamination." Radioactive materials, mercury, and other Resource Conservation and Recovery Act (RCRA) metals are suspected in laboratory drain systems throughout the building. Characterization and removal methods are presented in Chapter 2.0 of the Work Plan.

1.3 Current Conditions

Building 807 is now unoccupied. The electrical power, heating and cooling, plumbing, domestic water, fire suppression, and communications systems are all currently operational. Building 807 has recently been taken out of TA-I so security escort requirements are no longer necessary. Normal access will now be through the south or west doors of the building (Figure 1-3).

2.0 Scope of Work

Characterization to determine the nature and extent of contamination, removal of identified contamination, and release of Building 807 for asbestos abatement and demolition are the objectives of this scope of work. In order to make the building available for demolition within the required time frame, characterization, removal, release, and abatement activities will be performed concurrently. Another SNL/NM contractor under its site-specific HASP will perform asbestos abatement. Additionally, soft demolition activities performed by other SNL/NM contractors will occur concurrently with this scope of work. The Shaw Site Supervisor will coordinate the Shaw activities with the operations of the other contractors.

2.1 Work Areas

Work activities will occur in the basement (Figure 1-2), on each of the three main floors (Figures 1-3, 1-4, and 1-5), and on the roof (Figure 1-6). Characterization and release activities will be controlled on a room-by-room basis, i.e., each room will be controlled as a distinct work area. Removal activities that are completely contained within a room will be controlled in the same manner. Removal activities that encompass multiple rooms or floors will be controlled at the specific point of activity with temporary boundaries and postings. Temporary boundaries will remain in place until work is completed, conditions are verified, and the SNL/NM Radiological Control Technician (RCT), the Shaw Radiological Controls Supervisor (RCS), Site Safety Officer, and Site Supervisor authorize removal.

2.2 Task Descriptions

Five major tasks consisting of characterization, removal, Room 3111 Decontamination, final status surveys, and soft demolition support, with three having one or more subtasks, are required to complete the scope of work. Table 2-1 lists the planned tasks, subtasks, the primary and contingency levels of protection, and anticipated start dates. In addition to these levels of protection, other measures may be required as specified by a Technical Work Document and radiological work permit (RWP) as discussed in Chapter 6.0 (Hazard Control Measures). Detailed task-specific control measures for the subtasks are also provided in Chapter 6.0.

Tasks include the use of hand tools, portable power tools, and work on elevated surfaces including ladders, scaffolding, and scissors lifts. Many of these tasks will be performed in personal protective equipment (PPE). Precautions to mitigate any hazards associated with the performance of these tasks are detailed in the chapters that follow.

Table 2-1
Task Descriptions
Building 807 Characterization and Removal Project

Task No.	Description	Level of Protection		Scheduled Start
		Primary	Contingency	
1	Characterization			November 2006
A	Radiological surveying with hand-held and automated instruments, collecting smear samples	D[a]	D modified	November 2006
B	Sampling of p-traps, drain inlets, and equipment sump	D modified[a]	C	November 2006
C	Performing characterization of fume hoods; including dismantling, sampling, and surveying	D modified[a]	C	November 2006
D	Surveying utility chases, ventilation, drains, and areas above suspended ceilings	D[a]	D modified	November 2006
E	Surveying and sampling roof and exhaust outlets and other penetrations	D[a]	D modified	November 2006
F	Field sampling of drain lines and P-traps for HE residue	D	D modified	November 2006
2	Removals			November 2006
A	Removing contaminated drain lines in pipe chases, areas above suspended ceilings, and in the basement	D modified[a]	C	November 2006
A 1	Drain line excavation and removal on building exterior to the point where drain line enters sanitary sewer	D modified[a]	C	November 2006
B	Conducting limited asbestos abatement (<100 ft^2) to support characterization or removal actions	C[a]	B	November 2006
C	Removing incidental contamination as approved by SNL/NM using a biodegradable cleaner and wiping methods	D modified[a]	C	November 2006
3	Room 3111 Decontamination			November 2006
A	Removal of furnishings	D modified[a]	C	November 2006
B	Removal of radiologically impacted asbestos floor tiles	C	B	November 2006
C	Removal of drain lines	D modified	C	November 2006
C 1	Drain line decontamination using sewer hone and HEPA vacuum	D modified[a]	C	November 2006
D	Removing incidental contamination as approved by SNL/NM using a biodegradable cleaner and wiping methods	D modified	C	November 2006

Table 2-1 (Continued)
Task Descriptions
Building 807 Characterization and Removal Project

Task No.	Description	Level of Protection		Scheduled Start
		Primary	Contingency	
E	Mercury cleanup as necessary	C	B	November 2006
F	Destructive decontamination	D modified	C	November 2006
4	Final status surveys for radiological release	D[a]	D modified	November 2006
5	Soft demolition support			November 2006
A	Removing ceiling tiles	D modified	C	November 2006
B	Removing laboratory furniture for reuse or reapplication	D	D[b]	TBD
6	PCBs			November 2006
A	PCB wipe and core sampling, conducting mercury and pH field tests, collecting residue samples	D modified[a]	C	November 2006
B	PCB waste removal	D modified	C	February 2007
7	Waste management			November 2006
A	Waste packaging	D modified	C	November 2006
B	Waste Area inspections	D	D modified	November 2006

[a]*Additional requirements as specified by applicable RWP.*

[b]*Any furniture removal that poses a hazard requiring greater than Level D protection is excluded from this task and will be addressed with a Field Work Variance.*

ft^2 = *Square foot (feet).*
HEPA = *High-efficiency particulate air.*
PCB = *Polychlorinated biphenyl.*
RWP = *Radiation work permit.*
SNL/NM = *Sandia National Laboratories/New Mexico.*
TBD = *To be determined.*

2.3 Staffing

Project staff includes both SNL/NM and Shaw personnel in complementary key roles to ensure safe execution of the planned work with appropriate oversight and independence. Key personnel, their responsibilities, and minimum training requirements are presented in Table 2-2. Additional staff consisting of Health Physics Technicians (HPT) 3-Dimensional Indoor Survey System (3-DISS) engineers and technicians, and general technicians will, at a minimum, have SNL/NM Radiological Worker II (RW-II) training. Crew members assigned to perform intrusive work or work with potential exposure to hazardous materials shall have 40-hour OSHA training and current 8-hour refresher training. All project personnel will participate in a project kick-off meeting, health and safety briefing, and task-specific training as needed.

Table 2-2
Personnel and Responsibilities
Building 807 Characterization and Removal Project

Name	Company	Responsibilities	Training
Nick Durand	SNL/NM	Project Manager	40-hour OSHA,OSHA 8-Hour Supervisor RW-II
George Hoskinson	SNL/NM	Lead RCT	DOE RCT
Eric Simper	SNL/NM	RCT	DOE RCT
Earl Morse	Shaw	Project Manager	40-hour OSHA
John Hamm	Shaw	Senior Project Engineer	40-hour OSHA, 8-hour Supervisor, RW-II, 1st Aid/CPR, Confined Space Entry Supervisor
Don Watenpaugh	Shaw	Alternate Site Supervisor/Site Safety Officer/Asbestos Abatement Supervisor/Alternate Waste Management Coordinator	40-hour OSHA, OSHA 8-hour Supervisor, RW-II, 1st Aid/CPR, Confined Space Entry Supervisor, Scaffold Competent Person, EPA/AHERA Asbestos Contractor Supervisor, 10-hour OSHA Construction, Excavation Competent Person, Hantavirus
Jeff Sumlin	Shaw	Radiological Controls Supervisor/Site Supervisor/Alternate Site Safety Officer	40-hour OSHA, 8-hour Supervisor, RW-II, 1st Aid/CPR
Larry Ring	Shaw	Waste Management Coordinator/Alternate Site Supervisor/Alternate Asbestos Abatement Supervisor/ Alternate Site Safety Officer	40-hour OSHA, RW-II, 1st Aid/CPR, Confined Space Entry Supervisor, EPA/AHERA Asbestos Contractor Supervisor, OSHA 8-hour Supervisor, Scaffold Competent Person, 10-hour OSHA Construction, Excavation Competent Person
Gilbert Quintana	Shaw	General Technician	40-hour OSHA, RW-II, Asbestos Maintenance Worker, Hantavirus
TBD	Shaw	General Technician	40-hour OSHA, RW-II, Asbestos Maintenance Worker, Hantavirus
TBD	ERG	3-DISS Engineers	40-hour OSHA, RW-II
TBD	ERG	3-DISS Technicians	40-hour OSHA, RW-II
TBD	Shaw	Health Physics Technician	40-hour OSHA, RW-II

AHERA = *Asbestos Hazard Emergency Response Act.*
CPR = *Cardiopulmonary resuscitation.*
3-DISS = *3-Dimensional Indoor Survey System.*
DOE = *U.S. Department of Energy.*
EDI = *Environmental Dimensions, Inc.*
EPA = *Environmental Protection Agency.*
ERG = *Environmental Restoration Group, Inc.*
OSHA = *Occupational Safety and Health Administration.*
RCT = *Radiological Control Technician.*
RW-II = *Radiological Worker II.*
Shaw = *Shaw Environmental, Inc.*
SNL/NM = *Sandia National Laboratories/New Mexico.*
TBD = *To be determined.*

3.0 Project Hazards

Physical, chemical, radiological, and biological hazards may be encountered in the performance of the characterization and removal activities. Known and anticipated hazards and the locations or sources have been identified. The extent of chemical and radiological contamination is not known at this time, although the potential contaminants of concern have been determined through review of historical information, process knowledge, and site assessment.

3.1 Physical Hazards

Physical hazards to which workers may be exposed include excavations, extremes of temperature, falling objects, work on elevated surfaces and in confined spaces, heavy equipment and portable power tool operation, noise, lifting, slipping, tripping, and falling. Table 3-1 lists these hazards and their sources.

Table 3-1
Physical Hazards
Building 807 Characterization and Removal Project

Hazard	Source(s)
Cold stress	Roof work, Exterior excavation support
Confined spaces	Permit Required Confined Spaces (no entries currently planned)
Falls from elevated surfaces	Drain removal, ceiling tile removal, acid fume hood removal, characterization above ceiling, ladders, scissors lifts, scaffolding, no guard rails on roof
Entrapment	Pipe trench excavation collapse
Excavations	Drain line excavation outside of building footprint
Falling objects	Work in overhead mechanical spaces
Heat stress	PPE, roof work
Heavy equipment	Forklifts, backhoe
Portable power tools	Drills, saws, demolition hammer
Noise	Power tools, heavy equipment
Lifting	All characterization and removal activities
Slip, trip, fall	Temporary contamination barriers (plastic sheeting), tool usage, stairs, elevated work, leading edge roof work, PPE

PPE = Personal protective equipment.

3.2 Chemical Hazards

A variety of known and potential chemical contaminants may be present in Building 807. Chemicals of concern are listed in Table 3-2 along with the likely source. Inclusion in this list is for information and Hazard Communication (29 CFR [Code of Federal Regulations] 1910.120) purposes and does not imply a significant potential exposure for any given material or chemical.

Table 3-2
Hazardous Materials Summary
Building 807 Characterization and Removal Project

Chemical	Source/Location
Asbestos	Floor tiles, ceiling tiles, bench tops, fume hoods, wall materials, pipe insulation throughout building
Polychlorinated biphenyls	Basement equipment room concrete floor, limited to area covered by red floor tile and underlying soil
Arsenic	Drains and fume hoods throughout the building, chromium if torch cutting of stainless steel
Barium	
Cadmium	
Chromium	
Lead	
Mercury	
Selenium	
Silver	
Alpha-, beta-, and/or gamma-emitting isotopes	Radioactive waste storage areas, radioactive material storage areas, and Room 3111
Tritium	Room 3111, Rooms 2105 and 2111 above suspended ceiling, neutron tube test cell in basement
HE	Rooms 3003, 3013, 3019, 3030,3041,3049, 3051, 3053

The nature and extent of contaminants present will be determined during the actual characterization of the building and equipment. Exposure information, including routes, symptoms, treatment, and applicable limits for the chemicals of concern, is presented in Table 3-3.

3.3 Radiological Hazards

Possible radiological contaminants include americium, thorium, tritium, nickel-63, barium-133 and depleted uranium. Table 3-4 identifies the radionuclides of concern, corresponding major emissions, and known or probable locations.

Table 3-3
Chemical Exposure Information
Building 807 Characterization and Removal Project

Substance [CAS]	IP (eV)	Odor Threshold (ppm)	Route[a]	Symptoms of Exposure	Treatment	TWA[b]	STEL[c]	Source[d]	IDLH (NIOSH)[e]
Arsenic 7440-38-2	NK	Odorless	Inh Ing Con Abs	Ulceration of nasal septum, derm, GI disturbances, peri nuer, resp irrt, hyperpig of skin [Ca]	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.01 mg/m^3	NA	PEL/TLV	5.0 mg/m^3 carcinogen
Barium No CAS Number	NK	Odorless	Inh Ing Con Abs	Irrt eyes, skin, nose, throat; skin burns, gastroenteritis; musc spasm; slow pulse, extrasystoles; hypokalemia	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.5 mg/m^3	NA	PEL/TLV	50 mg/m^3
Cadmium 7440-43-9 (2003)	NK	Odorless	Inh Ing Con Abs	Pulmedema, dysp, cough, chest tight, subs pain; head; chills, musc aches, nau, vomit, diarr; anos, emphy, prot, mild anemia; [Ca]	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.005 mg/m^3 .01 mg/m^3 inhalable fraction 0.002 mg/m^3 respirable fraction	NA NA	PEL TLV TLV	9.0 mg/m^3

Table 3-3 (Continued)
Chemical Exposure Information
Building 807 Characterization and Removal Project

Substance [CAS]	IP (eV)	Odor Threshold (ppm)	Route[a]	Symptoms of Exposure	Treatment	TWA[b]	STEL[c]	Source[d]	IDLH (NIOSH)[e]
Chromium	NK	Odorless	Inh Ing Con Abs	Irrt to eyes, skin, and lungs. Cause stomach pains, vomiting, and diarr. [Ca]	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	1 mg/m^3 (metal), 0.5 mg/m^3, as Cr (Cr[II] and Cr[III] inorganic compds), Ceiling (OSHA) = 0.1 mg/m^3, as CrO3 (Cr[VI] water sol. and insol. inorganic compds)	NA	PEL/TLV	250 mg/m^3, as Cr (metal and Cr[II] compds), 25 mg/m^3, as Cr (Cr[III] compds)
TNT 2,4,6 Trinitrotoluene (High Explosives) 118-96-7	10.59 eV	N/A	Inh Abs Ing Con	Irrit skin ;mucmemb; liver damage; jaun; cyan;sneeze; cough; sore throat; perineur, muscle pain; kidney damage; cataract; sens serm; leucyt; anemia; card irreg.	Eye: Irrigate immediately Skin: Soap wash prompt Breath: Respiratory support Swallow: Immediate medical attention	0.5 mg/m^3 1.5 mg/m^3	N/A	PEL/TLV	500 mg/m^3
RDX Cyclonite 121-82-4		White Crystaline powder	Inh Abs Ing Con	Irrit skin ;mucmemb; eyes head irrity, lass,tremers nau, dizz, vomit, insom, convuls.	Eye: Irrigate immediately Skin: Soap wash prompt Breath: Respiratory support Swallow: Immediate medical attention	None 1.5 mg/m^3	N/A	PEL/TLV	ND

Table 3-3 (Continued)
Chemical Exposure Information
Building 807 Characterization and Removal Project

Substance [CAS]	IP (eV)	Odor Threshold (ppm)	Route[a]	Symptoms of Exposure	Treatment	TWA[b]	STEL[c]	Source[d]	IDLH (NIOSH)[e]
PETN 115-77-5		Colorless to White oderless Powder	Inh Ing Con	Irrit skin, resp sys	Eye: Irrigate immediately Skin: Wash prompt Breath: Fresh Air Swallow: Immediate medical attention	15.0mg/m^3 10mg/m^3		PEL total REL total	N.D.
Lead 7439-92-1 (2003)	NK	Odorless	Inh Ing Con Abs	Causes eye and skin irritation, gastrointestinal irritation with nausea and vomiting, also irritation to the lungs	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.05 mg/m^3 0.05 mg/m^3	NA NA	PEL TLV	100 mg/m^3 (as Pb)
Mercury and mercury-compounds 7439-97-6	NK	Odorless	Inh Ing Con Abs	Irrt eyes, skin; cough, chest pain, dysp, bron pneutis; tremor, insom, irrity, indecision, head, stomatitis, salv; GI dist, anor, low-wgt; prot	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.025 mg/m^3 (skin)	NA 0.1 mg/m^3	TLV PEL	10 mg/m^3

Table 3-3 (Continued)
Chemical Exposure Information
Building 807 Characterization and Removal Project

Substance [CAS]	IP (eV)	Odor Threshold (ppm)	Route[a]	Symptoms of Exposure	Treatment	TWA[b]	STEL[c]	Source[d]	IDLH (NIOSH)[e]
Selenium 7782-49-2	NK	Odorless	Inh Ing Con Abs	Irrt eyes, skin, nose, throat; Causes chills, fever, bron, GI dist; derm; eyes, skin burns	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.2 mg/m^3	NA	PEL/TLV	1.0 mg/m^3
Silica, chrystalline (as Respirable Dust) Quartz & Crystobalite 14464-46-1	N/A	Colorless oderless solid	Inh Con	Cough, dysp, wheez, decr. Pulm func, progressive resp, Silicosis irrt eyes Carc Eyes and Rep sys	Eye: Irrigate immediately Breath: Fresh air	.025 mg/m^3 Respirable	NA	REL	25 mg/m^3
Silver 7440-22-4 (2003) as metal	NK	Odorless	Inh Ing Con Abs	Eyes, nasal septum, throat, skin; irrit, ulceration skin; GI dist	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.01 mg/m^3 0.1 mg/m^3	NA NA	PEL TLV	10 mg/m^3 (as Ag)
Asbestos 1332-21-4	NA	Odorless	Inh Ing Con	Asbestosis (chronic exposure): dyspnea (breathing difficulty), interstitial fibrosis, restricted pulmonary function, finger clubbing; irritation eyes; [potential occupational carcinogen]	Eye: Irrigate immediately Breath: Fresh air	0.1 fiber/cm^3	1 fiber/cm^3	REL PEL	NA

Table 3-3 (Continued)
Chemical Exposure Information
Building 807 Characterization and Removal Project

Substance [CAS]	IP (eV)	Odor Threshold (ppm)	Route[a]	Symptoms of Exposure	Treatment	TWA[b]	STEL[c]	Source[d]	IDLH (NIOSH)[e]
Polychlorinated biphenyl 11097-69-1	NA	1 ppm = 13.55 mg/m^3	Inh Ing Con	Respiratory tract irritation may include, but not limited to, nasal discharge, sore throat, coughing, bronchitis, pulmonary edema and difficulty in breathing. Slightly toxic to internal organs, coughing, choking and shortness of breath if inhaled during swallowing or vomiting. Prolonged or repeated contact with skin may result in redness and dry skin.	Eye: Flush eyes immediately with fresh water for 15 minutes, seek medical attention. Skin: Remove contaminated clothing and wash with soap and water. Ingestion: Give milk or water, seek medical attention. Inhalation: Move person to fresh air, seek medical attention.	0.001 mg/m^3 0.5 mg/m^3 (skin)	NA	REL PEL/TLV	5 mg/m^3
Tritium (as tritium oxide) No CAS Number	NA	Odorless	Inh Ing Con	Readily absorbed into body fluids via the lungs, skin contact, and ingestion and distributed throughout the body. A small fraction may become attached to fixed proteins.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	NA	NA	NA	NA

Table 3-3 (Continued)
Chemical Exposure Information
Building 807 Characterization and Removal Project

Substance [CAS]	IP (eV)	Odor Threshold (ppm)	Route[a]	Symptoms of Exposure	Treatment	TWA[b]	STEL[c]	Source[d]	IDLH (NIOSH)[e]
Alpha radiation (assumed to be, americium, thorium, and Uranium at this time for OSHA exposure control measures) and beta-gamma radiation (present as Uranium decay daughters)	NA	Odorless	Inh Ing Con	Irritation, difficulty breathing, dizziness, bluish skin color, congestion, burns	Inh: Respiratory support Ing: Contact poison control center Con: Wash with soap/water, flush eyes and get medical attention	0.2 mg/m^3 0.25 mg/m^3	NA	TLV PEL	NA

[a]*Route – Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.*

[b]*The TWA concentration for a normal workday (usually 8 or 10 hours) and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect (NIOSH/OSHA).*

[c]*A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.*

[d]*Source: PEL (29 CFR 1910.1000, Table Z); TLV = ACGIH TLV – TWA.*

[e]*Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects. (NIOSH Pocket Guide to Chemical Hazards, Pub. No. 2005-151).*

ACGIH = *American Conference of Governmental Industrial Hygienists.*
Ca = *Carcinogen.*
CAS = *Chemical Abstract System.*
CFR = *Code of Federal Regulations.*
cm^3 = *Cubic centimeter.*
eV = *Electron volts.*
GI = *Gastrointestinal.*
IDLH (NIOSH) = *Immediately dangerous to life or health (NIOSH).*
IP = *Ionization Potential.*
m^3 = *Cubic meter.*
mg/m^3 = *Milligram(s) per cubic meter.*
NA = *Not applicable.*
NIOSH = *National Institute of Occupational Safety and Health.*
NK = *Not known.*

Table 3-3 (Continued)
Chemical Exposure Information
Building 807 Characterization and Removal Project

OSHA = Occupational Safety and Health Administration.
PEL = OSHA Permissible Exposure Limit.
ppm = Parts per million.
REL = NIOSH Recommended Exposure Limit.
Skin = Danger of cutaneous absorption.
STEL = Short-Term Exposure Limit.
TLV = Threshold Limit Value.
TWA = Time-Weighted Average.

References:

Guide to Occupational Exposure Values – 2006, Compiled by the American Conference of Governmental Industrial Hygienists.
Lewis, Richard J., Sr., 2000, Sax's Dangerous Properties of Industrial Materials, 9th ed., Van Nostrand Reinhold, New York.
Pocket Guide to Chemical Hazards, Pub. No. 2005-151, National Institute for Occupational Safety and Health.
Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 2001.
Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.

Table 3-4
Radionuclides of Concern
Building 807 Characterization and Removal Project

Radionuclide	Emissions	Half-Life (Years)	Location
Americium	Alpha	7.95 E3	No known americium contamination. Possibly associated with fire protection system in smoke detectors
Barium-133	Beta/gamma	10.7	No known barium release. Contained in bolts associated with basement neutron tube test cell
Nickel-63	Beta	100.1	No known nickel-63 release. Nickel-63 components stored in Rooms 3125, 3067, 3071
Thorium-232	Alpha	1.405 E10	Known thorium contamination in Room 3111 laboratory drain
Tritium	Beta	12.53	Room 3111 and basement neutron tube test cell and Rooms 2105 and 2111 above suspended ceiling
U-238 (DU)	Alpha, beta, gamma	4.51 E9	Room 3111 laboratory drain

DU = Depleted uranium.

If beta-gamma contamination is detected without a corresponding alpha component, a careful evaluation will be required on a case-by-case basis to identify the radionuclide. If it is impractical to identify the radionuclide, worst-case radionuclides (and therefore, action points) will be assumed. Tritium, if detected, will be evaluated to determine whether it is present as elemental tritium, tritium oxide, or as a metal tritide. Tritium in the tritide form is primarily an internal exposure hazard as respirable particles.

Biological hazards, such as insect, rodent, or bird infestation have been identified in Building 807. Biological decontamination has been performed on the interior of the cooling tower on the roof of Building 807 on at least two occasions. There is a high probability that the decontamination effort will be repeated in this location prior to building demolition. Due to the age of the building, the potential exists for biological vectors to be present or invade the facility.

Personnel that discover a biological hazard shall avoid the area, warn others, and notify the Site Safety Officer and Site Supervisor immediately. If discovered, rodent or avian carcasses, feces, and nesting sites will be removed by Shaw personnel specifically trained for biological decontamination. Any insect infestation that is discovered will be evaluated and, upon concurrence of the SNL/NM Project Manager, appropriate action for mitigation will be implemented.

4.0 Personal Protective Clothing

At all times while on the project site, personnel will comply with the minimum PPE requirements specified in the most current revision of SP 01065, available on the Shaw portal site. These include a shirt with sleeves, pants that completely cover the legs, safety-toe boots, and safety glasses with side shields. Hard hats are required for all activities, unless a specific variance is obtained. Canvas or leather work gloves are required for material handling, when using powered hand tools, and during dismantlement of fixtures or systems. High visibility vests will be worn by all personnel when in the vicinity of operating heavy equipment.

Table 4-1 identifies the specific PPE requirements for each planned task and subtask in addition to the minimum established requirements. Additional requirements may be specified in the RWPs governing radiological tasks. Safety-toe boots, safety glasses, and hard hats must be in good condition and meet the appropriate American National Standards Institute standard.

4.1 Upgrading PPE

Initial and contingency PPE levels are based upon the known and expected hazards. Based upon field data, upgrades to the contingency level of protection may be made. If levels of protection above those listed in Table 4-1 are required, work scope changes, RWP limits are exceeded, or field conditions are different than expected, work on the task will be suspended and the SNL/NM Project Leader, SNL/NM Radiation Protection (RP), and the Shaw Health and Safety Manager will be consulted for specific PPE upgrades.

4.2 PPE Failure

Torn or damaged PPE (i.e., gloves, Tyvek coveralls) will be replaced immediately. If the individual has been working inside a radiological area, a personal contamination survey will be performed under the supervision of a Shaw HPT. If contamination is detected, the SNL/NM RCT will be notified, and additional data will be collected to determine the activity present and whether there is contamination on the worker's personal clothing or skin. Personal clothing or skin contamination will be managed and reported in accordance with Shaw and SNL/NM standard procedures.

Table 4-1
Personal Protective Equipment Requirements
Building 807 Characterization and Removal Project

Primary		Contingency	
Task (1A,1D, 1E, 4, 5B, 7B) - Level D		Task (1A, 1D, 1E, 4, 7B) - Level D Modified	
Required:	Head and Eye:	Required:	Head and Eye:
Long Trousers and sleeved shirt	(X) Safety glasses with side shields	Long Trousers and sleeved shirt	(X) Safety glasses with side shields
Safety boots/shoes	( ) Face shield	Safety boots/shoes	( ) Face shield
	( ) Goggles		( ) Goggles
Modifications:	Hardhat	Modifications:	Hardhat
	Gloves:		Gloves:
Protective Clothing:	(X) Work gloves	Protective Clothing:	( ) Work gloves
( ) Coveralls: Tyvek with attached hood and booties	( ) Under gloves (specify)	(X) Coveralls: Tyvek with attached hood and booties	( ) Under gloves (specify)
( ) Splash suit	( ) Other gloves (specify)	( ) Splash suit	(X) Other gloves (specify)
( ) Coated (specify)		( ) Coated (specify)	Nitrile
( ) Tyvek boot covers		(X) Tyvek boot covers	
( ) Plastic boot covers	Other:	( ) Plastic boot covers	Other: Tape all seams
Task (1B, 1C, 2A, 2A1, 2C, 3A, 3C, 3C1, 3D, 3F, 5A, 6A, 6B, 7A) - Level D Modified		Task (1B, 1C, 2A, 2A1, 2C, 3A, 3C, 3C1, 3D, 3F, 5A, 6A, 6B, 7A) - Level C	
Required:	Head and Eye:	Required:	Head and Eye:
Long Trousers and sleeved shirt	(X) Safety glasses with side shields	Long Trousers and sleeved shirt	( ) Safety glasses with side shields
Safety boots/shoes	( ) Face shield	Safety boots/shoes	( ) Face shield
	( ) Goggles		( ) Goggles
Modifications:	Hardhat	Modifications:	Hardhat
	Gloves:		Gloves:
Protective Clothing:	( ) Work gloves	Protective Clothing:	( ) Work gloves
(X) Coveralls: Tyvek with attached hood and booties	( ) Under gloves (specify)	(X) Coveralls: Tyvek with attached hood and booties	(X) Under gloves (specify): Nitrile, surgical gloves
( ) Splash suit	(X) Other gloves (specify)	( ) Splash suit	
( ) Coated (specify)	Nitrile	( ) Coated (specify):	
(X) Tyvek boot covers		(X) Tyvek boot covers	(X) Other gloves (specify):
( ) Plastic boot covers		( ) Plastic boot covers	11 mil Nitrile
	Other: Tape all seams		
		Respiratory Protection:	Other: Tape all seams
		( ) Half-face APR	
		(X) Full-face APR	Cartridge (specify):
		( ) Full-face PAPR	HEPA and or/mercury vapor

Table 4-1 (Continued)
Personal Protective Equipment Requirements
Building 807 Characterization and Removal Project

Primary		Contingency	
Task (2B, 3B, 3E) - Level C		Task (2B, 3B, 3E) - Level B	
Required:	Head and Eye:	Required:	Head and Eye:
Long Trousers and sleeved shirt	( ) Safety glasses with side shields	Long Trousers and sleeved shirt	( ) Safety glasses with side shields
Safety boots/shoes	( ) Face shield	Safety boots/shoes	( ) Face shield
	( ) Goggles		( ) Goggles
Modifications:	Hardhat	Modifications:	Hardhat
	Gloves:		Gloves:
Protective Clothing:	( ) Work gloves	Protective Clothing:	( ) Work gloves
(X) Coveralls: Tyvek with attached hood and booties	(X) Under gloves (specify): Nitrile	(X) Coveralls: Tyvek with attached hood and booties	(X) Under gloves (specify): Nitrile
( ) Splash suit	(X) Other gloves (specify):	( ) Splash suit	(X) Other gloves (specify):
( ) Coated (specify):	Task Specific	( ) Coated (specify):	Task Specific
(X) Tyvek boot covers		(X) Tyvek boot covers	
( ) Plastic boot covers	Other: Tape all seams	( ) Plastic boot covers	Other: Tape all seams
Respiratory Protection:	Cartridge (specify):	Respiratory Protection:	Cartridge (specify):
( ) Half-face APR	HEPA		MSA Duraflow with P-100 cartridge if not IDLH. IDLH is hold point
(X) Full-face APR		( ) Full-face APR	
( ) Full-face PAPR		( ) Full-face PAPR	

APR = *Negative-pressure air-purifying respirator.*
HEPA = *High efficiency particulate air filter.*
IDLH = *Immediately dangerous to life and health.*
MSA = *Mine Safety Appliance.*
PAPR = *Powered air-purifying respirator.*
PPR = *Positive-pressure respirator.*

4.3 PPE Removal and Disposal

Removal of PPE will take place at the designated exit point of the posted work area. Non-RW-II-trained personnel will be frisked by a Shaw HPT when exiting a radiologically controlled area. All RW-II trained personnel will perform a hand and foot or whole body frisk as required by the RWP when exiting radiologically controlled areas. The following steps provide general guidance for removing PPE.

- Check for visual contamination.
- Place any hand-carried equipment in the designated staging area.
- Remove hard hat (if worn) with hand-carried equipment.
- Remove boot covers.
- Remove outer gloves.
- Remove respirator (if worn).
- Remove coveralls, (do not shake out coveralls), and step onto step-off pad with unprotected shoes.
- Survey hands and then perform whole body frisk for alpha and beta contamination.
- Remove inner gloves, survey hands as above.

Modifications of the above steps or additional steps may be required. The actual donning and doffing procedure will follow the protocol described in the most current version of the *Radiation Protection Program Manual* (RPPM), Chapter 1.0 (SNL/NM, 2005b or Current Revision) and will be posted at the work site.

Expendable PPE/clothing will be bagged and placed into lined containers and properly labeled. Waste removal will be coordinated with the SNL/NM Solid and Hazardous Waste or Radioactive and Mixed Waste Departments.

5.0 Monitoring

Workplace monitoring is employed to ensure that engineering controls and PPE selection are protective of project personnel and to prevent inadvertent releases. Equipment has been selected to reflect the known and expected project hazards. Action levels are based upon Shaw policies, best practices, and applicable regulatory requirements. These levels are the maximum exposure or acceptable range for each parameter that do not require special measures to protect personnel. If monitoring determines that action levels are exceeded, the controls and PPE requirements of this plan will be either implemented or evaluated and upgraded as appropriate. Table 5-1 lists monitoring equipment, the associated action levels, and the tasks where monitoring is required.

Table 5-1
Monitoring Requirements
Building 807 Characterization and Removal Project

Instrument	Task	Action Guidelines	Comments (Includes Schedules of Use)
Combustible Gas Indicator	TBD	> 5.0% LEL	At all times during entry into confined space areas.
Oxygen Meter	TBD	< 19.5% to > 23.5%	At all times during entry into confined space areas.
Mercury Vapor Analyzer	1B, 2A, 3C, 3E	0.05 mg/m^3	1B – All drain inlets 2A – Initially while breaching laboratory drain systems, continued testing if positive indications.
Personal Air Sampler	2A, 2B, 2C, 3B, 3F, 5A	Asbestos 0.1 fiber/m^3 Radioactivity – isotope specific, as determined by SNL/NM RP	Asbestos – at all times Radioactivity – as required by RWP.
General Air Sampling	2A, 2B, 2C, 3B, 3F	Asbestos 0.1 fiber/m^3 Radioactivity – isotope specific, as determined by SNL/NM RP	Asbestos – at all times Radioactivity – as required by RWP.
Other (Specify): Personnel TLD Badges	All	To be specified by SNL/NM RP	Exchange quarterly.
Hand-Held Instrumentation (for detection of alpha and/or beta-gamma radiation)	1A-E, 2A-C, 3A-F, 4, 7	50 counts/minute above background for beta-gamma 10 counts/minute above background for alpha	Instruments will be used for alpha and beta-gamma survey screening of personnel per RWP requirements. Stop work and notify Shaw HPT and SNL/NM RCT if action level is exceeded.

HPT = Health physics technician.
LEL = Lower explosive limit.
m^3 = Cubic meter.
mg/m^3 = Milligram(s) per cubic meter.
RCT = Radiological control technician.
RP = Radiation Protection.
RWP = Radiological Work Permit.
Shaw = Shaw Environmental, Inc.
SNL/NM = Sandia National Laboratories/New Mexico.
TBD = To be determined.
TLD = Thermoluminescent dosimeter.

6.0 Hazard Control Measures

Identified hazards will be controlled to the extent possible with engineered controls including specialized equipment, applicable Shaw standard health and safety procedures, use of permits, daily tailgate safety meetings (TGSM), and job safety analyses (JSA) as needed for new or complex tasks. Additionally, project-specific procedures or requirements are detailed in this HASP. If a hazard not addressed in this chapter is identified, that activity will be suspended until appropriate controls are developed. Work activities will proceed with the concurrence of the SNL/NM Project Manager, SNL/NM RP, SNL/NM Safety Engineering, Industrial Hygiene, and the Shaw Health and Safety Manager.

6.1 Health and Safety Procedures

All project activities will comply with the requirements of this HASP and the applicable Shaw Health and Safety Procedures. Informational hard and/or electronic copies of the procedures will be maintained on site. To ensure the most current version of a procedure is used in performing work, the online version (Shaw Intranet) will be reviewed. All project personnel shall review the on-site information for awareness of procedures that cover assigned tasks. Site supervision personnel will ensure that appropriate procedures are implemented.

6.2 Changed Conditions

When project personnel observe a hazardous condition for which they are not prepared, they will immediately stop work, warn other personnel in the area, and exit the area. The SNL/NM Project Manager, RCT, Shaw RCS and Site Supervisor, and Shaw Health and Safety Manager will then be notified. Employees may use a level of protection higher than that specified in this HASP; however, changes in the PPE will be evaluated by Shaw and SNL/NM RP, Safety Engineering, and Industrial Hygiene personnel as applicable.

6.3 Communications

Building 807 is now located outside TA-I so cell phones and two-way radios are allowed. While telephones will be available in Building 807 for routine and emergency communications at the beginning of the project at some point it is anticipated that the Communication lines will be cut. Initially communication may be made to the project site by utilizing the following number, Shaw Field Office phone in Room 3092 284-1469. A public address system linked to SNL/NM Incident Command (IC) is installed on each floor of the building. In the event of an SNL/NM site emergency, all personnel will comply with direction given by IC.

All project personnel and visitors will be briefed on emergency communications and the appropriate response. During noisy operations, hand signals for help, exit, and stop work will be

established and reviewed during the daily TGSM and before the noisy operation begins. Line of sight and continuous voice communications will be maintained for any confined space entries.

6.4 Permits

Permits are required for work in radiologically controlled areas, entry into confined spaces, performance of hot work, coring of structural surfaces, penetration, or excavation greater than 6 inches in depth. Permit requests will be completed and reviewed by the Shaw Site Safety Officer and Shaw Site Supervisor. Permitted activities will commence only after an approved permit is issued by the responsible SNL/NM organization, and project personnel are briefed on the permit requirements and conditions. After the activity is completed, the permit will be terminated. Permits that will, or may, be required are listed in Table 6-1.

Table 6-1
Hazard Control Permits
Building 807 Characterization and Removal Project

Permit	Issuing Organization	Notification Requirements	Tasks
Radiological Work Permit	SNL/NM RP	RWP-Specific	1A-E (may be required), 2A-C, 3A-F, 4 (required)
Confined Space Entry Permit	Shaw	SNL/NM IC – 24 hours advance notice, prior to entry, and upon exit	None identified
Hot Work Permit	SNL/NM Fire Marshal	Prior to initiation, upon completion	3F (as necessary)
Penetration/Excavation Permit	SNL/NM FMOC FESH	SNL/NM construction observer and/or SNL/NM Project Manager	2A1

FESH = Facilities Environment, Safety, and Health.
FMOC = Facilities Maintenance Operation Center.
IC = Incident Command.
RP = Radiation Protection.
RWP = Radiological Work Permit.
SNL/NM = Sandia National Laboratories/New Mexico.

6.5 Lock Out/Tag Out

All systems (air, industrial gases, water, and electricity) in Building 807 will be operational. Prior to initiation of any characterization or removal actions of building systems or furnishings, the Site Supervisor and Site Safety Officer will visually verify and document the physical disconnection of these services from the source (i.e. the system may be cut and capped providing a visible “air gap” established by a qualified craftsman, Electrician or Plumber). All work of this nature will be coordinated with the General Contractor on site and the Shaw Site Supervisor. Verified systems will not require additional controls.

Any system with potential stored energy (electrical, hydraulic, and mechanical) will be isolated, locked, and tagged in accordance with Shaw Procedure HS315, *Control of Hazardous Energy Sources* (Shaw, 2002a). Isolation and lock-out will be verified before work commences. Locks will be controlled by the person performing the work and will not be removed until the system is restored to its designed integrity.

6.6 Dust Suppression

Deposited dust may be encountered in the course of planned activities. If there is a potential to create an airborne dust hazard by performing a planned task, the Site Safety Officer and Site Supervisor will be consulted. A mitigation measure, typically a wet-wiping method or high efficiency particulate air (HEPA) filter vacuum, will be used to remove the deposited material before any dust-generating activity is initiated.

During drain line excavation, dust control measures will be implemented as necessary to prevent generation of fugitive or nuisance dust.

PCB removal activities in the basement of Building 807 will include saw cutting, coring and jack hammering all of which will generate dust. These activities will require wet methods and the use of a garden type sprayer for dust suppression. This work will be performed in respiratory protection as an additional means of minimizing exposure to silica dust.

Cutting operations using power tools such as a reciprocating saws, grinders, or demolition saws can create large volumes of particulates, dust and secondary smoke. When working indoors, if excess dust or fumes are generated from cutting operations, supplementary ventilation may be necessary. Potential dust and fumes can be controlled through the use of ventilation fans and elephant trunk ducting to capture and vent them to appropriate exhaust fans, building plenums or thru accessible windows. If hazardous atmospheres can be generated, an upgrade in PPE may be necessary.

6.7 Vehicle Operations

Pickup trucks, manlifts, forklifts, and backhoes will be used in support of project activities. Project vehicles will be operated in a safe manner and in accordance with Shaw, State of New Mexico, and SNL/NM vehicle rules and regulations. Only Shaw employees will operate project vehicles. Vehicle operators will possess a valid driver's license. Forklifts will be operated in accordance with training, inspection, and operational requirements contained in Shaw Procedure HS820, *Forklift Operation* (Shaw, 2002b). Manlift operators will receive initial training from the equipment vendor or qualified Shaw personnel, and their ability to operate the manlift will be evaluated by the Shaw Site Supervisor or Site Safety Officer. Only Shaw operators that have documented proof of qualifications will operate backhoes on this project.

Project vehicles, including pickup trucks, forklifts, manlifts, and material carts, will not be used in posted contamination areas. Unpackaged contaminated materials will not be transported in project vehicles. Samples will be transported in a project vehicle provided by Shaw. Samples shall be in a sample cooler or other appropriate secondary container and shall not be placed in the passenger compartment. Only exempt quantity radioactive check sources may be transported in the project vehicle, shall be in the company-provided container, and shall be accompanied by the certification documentation. Transport of samples, project equipment, project materials, chemicals, radioactive materials, or waste in private vehicles is prohibited. Personnel wearing PPE shall not enter a project vehicle unless that vehicle is prepared and approved for that use.

6.8 Material Handling

Empty waste containers and packaged waste contained in 20- and 55-gallon drums and 7- by 4- by 2-foot metal boxes will be moved within Building 807 and to waste staging areas in the basement of the building. Boxes will be transported inside the building using casters attached to the box. Drums will be transported with a drum dolly or a pallet jack. Outside of the building, containers will be transported with a forklift.

Drums transported on pallets will be strapped or stretch-wrapped together and to the pallet, then the pallet will be carried on the forks of the pallet jack or forklift. Tie-down straps will not be used for lifting, rigging, towing, or any purpose other than that intended by the manufacturer.

Use of cranes or hoisting equipment and rigging is not included in the planned work. Additional controls will be implemented if any hoisting and rigging operations are necessary.

6.9 Buddy System

All project personnel and site visitors will utilize the buddy system while at the project site. Project personnel will not enter posted contamination areas or unoccupied floors unless accompanied. Project personnel are SNL/NM, Shaw, and subcontractor staff assigned full-time to the project or listed in Table 2-2. All other personnel visiting the site will be escorted by one of the project personnel.

6.10 Safety Meetings

Daily safety meetings accompanied by a JSA will be conducted covering all activities planned for the work shift. Discussion, at a minimum, will address planned tasks, crew assignments, chemical, radiological, and physical hazards, required PPE, and other applicable hazard control measures. Project personnel not present at the TGSM and all visitors will review the TGSM and JSA forms with the Shaw Site Safety Officer, RCS, or Site Supervisor prior to accessing the site. All personnel will sign the TGSM and JSA forms acknowledging that they are familiar with the planned work activities and the associated hazards and control measures.

Additional task-specific safety meetings will be held for new activities not addressed at the start of the shift or when field conditions change. At any time the crew leader, Site Safety Officer, or Site Supervisor may require a safety meeting to address specific hazards or concerns.

6.11 Slips, Trips, Falls, and Lifting

Stairways, temporary floor coverings, and electrical cords may pose trip and fall hazards. Personnel shall not carry materials or equipment up or down stairways if the load requires more than one hand to carry or obstructs their vision. Temporary floor coverings will be laid out without wrinkles, the edges taped or otherwise secured, and any raised features clearly marked with orange paint or hazard tape. Electrical cords will be routed in the overhead or securely taped to the floor when crossing a normal walkway.

Work areas, stairs, and walkways shall be kept clear of equipment, materials, and debris. Designated areas for temporary storage shall be out of normal travel paths and clearly marked or posted with signs and temporary boundaries. Loose dirt, materials, or spilled liquids shall be cleaned up as soon as possible, and on-scene personnel shall warn others of the hazard until cleanup is completed.

Personnel shall size up loads before lifting and obtain assistance with heavy or awkward loads. Materials or equipment should be moved between floors in the elevator and not carried up or down stairways. Whenever practical, specialized material handling equipment will be used to transport heavier loads.

6.12 Elevated Work

Work will be performed on ladders, scaffolding, and powered man lifts. Ladders will be employed in accordance with Shaw Procedure HS302, *Ladder Safety*. Scaffolding, if necessary will be installed, inspected, and used in accordance with 29 CFR 1926, Subpart L. Fall protection will be employed consistent with Shaw Procedure HS301, *Fall Protection*. Man lifts will be electric-powered scissors lifts and will be transported only while in the lowered position. Man lifts will be inspected daily. When in service, the operator shall be aware of his surroundings and overhead obstacles at all times.

Roof Work

Work on the roof is required to remove contaminated exhaust ventilation units above Room 85. These units are located at least 20 feet back from the roof edge. To protect personnel from a fall a Warning Line System combined with a Leading Edge Safety Monitoring System will be employed. Personnel access to the roof of Building 893 will be via the exterior stairs located at the northwest corner of the building.

A hydraulic truck crane operated by SNL/NM will transfer the removed equipment from the roof to the ground. Shaw will rig the load on the roof, and will provide a spotter to communicate with the crane operator. The spotter will be located at a roof edge north of Room 85 above the central entrance to Building 893. This location has a permanent guardrail installed at the roof edge.

Warning Line System

The warning line will consist of rope and supporting stanchions located at least 6 feet from the edge of the roof. Stanchions must resist at least 16 pounds exerted horizontally with out tipping over and support the warning line at least 36 inches above the roof surface and no more than 39 inches above the roof surface. The warning line shall have a minimum tensile strength of 500 pounds.

Personnel shall not work between the Warning Line and the edge of the roof unless specifically authorized by the site supervisor and site safety officer, and the Leading Edge Safety Monitor System is implemented. Work between the Warning Line and the edge of the roof is not anticipated for this project.

Leading Edge Safety Monitoring System

While not anticipated work on the roof may require work at the leading edge. The following controls will be implemented if any work between the Warning Line System and the leading edge is required.

A safety monitoring system is a fall protection system in which a competent person, in this case the assigned Safety Monitor, is responsible for recognizing and warning employees of fall hazards. Designation of Safety Monitors will be made by the Site Supervisor or Site Safety Officer. The assigned Safety Monitor will not perform any other function. Duties of the Safety Monitor are as follows:

- Be competent in recognizing fall hazards.
- Be close enough to effectively communicate orally with the employees.
- Be on the same walking/working surface as the monitored employees and within visual sighting distance of the monitored employees.
- Warn employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner.
- Warn by voice when approaching the open edge in an unsafe manner.

- Warn by voice if there is a dangerous situation developing that cannot be seen by another person involved with work activities.
- Make the designated safety monitor aware they are in a dangerous area (as applicable to scope of work).

If the designated Safety Monitor becomes encumbered with other responsibilities, the Monitor will (1) stop the activity; (2) turn over the other responsibilities to the Site Safety Officer; or (3) turn over the safety monitoring function to another designated, competent person.

The safety monitoring system will not be used when the wind is in excess of 30 miles per hour, when there is a threat of lightning, or when weather conditions cause the walking/working surfaces to become icy or slippery.

Individuals assigned to perform a task at the leading edge will not perform Safety Monitor duties. All employees designated either as Safety Monitors or to perform leading edge work under the safety monitoring system will be trained, instructed, and demonstrate proficiency in the following areas:

- Recognition of the inherent fall hazards in the immediate work area
- Avoidance of fall hazards using established work practices that have been communicated to the employees
- Recognition of unsafe practices and/or working conditions that could reasonably be expected to lead to a fall, such as windy conditions, slippery work surfaces, and rain
- Knowledge of the function, use, and operation of safety monitoring systems, control zones, and other protection to be used

A task-specific safety briefing will take place prior to initiation of any leading edge work and will involve all members of the assigned task crew, supervisors, and any other affected workers or personnel. The briefing will be conducted by the Site Safety Officer and will address the work to be performed, the safety and fall protection procedures to be implemented, and the duties and responsibilities of all personnel performing or supporting the activity. Further, all personnel will be informed that the controlled access zones will be off limits to all personnel other than those designated and assigned to the leading edge task.

6.13 Heavy Equipment

Equipment used on this project may include a backhoe, internal combustion-powered forklift, and electric-powered manlifts. Prior to use, operators will be instructed by the vendor upon delivery of the equipment to the site. Users will then be evaluated for proficiency on the specific equipment by the Site Supervisor or Site Safety Officer for operational understanding and safety

features of the unit and authorized for use. This evaluation will be documented on a Equipment Proficiency Form. Only trained personnel will operate forklifts in accordance with Shaw Procedure HS820, *Forklift Operation* (Shaw, 2002b). Gasoline- or diesel-powered equipment operation in the vicinity of any building air intake shall be minimized.

When operating the forklift, the operator shall ensure there is sufficient room to maneuver the lift around any fixed obstacles. Personnel loading or unloading waste containers shall use a spotter to assist and ensure that containers or equipment are not damaged and to warn other personnel to stay clear.

6.14 Power Hand Tools

Battery operated, 110-volt, and pneumatic-powered hand tools may be used on this project. Any tool that is powered from a 110-volt outlet will be connected with a ground fault circuit interrupter (GFCI) even if the outlet is a GFCI design. The GFCI shall be connected to the tool and after any extension cords. All electrically powered tools and extension cords shall be Underwriters Laboratory® listed and double-insulated or grounded.

Air hoses supplying pneumatic-powered tools shall have whip restraints installed at each hose connection. The air compressor shall be located outside of the building and, if gasoline- or diesel-powered, away from any building air intakes. All tools shall be inspected for damage prior to use. Damaged tools shall be removed from service immediately, tagged "Damaged, Do Not Use," and the Site Supervisor notified. Tools shall be cleaned after use, stored in their protective cases (if provided), and returned to the designated tool storage area.

Use of power tools may generate noise, chips, dust, silica dust, vibration, and twisting forces. Excess dust and fumes may be generated by the use of power tools. Dust and fume control will be managed as discussed in Section 6.6. Care should be taken whenever performing cutting activities with power tools to ensure that only the material intended to be cut is cut and adjacent or underlying materials are not impacted. Always check for the presence of asbestos containing material or other hazards (such as operational utilities) near the cutting operation before operations begin. For loud operations, noise exposure will be evaluated by the Shaw Health and Safety Manager to determine the proper level of protection and to ensure noise exposure levels are below an 8-hour, time weighted average of 85 decibels, in accordance with Shaw Procedure HS402, *Hearing Conservation Program*. Personnel shall employ appropriate hearing protection while using any type of noise generating power tool, use safety eyewear and/or a face shield, and ensure there are no obstructions that will interfere with proper tool operation.

6.15 Sanitation

Toilets and hand-washing facilities are provided in Building 807. Personnel shall wash their hands and face after doffing Level D Modified or higher levels of PPE, before eating, drinking, or smoking, and prior to leaving the job site.

Smoking in, or on, SNL/NM facilities and property, in government vehicles, and in Shaw vehicles is prohibited. Violation of this prohibition will result in disciplinary action up to, and including, removal from the project and notification of the responsible manager.

6.16 Radiological Hazards

Known radiological hazards exist in Building 807. Known and suspected radiological hazards in the building are detailed in the Work Plan, will be verified and, if present, removed during this project. Personnel working in radiologically controlled areas requiring an RWP for entry shall review and comply with the applicable RWP. Daily radiological surveys will be performed to verify contamination control boundaries and document work area conditions. When radiological conditions change, the SNL/NM RCT will modify the RWP as needed to address the current status of the covered activity.

Electroplated radioactive check sources will be employed to verify the operation of radiological field instrumentation. KAFB must authorize the presence of all contractor radioactive material, such as check sources, on KAFB property. Sources will be used and stored in a designated location in accordance with POP-R-004. All work performed will comply with Shaw radiological procedures POP-R-001 thru POP-R-005 for radiological tasks.

6.17 Chemical Hazards

A variety of chemical contaminants may be present in Building 807 including RCRA metals, mercury, PCBs, and low and high pH residues. Specific information regarding suspected locations is contained in the Work Plan. Personnel working in these locations shall comply with the PPE, sanitation, and other work practices specified in this HASP.

6.18 Biological Hazards

Biological hazards including rodent and bird nests, feces, or carcasses and insect infestations may be present in Building 807. If encountered, personnel are to avoid contact and notify the Site Safety Officer and Site Supervisor. Appropriately trained personnel will remove biological contamination under the Biological Decontamination HASP (SNL/NM, 2006b or Current Revision). Bird carcasses or nests will be brought to the attention of the SNL/NM biologist for documentation and disposal.

6.19 Explosive Hazards

Explosive material residues may be present at specific locations within Building 807. Types of explosive material residues that may be encountered are listed in Table 3-3. These materials are not unusually shock sensitive, but it is flammable and sensitive to sparks or flames. It is less flammable when wet, yet remains a fire and explosive risk.

Injuries from handling energetic materials inappropriately may include thermal burns, soft tissue damage, hearing damage, broken bones, dismemberment, and/or death depending on the type, quantity, and level of degradation of the materials.

Removal of drain system components where energetic materials are known or suspected will require additional precautions. These include clearing adjoining areas of personnel, limiting exposure to only project staff necessary to complete the work, wetting any crust or residues on fittings or couplings prior to disassembly, and employing a protective wrapping such as Kevlar™ when size-reducing piping.

Project personnel shall complete Energetic Material Awareness Training prior to performing work activities. The Site Safety Officer shall ensure that all other personnel entering the site are advised of the potential for energetic materials being present and the appropriate actions to be taken.

6.20 Adverse Weather

During the course of this work, personnel may be exposed to extremes of cold, heat, high winds, lightning, rain, or snow. No work will be performed on the roof of the building when there is a threat of lightning as broadcast by SNL/NM IC, windy conditions, or when raining or snowing.

Heating and air conditioning are provided inside Building 807. Toward the later part of the project the HVAC system may be disconnected. Personnel shall dress appropriately for the expected conditions. In cold weather, the use of layered clothing is strongly recommended to allow for varying clothing to match levels of exertion. In hot weather, light clothing should be worn, and personnel should stay hydrated. Drinking water will be provided at the job site, and provisions for hot beverages will be available during cold weather.

6.21 Excavation

Hazards may arise from excavation of the drain line outside of Building 807. These hazards may include entrapment, engulfment, and asphyxiation that will be mitigated by engineered and administrative controls.

6.22 Decontamination

Decontamination methods are provided in the event that personnel or equipment become chemically or radiologically contaminated. Good work practices, housekeeping, and compliance with area postings, PPE requirements, and RWPs are measures intended to preclude the need for these procedures.

6.22.1 Personnel Decontamination

Decontamination of personnel will be performed under the supervision of SNL/NM RP and Medical Services personnel. If deemed necessary, the contaminated person will be transported to the SNL/NM medical facility. Should such an event occur, contamination control barriers will be employed by both covering the area of contamination and placing protective barriers in the transport vehicle.

6.22.2 Equipment Decontamination

Equipment or tools exposed to hazardous materials may require decontamination before being released from the work area, as follows:

1. Remove as much loose contamination as possible using wipes or paper towels.
2. A nonhazardous degreaser, such as Scrubbing Bubbles®, may also be used to help remove loose contamination.
3. Wipe equipment or tools dry with paper towels or rags.
4. If equipment or tools are not sufficiently decontaminated, use an abrasive material such as scrubbers or brushes and continue decontamination.
5. Repeat Steps 1 through 4 until equipment or tools are free of any soil, dirt, or staining.

Equipment or tools used in a radiological contamination area will be surveyed by the Shaw HPT for radiological contamination when removed from the area. If contamination is detected, the following will be performed:

1. Remove as much contamination as possible using tape presses, scrapers, and damp or dry rags.
2. If the equipment does not meet SNL/NM RPPM Table 6-1 release limits, use a sprayer with a non-phosphate soap solution to wash the equipment.
3. Rinse with deionized water in sprayer.

4. Have the Shaw HPT conduct a contamination survey.

5. Repeat Step 3 until equipment is decontaminated to meet release criteria. Obtain concurrence for release from SNL/NM RP and remove item from radiologically controlled area. In the event that decontamination cannot be successfully performed, contaminated materials will become radioactive waste and will be handled as such in accordance with the Waste Management section of the Work Plan.

Decontamination materials will be managed as hazardous, radioactive, or mixed waste, as appropriate, in accordance with the Waste Management section of the Work Plan.

6.23 Contamination Control Barriers

Barriers to prevent and minimize the spread of contamination will be employed during any activity with the potential to release contamination. Some of the planned or possible activities requiring the use of contamination control barriers include drain line removal, inspection and removal of p-traps and drain inlets, fume hood characterization, removal of surface contamination, removal of contaminated floor coverings or other materials, removal of equipment, vacuum cleaner maintenance, and waste sampling and packaging. Use of barriers may be required for other activities not listed and will be employed as required by an RWP, Shaw HPT, SNL/NM RCT, Shaw RCS, the Site Supervisor, or Site Safety Officer. Any work involving contamination control barriers will not be initiated until the barrier is installed and has been inspected and approved by the RCS, Site Supervisor, or Site Safety Officer. In-use barriers will be inspected daily, repairs made if needed, and the inspection and repairs documented in the field activity daily log.

Prior to initiating any action involving known or potential contamination, appropriate barriers will be determined and installed. Typical barrier materials include plastic sheeting, nylon-reinforced laminated polyvinyl chloride (PVC) sheeting, plastic bags, plastic tubing, and similar materials.

Sheeting will be used to cover exposed floor surfaces and as drapes to provide a physical barrier between where work is performed and adjoining noncontaminated features. Drapes and floor coverings should be of sufficient size to contain contamination resulting from the planned activity as well as an accidental release during the work. Drapes must be secured in a manner that allows easy removal, yet is secure enough to remain in place until work is completed and acceptable radiological conditions are established. Typical methods of securing and supporting floor coverings and drapes include duct tape, plastic wire ties, and baling or tie wire. Any joints or seams should be overlapped several inches and sealed using duct tape on both sides.

For situations where there is high probability for airborne radioactivity, a closed containment will be constructed. This may be as simple as sealing a bag or plastic sleeve around the location

of the work and manipulating tools or devices through the bag, or may employ glove ports and negative-pressure ventilation supplied with a HEPA filter vacuum. If larger containment is required involving personnel entry, specific requirements for the construction and use of the containment will be developed in concurrence with the SNL/NM Project Leader and SNL/NM RP, and documented with an approved FWV.

Items that must pass through, or will be used in, areas of contamination will be protected to the extent possible by installing plastic tubing or a similar protective covering over the object and sealing any openings with duct tape. Portable equipment or carts that have surfaces that cannot practically be covered without interfering with the use of the item will be placed on a clean plastic or PVC sheeting barrier if it is necessary to place it in an active work area.

6.24 Destructive Decontamination

Destructive decontamination operations include the removal of hazardous or radiological contamination by physically removing the material of concern. This may include disassembly, cutting/sawing, grinding, manual or pneumatic hammering, or torch cutting activities to separate contamination from surrounding areas. Prior to performing any deconstructive activities, refer to the work plan and ensure all required work permits and operational controls are in place. Potential hazards that may be encountered during deconstructive decontamination include:

- The potential for secondary hazards such as chromium fumes from torch cutting stainless steel or excess dusts/fumes from sawing or grinding operations. Additional PPE or ventilation may be required.
- The presence of asbestos, lead, or beryllium in or near the materials intended for removal. Ensure that only the intended materials for removal will be impacted.
- Ensure that ALL utility lines (electrical, water, steam, gas) are verified to be locked out/tagged out, cut and capped, or have visible gaps before deconstructive operations initiate. Never cut into utility lines or wall without first verifying that proper utility isolation has occurred.
- Prior to the start of operations, verify the need for contamination control containment.

6.25 Housekeeping

Effective housekeeping is critical to maintaining a safe work environment and preventing the spread of contamination. Hallways, administrative and support areas, the break room, and active work areas will be kept free of trash, stored equipment, debris, and anything that could obstruct access and egress. Trash will be placed into the appropriate containers, and full containers will be emptied and the contents disposed of properly.

Active work areas will have all tools and equipment kept clear of walking and working surfaces while work is in progress and properly stored in the designated storage area at the end of the shift. In Contamination Areas, tools and equipment may remain in the work area, but must be properly stored to prevent damage or disturbance of contamination at the end of each work shift. Dirt and loose materials shall be cleaned up at the end of each work shift. Only wet-wiping methods (approved cleaning agents and towels) or HEPA filter vacuums will be employed for this purpose in Contamination Areas.

7.0 Emergencies

In the event of an emergency, the person discovering the emergency condition will notify other personnel in the immediate area, as well as site supervision personnel and the appropriate emergency support service. Site supervision personnel are responsible for ensuring emergency support services are activated, protecting project and other personnel in the vicinity, and preventing the spread of contamination. Site supervision personnel shall notify the Shaw Project Manager immediately after emergency support services are notified. Site supervision personnel shall notify the SNL/NM Project Manager within one hour of any emergency notification. Emergency contacts are detailed in Table 7-1. In the event that the SNL/NM PM is unavailable call the ES&H coordinator at 844-1753 or if unavailable, call early notification pager at 530-0264.

7.1 Medical Emergency

In the event of an illness or injury, the following steps will be taken: (1) if the injured party is inside a chemically or radiologically controlled area, decontamination will be evaluated. For minor injuries, the individual will be decontaminated before application of first aid; for major injuries, removal of the individual from the area will be performed without decontamination; (2) first aid will be applied as appropriate; (3) if necessary, the individual will be transported by SNL/NM ambulance immediately to the hospital. If the injury is minor, it will be examined at a time and medical clinic selected by Shaw.

In the case of minor electrical shock, the employee must first be transported to the SNL/NM Medical Center (Figure 7-2) for evaluation. The Shaw Health and Safety Manager will be consulted to determine if it is necessary to have the individual evaluated by the Concentra Medical Facility. First-aid cases (non-emergency only) will generally be handled by qualified field personnel, followed by transport to the Concentra Medical Facility for Shaw employees (Figure 7-1). Subcontractors will be transported to their designated non-emergency facility. All emergency cases will be transported by SNL/NM ambulance to the University of New Mexico Hospital (Figure 7-3). Table 7-1 lists the clinic and hospital addresses and contact information.

Subcontractor non-emergency facilities and routes will be identified and provided by the subcontractor.

Table 7-1
Emergency Contacts
Building 807 Characterization and Removal Project

Emergency Contacts	Name	Phone
SNL/NM 24-Hour Emergency Line	EOC	(505) 844-0911
SNL/NM Emergency Notification Pager	ES&H Coordinator	(505) 530-0264
Shaw Corporate Health and Safety Manager	Warren Houseman	(412) 858-3917
Shaw Project Health and Safety Manager	James Vigerust	(505) 262-8736
Shaw Project Manager	Earl Morse	(505) 262-8708
Senior Project Engineer/Alternate PM/Primary Waste Generator	John Hamm	(505) 262-8704
Shaw Site Supervisor/SSO/Asbestos Abatement Supervisor/Alternate Waste Coordinator	Don Watenpaugh	(505) 262-8912
Shaw RCS/Alternate Site Supervisor/Alternate SSO	Jeff Sumlin	(505) 506-0205
Waste Coordinator/Alternate SSO/Alternate Site Supervisor	Larry Ring	(505) 262-8930
SNL/NM Project Manager	Nick Durand	(505) 844-9361
Fire Department	Dispatcher	117 or (505) 844-0903
Poison Control Center	Dispatcher	(505) 843-2551
Radiation Protection Lead RCT	George Hoskinson	(505) 845-0602
Radiation Protection RCT	Eric Simper	(505) 284-0102
Radiation Protection Project Lead	Allison Winstead	(505) 284-7687
Industrial Hygiene	Fred Shelly	(505) 284-6320
Safety Engineering	Craig Hauber	(505) 284-2799
Incident Commander	IC	(505) 844-4189

MEDICAL EMERGENCY:
Number of 24-Hour Ambulance: 844-0911
Nonemergency Medical Facility Name: Sandia Medical Center
Medical Facility Address: Building 831, F and 7th Street, KAFB
Medical Facility Phone Number: 844-7845

Shaw Nonemergency Medical Facility Name: Concentra Medical Center
Medical Facility Address: 801 Encino Place Suite E-12
Medical Facility Phone Number: 842-5151

Emergency Medical Facility : University of New Mexico Hospital
Emergency Medical Facility Address: 2211 Lomas Blvd NE.
Emergency Medical Facility Phone: 272-2111
Number of 24-Hour Ambulance (EOC): 911 or 844-0911 (EOC)

Route to Medical Facilities: See Figures 7-1, 7-2, and 7-3.

Directions to SNL/NM Medical Facility: See Figure 7-1. The SNL/NM Medical Center is located at the north end of TA-I on F Street. The Medical Center is at the west end of Building 831.
Directions to Concentra Medical Facility: See Figure 7-2. Follow Wyoming north to Gibson Blvd. and turn left. Follow Gibson to I-25 and turn right, or go north to Lomas Blvd. Off Lomas take a right on Medical Arts Ave. and turn right on Encino Pl. Go to Suite E-12.
Directions to the UNM Hospital: See Figure 7-3. Follow Wyoming north to Gibson Blvd. and turn left. Exit KAFB through the Gibson Gate at the intersection of Gibson and Louisiana Blvds. Follow Gibson west to I-25 and turn north. Exit I-25 at Lomas and go to 2200 Lomas Blvd. NE. The route to the hospital will be reviewed during the site safety meeting.

EOC = *Emergency Operations Center.*
IC = *Incident Command.*
KAFB = *Kirtland Air Force Base.*
PM = *Project Manager.*
RCS = *Radiological Controls Supervisor.*
RCT = *Radiological Control Technician.*
Shaw = *Shaw Environmental, Inc.*
SNL/NM = *Sandia National Laboratories/New Mexico.*
SSO = *Site Safety Officer.*
TA = *Technical Area.*
UNM = *University of New Mexico.*

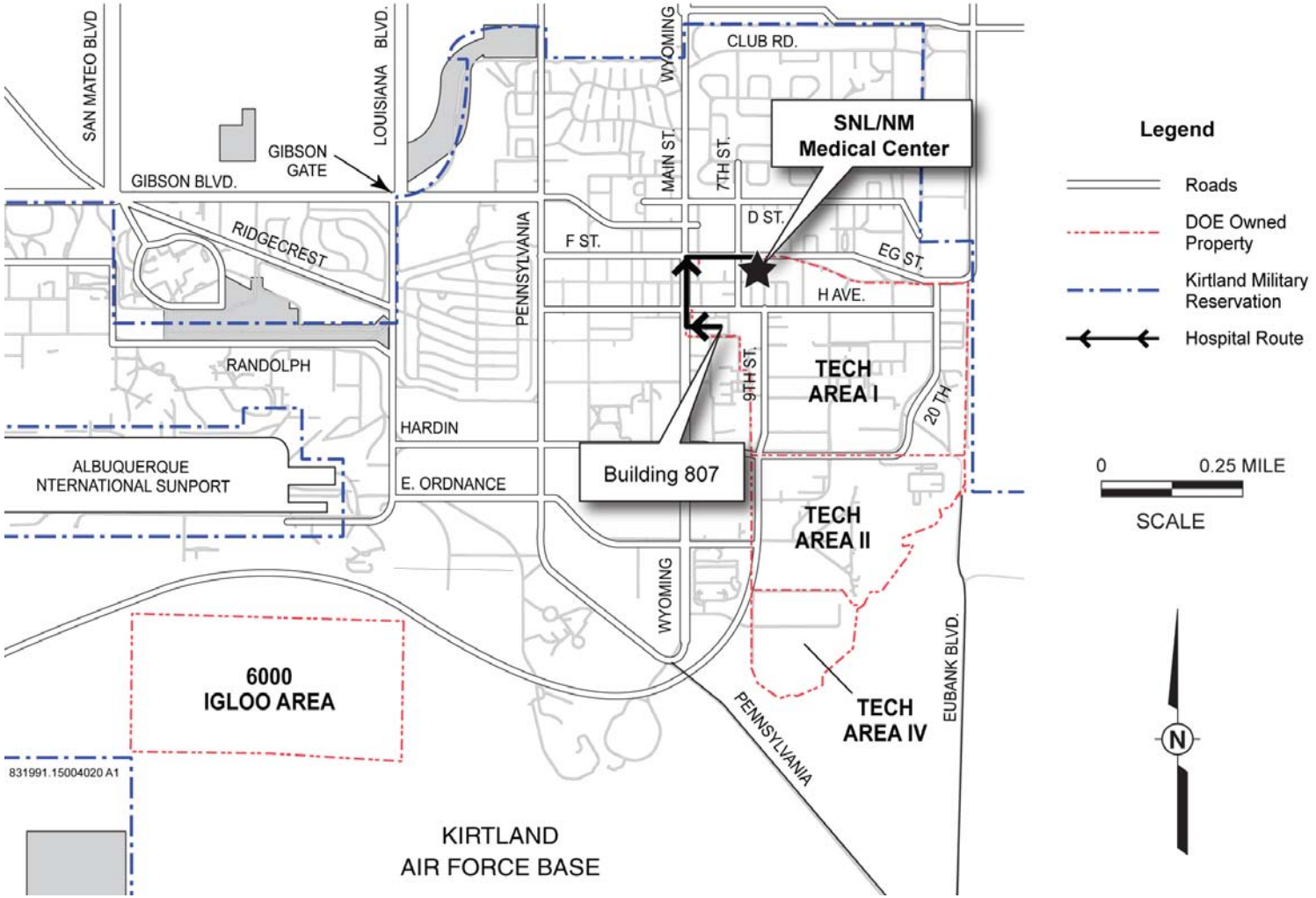

Figure 7-1
Health and Safety Plan Hospital Route Map from Building 807 to SNL/NM Medical Center

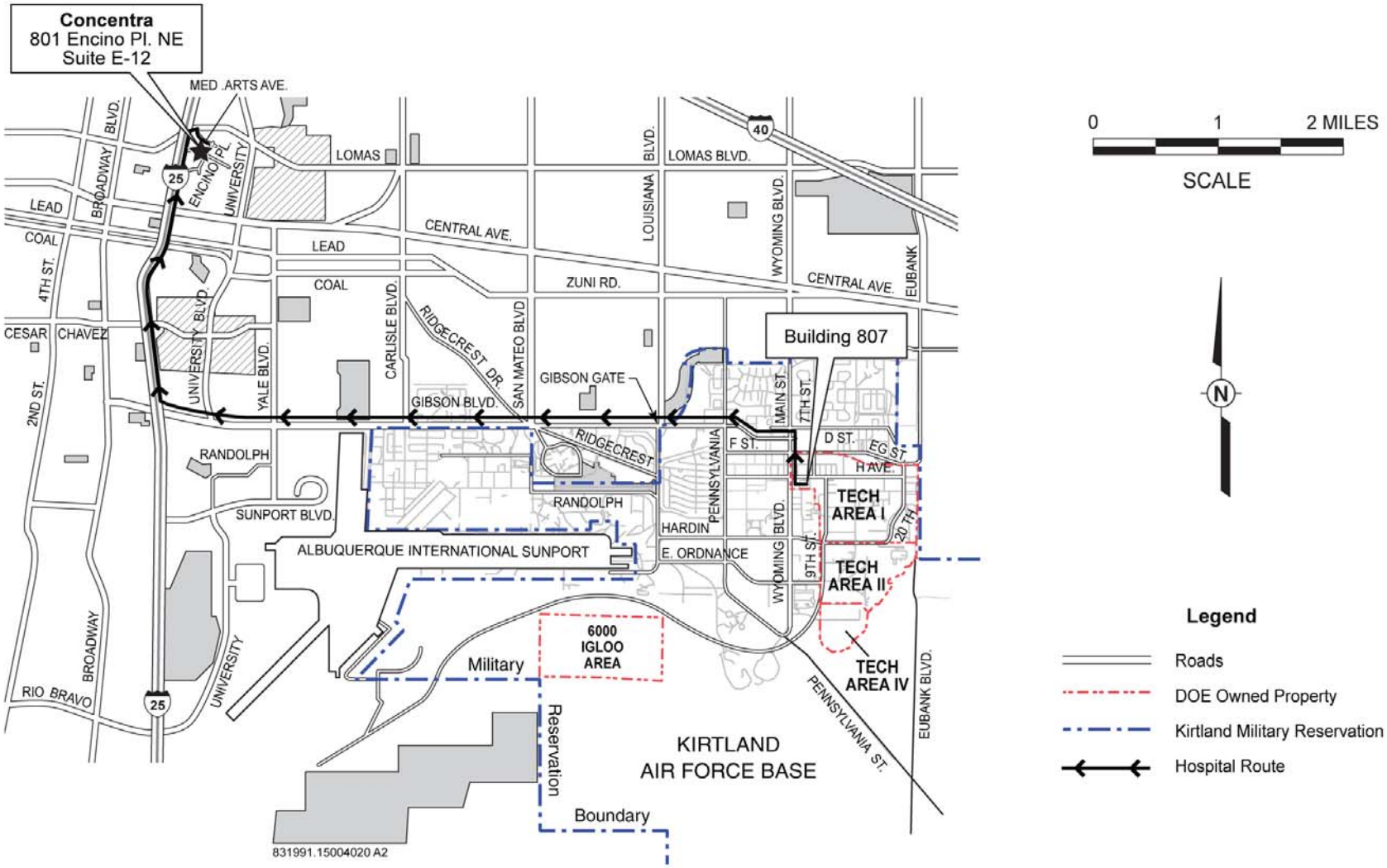

Figure 7-2
Health and Safety Plan Hospital Route Map from Building 807 to Concentra Medical Facilities

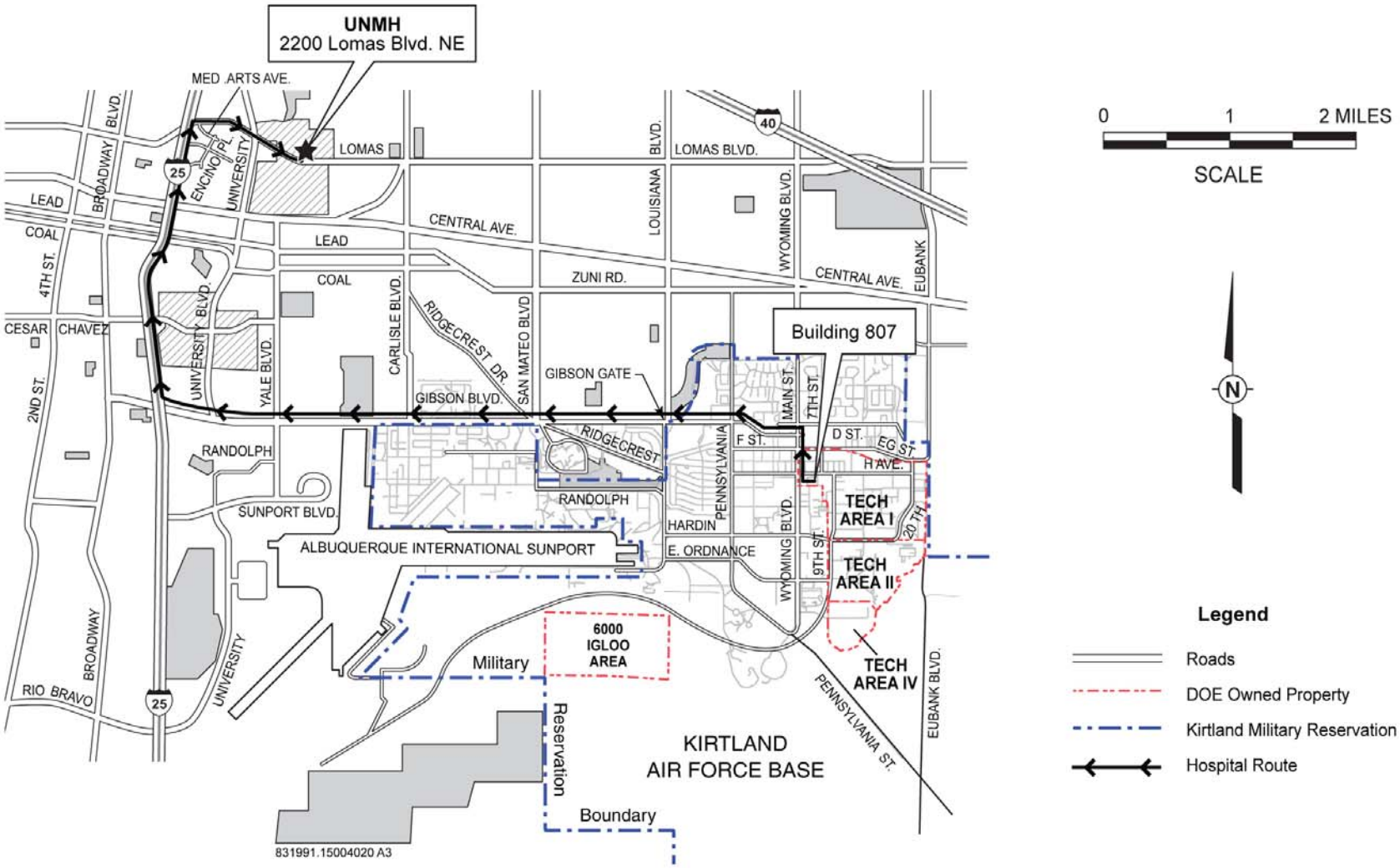

Figure 7-3
Health and Safety Plan Hospital Route Map from Building 807 to UNM Hospital

7.2 Work Site Evacuation

Site evacuation routes will be discussed during the daily TGSM. In an emergency involving fire, explosion, or chemical release, the first individual on the scene will immediately sound the alarm. Air Horns will be provided for alarming to evacuate premises. All personnel will exit the site via the closest safe emergency exit and proceed to the designated assembly point in accordance with the project evacuation plan (Figure 7-4) or an alternate upwind location as designated by the Site Safety Officer. The Site Safety Officer will maintain accountability of all project personnel and visitors.

Normal access and egress to Building 807 is via the ground level doors on the south or west side of the building. In case of an emergency, the evacuation route from the third floor is via the stairwell on the south side center of the building (west of the elevator). Personnel evacuating from the second floor will exit via the same stairwell. In addition to the interior stairway there also exists an exterior stairway on the east end of the building that exits from the exterior of the basement.

Although there are four exits on the first floor, the primary emergency exit point is the south entrance doors on the south side of the building. Personnel exiting from the roof will return to the third floor via the stairway and then exit through the third floor stairwells. Exit from the basement will be via the stairway to the first floor and out the nearest safe first-floor emergency exit.

In the event of an evacuation, the Site Safety Officer or Site Supervisor will notify the SNL/NM Project Manager and SNL/NM IC. The Site Supervisor will serve as the site contact with IC for any emergency response. All project personnel will comply with direction given by the IC on-scene commander and other response personnel including SNL/NM RP.

Personnel working in radiologically controlled areas will, in the event of an evacuation, put work in a safe condition and proceed to the assembly point by the most direct safe route without removing any PPE. At the assembly point, personnel in PPE will be segregated from other personnel and will remain dressed until authorized to remove PPE by the Site Safety Officer. Removal of PPE will be performed when it is safe to do so, when appropriate contamination control measures are implemented, and will be supervised by the Site Safety Officer and SNL/NM RP representatives. Personnel that exited in PPE and any personnel that were in contact with personnel in PPE must be frisked for the presence of radiological contamination.

All personnel shall remain at the assembly point until authorized by IC and released by the Site Supervisor and Site Safety Officer. Re-entry into Building 807 will be made only after conditions in the building are known and personnel are briefed on any hazards that may exist as a result of the event that required the evacuation.

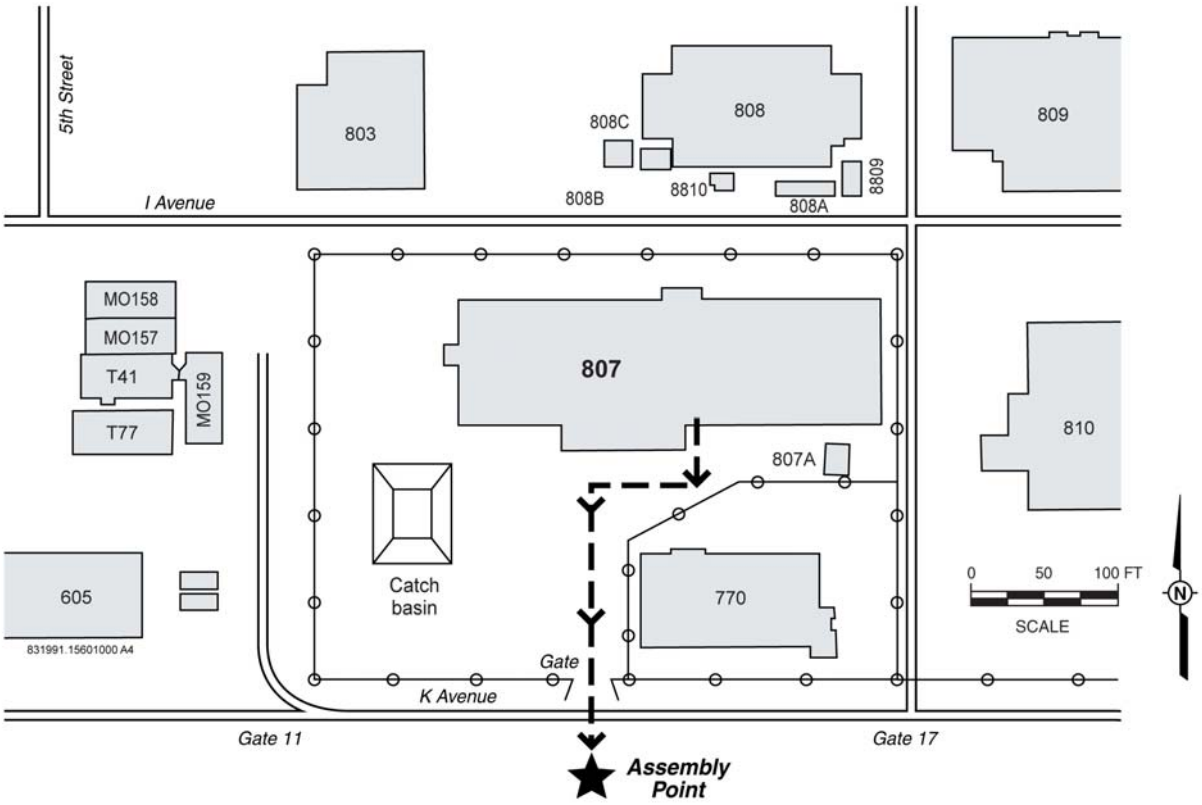

Figure 7-4
Building 807 Characterization and Removal Project
Evacuation Plan

7.3 Early Notification

If a significant event occurs that has the potential to (1) negatively affect the performance, reputation, or financial position of SNL/NM, Lockheed Martin Corporation, or National Nuclear Security Administration; (2) generate probing or embarrassing inquiries; or (3) generate political interest or involvement from local, state, or federal entities, the notification procedures outlined in the Shaw Program HASP in Table 8-2 for the Decontamination and Demolition Project at SNL/NM must be followed.

8.0 References

Sandia National Laboratories/New Mexico (SNL/NM), 2006a, *Shaw Environmental, Inc. Program Health and Safety Plan, Decontamination and Demolition Project, Sandia National Laboratories/New Mexico*, prepared by Shaw Environmental, Inc. for Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2006b, *Health and Safety Plan, Biological Decontamination Program, Sandia National Laboratories/New Mexico*, prepared by Shaw Environmental, Inc. for Sandia National Laboratories, Albuquerque, New Mexico, March.

Sandia National Laboratories/New Mexico (SNL/NM), November 2006, *Characterization and Removal Work Plan, Building 807, Sandia National Laboratories/New Mexico*, prepared by Shaw Environmental, Inc. for Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2005a, *Standard Specification Section 01065 Environment, Safety, and Health for Construction and Service Contracts*, Sandia National Laboratories, Albuquerque, New Mexico, November.

Sandia National Laboratories/New Mexico (SNL/NM), 2005b, *Radiation Protection Procedures Manual*, Sandia National Laboratories, Albuquerque, New Mexico, January.

Shaw, see Shaw Environmental, Inc.

Shaw Environmental, Inc. (Shaw), 2002a, *Control of Hazardous Energy Sources*, Shaw Procedure HS315, Shaw Environmental, Inc., Albuquerque, New Mexico, April.

Shaw Environmental, Inc. (Shaw), 2002b, *Forklift Operation*, Shaw Procedure HS820, Shaw Environmental, Inc., Albuquerque, New Mexico, April.

Shaw Environmental, Inc. (Shaw), 2002c, *Ladder Safety*, Shaw Procedure HS302, Shaw Environmental, Inc., Albuquerque, New Mexico, April.

Shaw Environmental, Inc. (Shaw), 2002d, *Fall Protection*, Shaw Procedure HS301, Shaw Environmental, Inc., Albuquerque, New Mexico, September.

SNL/NM, see Sandia National Laboratories/New Mexico.

Document Review Forms

DOCUMENT REVIEW AND COMMENT FORM
(FOR SANDIA REVIEW COMMENTS)

Sandia Reviewer: CW Hauber/Luis Amezcua **Date:** 11-30-07 **Document Title:** Shaw Bldg 807 HASP Addendum

Shaw Author: Shaw **Date:** 11/07 rev 2

Page No.	Comment Location	Comment	Accept/ Reject	Comment Resolution	Resolved By
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3-1	Table 3-1	Falls from elevation, should be an additional hazard on the table.	Accept	Table updated	ELM
6-5	6.12	Leading edge work using a safety monitoring system without fall protection is a last resort option at best. Other avenues must be explored before using a safety monitoring system. See comment above.	Accept	Section 6.12 is revised: Elevated Work Work will be performed on ladders, scaffolding, and powered man lifts. Ladders will be employed in accordance with Shaw Procedure HS302, Ladder Safety. Scaffolding, if necessary will be installed, inspected, and used in accordance with 29 CFR 1926, Subpart L. Fall protection will be employed consistent with Shaw Procedure HS301, Fall Protection. Man lifts will be electric-powered scissors lifts and will be transported only while in the lowered position. Man lifts will be inspected daily. When in service, the operator shall be aware of his surroundings and overhead obstacles at all times. Roof Work Work on the roof is required to remove contaminated exhaust ventilation units above Room 85. These units are located at least 20 feet back from the roof edge. To protect personnel from a fall a Warning Line System combined with a Leading Edge Safety Monitoring	ELM

Page No.	Comment Location	Comment	Accept/ Reject	Comment Resolution	Resolved By
				System will be employed. Personnel access to the roof of Building 893 will be via the exterior stairs located at the northwest corner of the building. A hydraulic truck crane operated by SNL/NM will transfer the removed equipment from the roof to the ground. Shaw will rig the load on the roof, and will provide a spotter to communicate with the crane operator. The spotter will be located at a roof edge north of Room 85 above the central entrance to Building 893. This location has a permanent guardrail installed at the roof edge. Warning Line System The warning line will consist of rope and supporting stanchions located at least 6 feet from the edge of the roof. Stanchions must resist at least 16 pounds exerted horizontally with out tipping over and support the warning line at least 36 inches above the roof surface and no more than 39 inches above the roof surface. The warning line shall have a minimum tensile strength of 500 pounds. Personnel shall not work between the Warning Line and the edge of the roof unless specifically authorized by the site supervisor and site safety officer, and the Leading Edge Safety Monitor System is implemented. Work between the Warning Line and the edge of the roof is not anticipated for this project. Leading Edge Safety Monitoring System While not anticipated work on the roof may require work at the leading edge. The following controls will be implemented if any work between the Warning Line System and the leading edge is required.	

Page No.	Comment Location	Comment	Accept/ Reject	Comment Resolution	Resolved By
				A safety monitoring system is a fall protection system in which a competent person, in this case the assigned Safety Monitor, is responsible for recognizing and warning employees of fall hazards. Designation of Safety Monitors will be made by the Site Supervisor or Site Safety Officer. The assigned Safety Monitor will not perform any other function. Duties of the Safety Monitor are as follows: • Be competent in recognizing fall hazards. • Be close enough to effectively communicate orally with the employees. • Be on the same walking/working surface as the monitored employees and within visual sighting distance of the monitored employees. • Warn employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner. • Warn by voice when approaching the open edge in an unsafe manner. • Warn by voice if there is a dangerous situation developing that cannot be seen by another person involved with work activities. • Make the designated safety monitor aware they are in a dangerous area (as applicable to scope of work). If the designated Safety Monitor becomes encumbered with other responsibilities, the Monitor will (1) stop the activity; (2) turn over the other responsibilities to the Site Safety Officer; or (3) turn over the safety monitoring function to another designated, competent person.	

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				The safety monitoring system will not be used when the wind is in excess of 30 miles per hour, when there is a threat of lightning, or when weather conditions cause the walking/working surfaces to become icy or slippery. Individuals assigned to perform a task at the leading edge will not perform Safety Monitor duties. All employees designated either as Safety Monitors or to perform leading edge work under the safety monitoring system will be trained, instructed, and demonstrate proficiency in the following areas: • Recognition of the inherent fall hazards in the immediate work area • Avoidance of fall hazards using established work practices that have been communicated to the employees • Recognition of unsafe practices and/or working conditions that could reasonably be expected to lead to a fall, such as windy conditions, slippery work surfaces, and rain • Knowledge of the function, use, and operation of safety monitoring systems, control zones, and other protection to be used A task-specific safety briefing will take place prior to initiation of any leading edge work and will involve all members of the assigned task crew, supervisors, and any other affected workers or personnel. The briefing will be conducted by the Site Safety Officer and will address the work to be performed, the safety and fall protection procedures to be implemented, and the duties and responsibilities of all personnel performing or supporting the activity. Further, all personnel will be	

Page No.	Comment Location	Comment	Accept/ Reject	Comment Resolution	Resolved By
				informed that the controlled access zones will be off limits to all personnel other than those designated and assigned to the leading edge task.	
6-5	6.12	Each individual must be checked out and quified to operate each piece of equipment (personnel lifts; forklifts; etc.) not just familiarize themselves. Again see first comment above.	Accept	The specific sentence in Section 6.12 is removed. A sentence has been added to Section 6.13 (Heavy Equipment) that states; Prior to use, operators will be instructed by the vendor upon delivery of the equipment to the site. Users will then be evaluated for proficency on the specific equipment by the Site Supervisor or Site Safety Officer for operational understanding and safety features of the unit and authorized for use. This evaluation will be documented on a Equipment Proficiency Form.	ELM
7-2	Table 7-1	To be consitant with the rest of the table: remove department numbers for the SNL SE & IH (they have changed again).	Accept	Table revised as requested.	ELM

DOCUMENT REVIEW AND COMMENT FORM
(FOR SANDIA REVIEW COMMENTS)

Instructions:

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DOCUMENT REVIEW AND COMMENT FORM
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Project No.: 831991

Sandia Reviewer: Nick Durand **Date:** 12-5-07 **Document Title:** Shaw Building 807 HASP Modification

Shaw Author: _____ **Date:** ____

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---	---	No Comments per email communications	---	---	---

DOCUMENT REVIEW AND COMMENT FORM
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Project No.: 831991

Sandia Reviewer: Alison Winstead **Date:** 12-4-07 **Document Title:** Shaw Building 807 HASP Modification

Shaw Author: _____ **Date:** ____

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---	---	No Comments per phone conservation with John Hamm.	---	---	---

DOCUMENT REVIEW AND COMMENT FORM
(FOR SANDIA REVIEW COMMENTS)

Project No.: 831991

Sandia Reviewer: Fred Shelly **Date:** 11-27-07 **Document Title:** Shaw Building 807 HASP Modification

Shaw Author: _____ **Date:** _____

Page No.	Comment Location	Comment	Accept/ Reject	Comment Resolution	Resolved By
---	---	No Comments	---	---	---

Morse, Earl

From: Hamm, John
Sent: Thursday, November 29, 2007 12:02 PM
To: Morse, Earl
Subject: FW: Shaw Building 807 HASP Modification

John O. Hamm
D&D Program Technical Lead/Project Manager I
Shaw Environmental & Infrastructure, Inc.
2440 Louisiana Boulevard NE, Suite 300
Albuquerque, NM 87110
(505) 262-8704 Direct
(505) 259-1232 Cell
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www.shawgrp.com

From: Houseman, Warren
Sent: Thursday, November 29, 2007 9:44 AM
To: Hamm, John
Subject: FW: Shaw Building 807 HASP Modification

John,

The changes look good. I have no comments this time.

Thanks,

Warren

From: Morse, Earl
Sent: Tuesday, November 27, 2007 11:31 AM
To: Durand, Nick A; Alison Winstead (awinste@sandia.gov); Fred Shelly; Craig Hauber (cwhaube@sandia.gov); Houseman, Warren
Cc: Hamm, John
Subject: Shaw Building 807 HASP Modification

Folks,
Shaw has modified the site-specific HASP for the Building 807 project and we are requesting your review. The charges include additional details for destructive decontamination, cutting and grinding, removal of the hardhat exemption along with minor updates to contacts and evacuation routes. A text modification guide is located after the sign-off page which identifies the sections with text changes. The document is titled "BLDG 807 HASP Rev 2, Nov 2007" and is located on the Shaw Portal in the "Documents Under Review" section. Please get any comments back to me or John Hamm by 12/5/07. Thank you.

Earl L. Morse
Program Manager
Shaw Environmental Inc.
2440 Louisiana Blvd N.E., Suite 300
Albuquerque, NM 87110
505-262-8708 direct