**Department of Energy**

ROCKY FLATS FIELD OFFICE
10808 HIGHWAY 93, UNIT A
GOLDEN, COLORADO 80403-8200

NOV 27 2001

01-DOE-02136

Mr Steven H Gunderson
Rocky Flats Cleanup Agreement Coordinator
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530

Dear Mr Gunderson

Please find enclosed a Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Component Removal notification forms for Buildings 867 and 868 In accordance with the RSOP for Component Removal, Size Reduction and Decontamination Activities, this letter and its enclosures are notification for RSOP implementation

This notification is for all activities required in bringing Buildings 867 and 868 to the unrestricted release criteria This will involve component removal, size reduction and decontamination activities utilizing the methods specified in the RSOP A decommissioning strategy was developed for Building 865, which included Buildings 867 and 868, it was included in the Remediation, Industrial Area Decontamination and Decomissioning and Site Services (RISS) Project Management Plan Once the technical approach is received from the selected subcontractor, it will be compared to this strategy and modified as required A scoping meeting will be held with Colorado Department of Public Health and Environment to discuss the differences between the original strategy and the subcontractor's strategy

Once the pre-demolition survey is complete and the facility meets the unrestricted release criteria, an additional notification letter will be prepared to implement the RSOP for Facility Disposition

A decommissioning subcontractor will conduct this work The requirements, methods, controls, and processes outlined in the RSOPs have been included into the scope of work for the subcontract If the subcontractor would like to use a method or process not included in the RSOPs then the subcontractor is required to notify Kaiser-Hill Company, L L C If the subcontractor proposes to use alternate methods, an additional notification will be made and, in consultation with Department of Energy (DOE)/Lead Regulatory Agency (LRA), the RFCA process for decision document modification will be used



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The appropriate checklists and information required by the RSOP are attached to this letter and should provide the necessary information This work will be conducted in accordance with the work control documentation prepared by the subcontractor The exact methods and process selected by the subcontractor and progress of the activities will be communicated to DOE/LRA through the consultative process, particularly the monthly RISS production meetings The facility will not be breached during the activity

Questions can be directed to Steve Tower, Projects, Rocky Flats Field Office, at (303) 966-2133

Sincerely,

Joseph A Legare
Assistant Manager
for Environment and Stewardship

Enclosure

cc w/o Encl
S Tower, Projects, RFFO
F Gibbs, K-H RISS
K Dorr, K-H RISS D&D
D Foss, K-H RISS D&D
T Rehder, EPA Region VIII
Building 850 Administrative Record

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# RSOP for Component Removal, Size Reduction, and Decontamination Activities Checklist

| | | | |
|---|---|---|---|
| **Project scope** Buildings 867 and 868 component removal, size reduction, and decontamination | | | |
| **Facility description** Buildings 867 and 868, Filter plenums for Building 865 | | | |
| **Description of planned activity(ies)** The decontamination, size reduction, and component removal required to bring Buildings 867 and 868 to the unrestricted release criteria | | | |
| **Facility/rooms/sets/areas involved** Building 867, Area AJ and Building 868, Area AK | | | |
| **Is RCRA unit closure(s) part of the planned activity?** *If RCRA units are included, attach unit specific information sheets and drawings* | | | **Yes** |
| | | ✔ | **No** |
| **Attach checklists from Appendix A of the RSOP** *Complete checklists by room/set/area/facility, as appropriate* | ✔ | **Component Removal/Size Reduction** | |
| | ✔ | **Decontamination** | |
| **RLCR Status** | ✔ | **RLCR complete and concurrence received** 10/17/01 | |
| | | **RLCR initiated but incomplete, concurrence anticipated** | |
| | | **RLC has not been initiated[1] and is scheduled for initiation on:** | |
| **If RLCR is not complete or initiated, what data will be used to plan the work activities?** | | | |
| **Activity requires modification to the ARARs listed in the RSOP** | | | **Yes,** *attach to letter* |
| | ✔ | | **No** |
| **Attach Administrative Record file requirements for the activity** | | | |
| **Point of contact for each facility/activity** Bill Steward, 303-966-3543 | | | |
| **Duration of work activities** 60 days **Anticipated work start.** contract award 1/02 work start 4/02 | | | |
| **Attach schedule for each facility or activity for information purposes** same as Building 865 schedule | | | |
| **Does the activity involve removing contaminated portions of the building shell?** *Include a description of the activity, contamination levels and controls* | | | **Yes,** *LRA consultation and concurrence required* |
| | ✔ | | **No** |

[1] Evaluate using DPP, Sections 1 1 4 and 1 1 5 and the consultative process to implement activities

## RSOP for Component Removal, Size Reduction, and Decontamination Activities Checklist

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Are there deviations/exceptions to the RSOP for the proposed activity(ies)?** | | | | | | | | | | | **Yes** |
| | | | | | | | | | | ✔ | **No** |
| **Provide an explanation of deviation/exception to the RSOP** Not applicable<br>*Check the appropriate resulting action box below* | | | | | | | | | | | |
| | **Additional RFCA decision document required (PAM – IM/IRA)** | | | | | | | | | | |
| | **Major modification to RSOP** | | | | | | **Field change to RSOP** | | | | |
| | **Minor modification to RSOP** | | | | | | **LRA consultation** | | | | |
| **Activity(ies) will result in the following waste types** | | | | | | | | | | | **Process waste** |
| | | | | | | | | | | ✔ | **Remediation waste** |
| | **TRU** | ✔ | **LLW** | | **LLMW** | | **Haz.** | ✔ | **Sanitary** | ✔ | **Other** recyclable/re-use |
| **LRA Notification Review Time** | | | | ✔ | **14 days, no RCRA unit closure involved** | | | | | | |
| | | | | | **30 days, RCRA unit closure involved** | | | | | | |

**FACILITY COMPONENT REMOVAL, SIZE REDUCTION, AND DECONTAMINATION ACTIVITY CHECKLIST**

**Buildings:** 867 and 868

**Closure Project Manager:** Bill Steward

## COMPONENT REMOVAL/SIZE REDUCTION

| | |
|---|---|
| Gloveboxes | |
| Tanks and ancillary equipment (located both inside and outside the facility) | |
| Fume hoods | |
| Ventilation/filtration systems (both inside and outside the facility) | ✔ |
| Utilities and other equipment (both inside and outside the facility, including electrical, steam, and fire suppression systems) | ✔ |
| Walls | |
| Floors | ✔ |
| Ceilings | |
| Roofs | |
| Other structural members | |
| Other* | |

| | |
|---|---|
| Small tools | ✔ |
| Paving breaker, jackhammer and/or similar tools used to break up concrete | ✔ |
| Excavators, such as backhoes, to excavate underground components, such as tanks and ancillary equipment | ✔ |
| Hoists and cranes | ✔ |
| Plasma arc cutter | ✔ |
| Diamond wire saw | |
| Wachs cutter | |
| Laser cutter | |
| Oxy-torch cutter | ✔ |
| Hydraulic shears | ✔ |
| Shear baler | ✔ |
| Water cutter using abrasives | |
| Arc air slice | |
| Arbor press | |
| Non-explosive cracking agent | |
| Other * | |

* Describe "Other" Component Type(s) and/or Removal/Size Reduction Technique(s)



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**FACILITY COMPONENT REMOVAL, SIZE REDUCTION, AND DECONTAMINATION ACTIVITY CHECKLIST**

## DECONTAMINATION

| | |
|---|---|
| Gloveboxes | |
| Tanks and ancillary equipment (located both inside and outside the facility) | |
| Fume hoods | |
| Ventilation/filtration systems (both inside and outside the facility) | ✔ |
| Utilities and other equipment (both inside and outside the facility, including electrical, steam, and fire suppression systems) | ✔ |
| Walls | ✔ |
| Floors | ✔ |
| Ceilings | ✔ |
| Roofs | |
| Other structural members | |
| Other* | |

| | |
|---|---|
| Wiping/scrubbing/washing with water or detergents | ✔ |
| Vacuuming | ✔ |
| Strippable Coating | ✔ |
| Grinding | ✔ |
| Scarifying | ✔ |
| Scabbling | ✔ |
| Paving breaker/chipping hammer | ✔ |
| Spalling | ✔ |
| Abrasive/grit blasting | ✔ |
| $CO_2$ blasting | |
| Hydrolasing | ✔ |
| Strong mineral acids | |
| Organic or weak acids | |
| Additional oxidants, such as cerium and other similar metals | |
| Other * | |

* Describe "Other" Component(s) and/or Decontamination Technique(s)

_____

_____

_____

Note In the event a planned activity falls outside the scope of this RSOP, the closure project manager will consult with DOE and the LRA to determine whether this RSOP should be modified to include the activity, or whether a separate decision document should be written

**Prepared by** _____ **Date** _____



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## Administrative Record Requirements for this Activity

- Final Rocky Flats Cleanup Agreement (RFCA)
- RFETS Decommissioning Program Plan (DPP)
- RFCA Standard Operating Protocol for Component Removal, Size Reduction, and Decontamination Activities
- Reconnaissance Level Characterization Report for Building 865 Closure Project
- Building 865 Closure Project Scoping Meeting Minutes/Disposition
- Notification Letter and subsequent CDPHE correspondence, if appropriate

# APPENDIX G
# 865 Complex Decommissioning Strategy

The 865 Complex Decommissioning Strategy is based on process and operation history and building walkdowns Once the historical site assessment and reconnaissance level characterization have been complete, the strategy will need to be assessed and revised as necessary

# 1. Introduction

Building 865 is a rectangular building constructed in 1972 composed of two major sections the general shop or "highbay" section, and the office and laboratory section The general shop section consists mostly of a single room of 25,760 square feet with 30-foot ceilings The office and laboratory section is 12,490 square feet A single addition of 2,590 square feet was added in 1985 to provide supplemental hood and storage capability

The main foundations of the building consist of concrete casements and pilings tied to bedrock, which support a cast-in-place beam floor The general shop section has concrete columns with tilt-up twin-tee panels and a twin-tee roof, topped with a poured concrete topping and build-up roofing There is Styrofoam insulation on all interior wall surfaces The office and laboratory section is constructed of concrete block walls and steel interior columns, with twin-tee roofing similar to the general shop section The addition is steel frame with insulated metal walls and roofs There is no basement, however there are a number of pits under or adjacent to some of the larger pieces of equipment Associated facilities within the 865 Complex include

- Building 867, West Filter Plenum, was constructed in 1972 and is located at the southwest corner of Building 865 It provides exhaust filtration for the more contaminated systems in the general shop and other areas, including local exhaust for the extrusion press, the scrubber, and the beryllium electrorefining process area The original Building 867 single-stage plenum was expanded and upgraded to a two-stage HEPA plenum in 1985 The plenum is 2,809 square feet, of square steel tube and steel sheet construction, and located on a reinforced concrete slab
- Building 868, East Filter Plenum, was constructed in 1972 and is located at the southeast corner of Building 865 It provides room exhaust filtration for the general shop area, the Metallurgical Laboratory, and the R&D and Maintenance Shops The original Building 868 single-stage plenum was expanded and upgraded to a two-stage HEPA plenum in 1985 The plenum is 2,130 square feet, of square steel tube and steel sheet construction, and located on a reinforced concrete slab
- Building 866, Process Waste Transfer Station, is located immediately east of Building 865 An original Building 866 was part of the original 1972 construction, but the building was essentially rebuilt in 1981 as part of the new process waste system The 430 square-foot building has insulated metal panel walls and roof, and a reinforced concrete slab with spread and continuous footings and a sump It contained five process waste tanks, two of which were removed in 1998, and associated pumps and piping
- Building 863, Extrusion Press Substation, is 400 square feet in area, located south of Building 865 It is a single-story, prefabricated metal building constructed on a reinforced concrete slab that was built in 1984
- Building C865, Cooling Tower, located west of Building 865, was part of the original 1972 construction The plenum is located on a reinforced concrete slab of about 290 square feet

Building 865 was designed as a metallurgical research and development laboratory to support Site non-plutonium fabrication operations It has additionally housed minor production support activities and the pilot plant for the process to recycle beryllium metal using electrorefining technology Building activities were largely suspended in 1989 Hazard reduction activities were originally conducted by Manufacturing Science Corporation under an independent contract with DOE and a separate RFCA Decision Document (i e IM/IRA), with the intent of using the partially cleaned facility to create a separate metal fabrication entity within the Site After this contract was suspended, hazard reduction continued under Kaiser-Hill to remove equipment and package waste in anticipation of future building decommissioning As part of the hazard reduction activities, equipment was removed from the maintenance and machine shops, along with



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the beryllium electrorefining gloveboxes and cell, the induction casting furnaces, and the arc-melting furnace

There are a number of areas and systems that are currently posted for uranium contamination, and most of the laboratories along with several other rooms are posted as containing "External Beryllium Contamination," although there are no actual "Beryllium Regulated Areas" Significant portions of the exhaust ventilation systems could be expected to be at least somewhat beryllium and uranium-contaminated The potential also exists for lead and PCBs in paint, and various heavy metal and hazardous organic constituent contamination

## 2. Decommissioning Planning

The Site uses dismantlement sets and decommissioning areas to serve as the foundation for planning, scheduling, and managing decommissioning work Dismantlement consists of planning, disassembly and removal of equipment components and satisfactory packaging/shipment of the resulting waste

Dismantlement sets consist of small groupings of facility components containing removable radiological contamination in excess of 100,000 disintegrations per minute (dpm) for uranium surface contamination Decommissioning areas are comprised of components with removable radiological contamination less than 100,000 dpm In general, Steelworkers complete dismantlement sets, and Building Trades complete decommissioning areas For planning purposes, the Building 865 Complex has been divided into appropriate decommissioning areas Survey data conducted since the completion of recent pre-decommissioning activities do not suggest any areas of contamination greater than 100,000 dpm, and therefore no dismantlement sets have been identified

Prior to the detailed planning of the Building 865 decommissioning activities, a RLC will be performed to quantify the level of contamination present on equipment, utility and ventilation systems, and on structural and non-structural building surfaces This characterization will formally determine the facility type under RFCA, provide planning data, and act as the Pre-Demolition Survey (PDS) for those buildings and areas that may be effectively administratively controlled or isolated from any decontamination activities Additional characterization relating to potential Building 865 under-building contamination will be required consistent with the provisions of the Industrial Area Sampling and Analysis Plan, and Section 1 6 of this Strategy It is anticipated that this characterization will be conducted early in the decommissioning process

The following form the basis for the decommissioning strategy for the Building 865 Complex

- The 865 complex contains Type 1 and 2 facilities
- The extent of contamination present in Building 865 will be low enough that there will be no steelworker dismantlement and decontamination activities, leaving the essentially all of the work to be performed by the Building Trades
- Decontamination activities are planned to provide a building that meets the unrestricted release criteria before demolition activities
- The Land Configuration Basis Design and Groundwater Balance Study will not require the removal of the concrete pilings more than 3 feet below the final proposed grade of the remaining structures
- Adequate numbers of decommissioning workers, and beryllium-trained and monitored (under the Beryllium Health Surveillance Program) employees are available

### *2.1 Decommissioning Areas*

The following table indicates the area designation and a brief description of those areas The areas involve dismantlement by Building Trades workers, and decontamination activities Some miscellaneous

equipment may remain in areas after decontamination, component removal (dismantlement), and size reduction because it meets the unrestricted release criteria, and there is no justification to remove it The general approach will be to isolate all energized systems within the 865 Complex as early as practical to reduce the potential for inadvertent cutting of energized systems

| Area Designation | Area Description |
|---|---|
| AA | This area consists of the Building 865 administrative, locker, and utility support areas in the office and laboratory section of Building 865, including Rooms 107, 109 – 133, 139, 140, 141, and 149 Its execution involves the removal of equipment, piping, electrical conduit and motor control centers, suspended ceilings, interior walls, and supply and exhaust duct, and decontamination of contaminated areas Some of the area is expected to be beryllium-contaminated |
| AB | This area consists of the laboratories and shops in the office and laboratory section of Building 865, including Rooms 101 – 106, 108, 135, and 136 – 138 Its execution involves the removal of laboratory hoods, suspended ceilings and interior walls, piping, electrical conduit, and supply and exhaust duct, and decontamination of contaminated areas The area is designated as External Beryllium Contaminated |
| AC | This area consists of the areas and rooms on and below the mezzanine in the general shop area (Room 145), including Rooms 143, 146, and 147, and the original process waste pit Its execution involves the removal of the scrubber, the supply fans and plenums, suspended ceilings, interior walls, piping, electrical conduit, and exhaust duct, and decontamination of contaminated areas |
| AD | This area consists of the addition on the east side of Building 865, including Rooms 171, 172, and the loading dock Its execution involves the removal of equipment, interior walls, piping, electrical conduit, motor control centers, and supply and exhaust duct, and decontamination of contaminated areas The area is within the building radiological contamination area (CA), and some of the area is expected to be beryllium-contaminated |
| AE | This area consists of the west side of the general shop section, including Room 145 west of column line 2, and rooms 148, 144, 151, 151A, and 152 Its execution involves the removal of equipment, interior walls, piping, electrical conduit, and exhaust duct, and decontamination of contaminated areas The area is within the building CA, and some of the rooms in this area are designated as External Beryllium Contaminated |
| AF | This area consists of the center of the general shop section, including Room 145 between column line 2 and column line 5 Its execution involves the removal of equipment, interior walls, piping, electrical conduit, and supply and exhaust duct, and decontamination of contaminated areas The area is within the building CA, and some of the area is expected to be beryllium-contaminated |
| AG | This area consists of the east side of the general shop section, including Room 145 east of column line 5, and rooms 145A and 153 Its execution involves the removal of equipment, interior walls, piping, electrical conduit, and exhaust duct, and decontamination of contaminated areas The area is within the building CA, and some of the area is expected to be beryllium-contaminated |
| AH | This area consists of the exterior surfaces of Building 865 and includes removal of the exhaust fan EF-4 on the roof of the office and laboratory section, and removal of any additional appurtenances required prior to building demolition |
| AJ | This area consists of Building 867, the West Filter Plenum Its execution involves the removal of primary HEPA filtration in the filter plenum, and decontamination activities to reduce contamination levels in the plenum All piping, conduit, ventilation equipment, and contaminated structure will be removed The plenum is listed as possibly beryllium contaminated |

| Area Designation | Area Description |
|---|---|
| AK | This area consists of Building 868, the East Filter Plenum Its execution involves the removal of primary HEPA filtration in the filter plenum, and decontamination activities to reduce contamination levels in the plenum All piping, conduit, ventilation equipment, and contaminated structure will be removed The plenum is listed as possibly beryllium contaminated |
| AL | This area consists of Building 866, the Process Waste Transfer Station, and includes the removal of the process waste tanks, and process waste piping in the building and between Building 866 and Building 865 It additionally includes the removal of remaining piping, electrical, and ventilation systems, and decontamination of the structure as necessary |
| AM | This area consists of Building 863 (Extrusion Press Substation) and Building C865 (Cooling Tower) It includes removal of remaining piping and electrical systems The RLC/PDS will confirm radiological status, and decontamination activities are not expected to be required |

### *2.2 Regulatory Approach*

It is anticipated that the Building 865 Complex will contain Type 1 and 2 facilities Type 1 facilities will be dispositioned in accordance with the Decommissioning Program Plan after the reconnaissance level characterization is complete For Type 2 facilities, the decommissioning will be conducted in accordance with the approved RFCA Standard Operating Protocols (RSOPs) After the RLC has been completed and while concurrence is being obtained on the report, a notification letter will be prepared in accordance with the Component Removal, Size Reduction and Decontamination Activities RSOP After the PDS has been completed and while approval is being obtained on the report, a notification letter will be prepared in accordance with the Facility Disposition RSOP If building rubble from the demolition is planned to be recycled, a notification letter will be prepared in accordance with the Concrete Recycling RSOP

### *2.3 Authorization Basis Strategy*

Building 865 does not have a Final Safety Analysis (FSA) or other building-specific Authorization Basis and operates under the provisions of the Site Safety Analysis Report (SAR) Ongoing hazard stabilization activities will reduce the risk in the facility such that the authorization basis can be downgraded Decommissioning activities will be preformed according to the RSOP for Facility Disposition, which has been prescreened against the Site SAR and does not require any additional safety evaluation screens

## 3. Facility Component Removal, Size Reduction, and Decontamination

The *RSOP for Facility Component Removal, Size Reduction, and Decontamination Activities* describes the techniques and controls that will be used to perform these activities on the Type 2 and 3 facilities at RFETS The following paragraphs describe the specific activities associated with the Building 865 Complex In some instances, the sequence of activities and methods are specified The information contained in this section is based on current planning activities The actual sequence and methods may differ from what is indicated, however as long as the activity remains within the scope of the RSOP, governing documents will not be modified

Throughout this section, statements are made regarding the waste types that will be generated from component removal, size reduction, and decontamination activities These statements are based on process knowledge and are provided for information only All wastes generated will be characterized and

managed in accordance with applicable waste management procedures described in the *RSOP for Facility Component Removal, Size Reduction, and Decontamination Activities*

### *3.1 Size Reduction*

A number of pieces of equipment or items will require size reduction The major size reduction scope will be the several large pieces of forging equipment that contain significant cast iron or steel components While moderately contaminated with uranium and beryllium, the size and weight of these components will pose some cutting and rigging challenges as they are packaged for disposal There will be additional size reduction of a number of hoods, ventilation sections, the process scrubber, and process waste lines These items will be size reduced as follows

- The equipment is characterized, and if the equipment is contaminated, a decision is made whether to decontaminate for unconditional release, or to disposition as low-level waste (LLW), typically using the Surface Contaminated Object (SCO) waste characterization provisions
- If the equipment is to be dispositioned as LLW, contaminated surfaces are fixed, and provisions are made for contamination control during size reduction This may include establishment of controlled areas, isolation using plastic sheeting, and use of self-contained ventilation equipment
- The necessary tools, equipment, materials and supplies are mobilized along with support services
- The equipment is disconnected from external equipment and utility connections, dismantled, other ancillary appurtenances removed, and packaged for disposal The dismantlement operation will include removals, cutting, and other size reduction operations that are necessary to fit the equipment or materials into appropriate containers
- Once the equipment is removed, the controlled area is decontaminated, along with all tools, equipment and materials, or packaged for disposal

### *3.2 Removal of Ventilation Systems*

The supply ventilation system for Building 865 consists of two supply filter units and two fans, FU-1/F-1 and FU-2/F-2, located on the general shop mezzanine The process exhaust duct drawing from the enclosures and "gloveboxes" where uranium and beryllium were directly worked is connected to the two-stage HEPA filter plenum, FU-4, located in Building 867 Most of the process exhaust duct is round sheet metal, with the major headers on the south and west walls of the general shop The building exhaust for the general shop area is provided by a two-stage HEPA filter plenum, FU-3, located in Building 868 The building ventilation in the general shop is provided with supply and exhaust ducts and registers arrayed along the north-south interior columns, there is no ventilation partition between areas in the general shop The Metallurgy Laboratory, and the R&D and Maintenance Shops (area AB) exhaust via the process and building exhaust, all other office and laboratory rooms (area AA) are exhausted via EF-4, which is unfiltered

As facility components are removed and/or decontaminated, workers will complete the removal of remaining utilities, including building ventilation and exhaust filtration systems Due to the potential for radiological and/or chemical contamination within the ventilation systems ductwork, there is the possibility for releases of hazardous and/or radioactive materials to the environment As a result, the removal sequence is important and will be planned carefully for each area Although the approach may differ on an area-by-area basis, the typical removal sequence described below will be followed

- Airflow studies will be performed in accordance with Radiological Safety Practices Manual to determine feasibility of dismantlement and decontamination activities and identify potential problems and options

- For equipment connected to the process exhaust, hood/equipment removal will be initiated at the hood or piece of equipment furthest away from the plenum and work will continue toward the plenum to ensure that adequate air continues to flow from areas of least contamination to areas of higher contamination Process exhaust duct will be removed as the equipment that the duct supports is removed There may be exceptions to this rule depending on access restrictions
- Once equipment has been removed, the building areas serviced by that ventilation could be decontaminated to the unrestricted release criteria
- The inactive exhaust plenum and all exhaust ductwork will be removed
- Airflow will be balanced, if necessary, using temporary ventilation and filtration systems

Prior to the start of decontamination activities, a characterization effort will be accomplished to determine the extent of contamination in the ventilation systems serving the equipment and hoods

A fixative coating may be applied to selected ductwork surfaces to reduce the spread of contamination during ductwork disassembly and movement The application of fixative coating will require that ventilation be reduced or terminated in the selected ductwork Reduction or termination of ventilation may negatively affect or eliminate room and building work activities Building differential pressures will be maintained to assure building balance and negative pressures are maintained as necessary to support the completion of coincident and subsequent decommissioning activities

Following application of the fixative and re-initiation of complete or reduced system flow, rigging may be installed to hold and lower the disassembled ductwork Complete or reduced ventilation system flow may be used to reduce contamination spread during ductwork separation Mechanical cutting techniques and standard disassembly techniques (unbolting of ductwork connections) will be used to disassemble ductwork sections Where possible, larger sections of duct will be disconnected from structural supports and lowered to the floor where they may be more safely size reduced Open ductwork remaining connected to the ventilation system will be configured (e g , blanked, capped, valved, or a HEPA filter will be installed) to support maintenance of negative pressure in the room/area and the building

Disassembly of the exhaust plenums will be performed just before building demolition activities Exhaust supporting a specific room/area of the building will not be removed until contamination levels of equipment or structure, and corresponding ductwork in the applicable area, are below radiation protection defined thresholds If selected ductwork has been characterized as free of contamination (i e eligible for unconditional release) internally and externally, and does not interfere with the PDS activities, the decision will be made to remove it during dismantlement or demolition

Plenum disassembly will not be initiated until all connecting ductwork has been removed to the filter plenum intake Any ductwork openings will be sealed, and the fans adjusted to maintain appropriate differential pressure Plenum disassembly will be initiated by removing the first stage HEPA filters, the filter and de-mister frames, and the fire suppression equipment The area upstream of the second stage HEPA filters will be decontaminated and surveyed Loose contamination in the plenums will be removed using wet wiping techniques Depending on the situation, strippable coatings may be used to reduce contamination levels of the plenum surfaces After exposed surfaces have been decontaminated or fixed, exhaust fans will be shutdown Second stage filters, frames, fans, and all additional interior equipment will be removed and any additional exposed surfaces decontaminated or fixed as necessary Filters and contaminated materials will be packaged in appropriate waste containers Temporary HEPA-filtered ventilation will be initiated external to the filter plenum or building if necessary to maintain the plenum or building below ambient pressure Fixative or strippable coating application to plenum surfaces is intended to reduce the spread of contamination during plenum disassembly

The plenum materials will be dispositioned into the appropriate waste (or recycle) category, and the method for removal specified based on the results of this survey Filter plenums are currently anticipated to be to be dispositioned as low-level waste due to the potential for radiological and beryllium contamination

# 4. Decontamination

Structural decontamination will involve the removal of residual contamination from the structure, removal of remaining utility systems, decontamination of the remaining structure, and the initial confirmatory survey of release status This will occur in the following decommissioning areas

AA Building 865 Administrative, Locker, and Utility Support
AB Building 865 Laboratories and Shops
AC Building 865 General Shop Mezzanine
AD Building 865 East Addition/Dock
AE Building 865 General Shop West
AF Building 865 General Shop Central
AG Building 865 General Shop East
AH Building 865 exterior surfaces
AJ Building 867 West Filter Plenum
AK Building 868 East Filter Plenum
AL Building 866 Process Waste Transfer Station
AM Building 863 (Extrusion Press Substation) and Building C865 (Cooling Tower)

## *4.1 General Approach to Structural Decontamination*

The internal areas of the structure will be dismantled according to areas At the close of the dismantlement activities, the areas will be empty of all equipment and process exhaust duct The electrical systems supplying lighting and distribution will remain in place Systems providing services to the structure may be removed or remain in place However, any equipment, piping, and/or conduit that remains, as well as structural surfaces to which they are attached, must be sufficiently characterized to assure the release criteria is achieved Asbestos removal internal to the structure will be completed, and the areas will be isolated from the balance of the structure to allow decontamination activities

The general shop section of Building 865 (with the exception of the East Addition), areas AC, AE, AF, and AG, is one large room, with no partitions or significant ventilation differential that would assist in controlling contamination spread during decontamination Within each of theses areas the general flow of work will begin with the dismantlement or size reduction of the large equipment (mills, presses, etc ) and decontamination of any elevated levels of contamination uncovered in the process Next the process exhaust system, including the scrubber system, and any process waste lines will be removed Room exhaust may also be removed at this time, depending upon the extent of contamination discovered in the room exhaust during the RLC Finally, specific areas will be decontaminated, small interior room partitions removed, and the area prepared for the PDS Areas AB and AD will be decontaminated prior to removal of building exhaust

All interior systems and materials that must be removed prior to decontamination, i e piping, duct, conduit, and interior non-load bearing walls, will be removed and packaged for disposal as LLW Machine-mounted pneumatic mechanical methods will be used for removing these materials to the greatest extent possible, although their use may be constrained by equipment size Interior Styrofoam insulation on the walls of the general shop section will be removed prior to the PDS

If the RLC identifies large areas of elevated contamination, then general area decontamination may be preferable to spot decontamination for a given area In this case, the remaining upper structural surfaces

(walls and ceilings) will have all paint removed using an abrasive shot/grit blasting method or by high-pressure water hydrolasing methods Remaining floor surfaces will be decontaminated using mechanical scabblers and/or rotary cutting equipment Removed paint and cement materials, the constituents having been concentrated by the removal process, will be characterized for hazardous components and packaged for disposal as LLW or low-level-mixed waste (LLM) as appropriate

- Room or area walls will be used as containment barriers where possible, and temporary containment barriers may be installed to isolate the decontamination activities from the balance of the structure Mobile HEPA ventilation will be installed to ventilate the areas being decontaminated, if necessary The decontamination of Building 865 will be performed in the following general sequence
- Remaining electrical systems (conduit, switches, and distribution of electricity) will be removed Temporary electrical services will be installed as necessary
- Remaining safety systems will be removed back to the area boundary, and any necessary modifications performed to replace required safety items
- Remaining utility supply systems (water, air, etc ) will be removed to the area boundary, and temporary services (for support of the decontamination activities) installed for supply to the area
- Floor drains and below-slab services will be isolated or removed
- Prior to the characterization of the interior concrete surface areas, and physical decontamination activities, painted concrete surfaces in selected areas may be abrasively cleaned of paint based on the results of the RLC Removed paint material will be packaged for disposal as LLW
- Floor areas in selected areas may be scarified to remove epoxy-coating material, and all floor tiles (asbestos and non-asbestos) removed
- Scaffolding will be installed (or personnel man-lifts used) in the area, and upper walls and ceiling areas will be characterized Concrete ceilings will be decontaminated as necessary, characterization completed, and the decontaminated surfaces covered to protect against re-contamination
- Scaffolding will be removed to allow decontamination of the floor surfaces Areas exhibiting residual contamination following the initial pre-demolition surveys will be physically isolated, decontaminated, and re-surveyed
- All waste will be removed from the area, pre-certified, and staged outside the area boundary
- Pre-demolition surveys of interior surface areas will be performed
- Systems and equipment attached to the exterior surfaces of the structure will be removed, and initial PDS surveys completed
- Following decontamination of the exterior structure and removal of remaining asbestos roofing materials, final surveys of the building structure will be completed
- Asbestos-containing materials in the roofs will be removed before demolition activities

The following table provides estimates on the decontamination required in the areas detailed in the subsequent sections

| AREA | FLOOR $ft^2$ | WALLS $ft^2$ | CEILING $ft^2$ | WALL REMOVED $ft^3$ | FLOOR REMOVED $ft^2$ | SURFACE DECON FLOORS $ft^2$ | SURFACE DECON WALLS $ft^2$ |
|---|---|---|---|---|---|---|---|
| AA | 4,650 | 33,660 | 4,650 | 280 5 | 0 0 | 233 | 594 |
| AB | 4,500 | 14,280 | 4,500 | 119 0 | 0 0 | 450 | 504 |
| AC | 2,250 | 7,140 | 2,250 | 59 5 | 112 5 | 1,688 | 2,213 |
| AD | 3,600 | 4,624 | 3,600 | 38 5 | 180 0 | 3,600 | 1,744 |

| AREA | FLOOR $ft^2$ | WALLS $ft^2$ | CEILING $ft^2$ | WALL REMOVED $ft^3$ | FLOOR REMOVED $ft^2$ | SURFACE DECON FLOORS $ft^2$ | SURFACE DECON WALLS $ft^2$ |
|---|---|---|---|---|---|---|---|
| AE | 4,500 | 12,240 | 4,500 | 102 0 | 225 0 | 4,500 | 10,845 |
| AF | 11,250 | 17,340 | 11,250 | 263 5 | 562 5 | 11,250 | 16,583 |
| AG | 4,500 | 12,240 | 4,500 | 0 0 | 225 0 | 4,500 | 10,845 |
| AH | 30,600 | 30,124 | 0 | 0 0 | 0 0 | 1,530 | 370 |
| AJ | 2,015 | 2,808 | 2,015 | 0 0 | 0 0 | 2,015 | 2,961 |
| AK | 2,640 | 2,496 | 2,640 | 0 0 | 0 0 | 2,640 | 2,844 |
| AL | 432 | 1,092 | 432 | 0 0 | 86 4 | 432 | 399 |
| AM | 400 | 1,040 | 400 | 0 0 | 0 0 | 0 | 0 |
| **TOTAL** | **71,337** | **139,084** | **40,737** | **863** | **1,391** | **32,837** | **49,900** |

### 4.1.1 Area AA

The Building 865 administrative, locker, and utility support areas will be stripped of equipment and systems Sanitary lines serving the building will be flushed, tapped and isolated, and the outlet header foamed-in-place at the exterior wall penetration for removal during demolition and/or ER activities Asbestos insulation in the mechanical equipment room will be removed, along with the vinyl asbestos tile in office spaces The removal of the mechanical equipment in the mechanical equipment room may be deferred until demolition, depending on the results of the RLC Remaining electrical and HVAC systems will be removed to the area boundary as necessary to allow the PDS, which will then be performed Should surveys indicate additional areas of contamination, these areas will be isolated and decontaminated Decontamination may be required in selected areas of the area AA Initial PDS surveys will confirm radiological and beryllium status The area will be isolated from the general shop to prevent recontamination

### 4.1.2 Area AB

The laboratories and shops in the office and laboratory section of Building 865 will have all laboratory hoods dismantled, and the remaining contaminated HVAC systems removed to the area boundary The remaining electrical systems, equipment/fixtures, partitions, and suspended ceilings will be removed from the laboratory, office and shop areas, and the structures surveyed to identify any contamination that had been covered Selected decontamination of structural surfaces is expected to be required in this area, and the laboratory and shops have been designated as an External Beryllium Contaminated area After decontamination is complete, PDS surveys will be conducted The area will be isolated from the general shop to prevent recontamination

### 4.1.3 Area AC

The scrubber system and contaminated HVAC systems will be removed from the areas on and below the mezzanine The supply air units and associated heating and air filtering equipment will be removed later in conjunction with the removal of the supply air system The remaining supply air duct, electrical systems, equipment/fixtures, partitions, and suspended ceilings will be removed from the rooms below the mezzanine, and the structural surfaces surveyed to identify any contamination that may have been covered Selected decontamination of structural steel and concrete surfaces is anticipated in this area (including the original process waste tank pit), since the area is part of the general shop (Room 145),



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which is known to contain beryllium and uranium contamination After decontamination is complete, the Styrofoam panels will be removed from the walls Then PDS surveys will be conducted

### 4.1.4 Area AD

The addition on the east side of Building 865 will have any contaminated HVAC systems removed to the area boundary The remaining electrical systems and equipment/fixtures will be removed from the areas, and the structures surveyed to identify any contamination that had been covered Decontamination of structural surfaces may be required in this area, the area is open to the general shop (Room 145) which is known to contain beryllium contamination After decontamination is complete, PDS surveys will be conducted

### 4.1.5 Area AE

The west side of the general shop includes the room that contained the beryllium electrorefining cell, the various beryllium processing areas, ingot breakout, the hydrospin press, the arc melting room, the two-ton bridge crane, process waste piping, and the majority of the process exhaust duct The equipment will be size-reduced as necessary and packaged as waste The process exhaust duct servicing area equipment and the process scrubber will be fixed internally and sectioned as appropriate, lowered to the floor and further size-reduced, and packaged as waste Building penetrations or the exhaust duct leading to Building 867 will be sealed The remaining supply air duct, electrical systems, equipment/fixtures, partitions, and suspended ceilings will be removed, and the structures surveyed to identify any contamination that may have been covered Selected decontamination of structural concrete surfaces is expected to be required in this area Structural steel may be size reduced and packaged as waste or decontaminated Rooms 151 and 152 have been designated as an External Beryllium Contaminated area, and additional locations within the area are known to contain beryllium and uranium contamination Asbestos-containing materials will be removed from interior areas and equipment After decontamination is complete, the Styrofoam panels will be removed from the walls Then PDS surveys will be conducted

### 4.1.6 Area AF

The center of the general shop section, i e Room 145 between column line 2 and column line 5, includes vacuum furnaces, a rolling mill, an extrusion press, various smaller pieces of equipment, the ten-ton bridge crane, under-equipment pits, and the majority of the duct providing building exhaust to the general shop The equipment will be size-reduced as necessary and packaged as waste Process exhaust duct servicing equipment will be fixed internally and sectioned as appropriate, lowered to the floor and further size-reduced, and packaged as waste Pits and sumps will be decontaminated Building exhaust duct will be removed either before or after local decontamination, depending on the results of the RLC The remaining supply duct, electrical systems, equipment/fixtures, and partitions will be removed, and the structures surveyed to identify any contamination that may have been covered Selected decontamination of structural steel and concrete surfaces is anticipated in this area, since the area is contained within the general shop (Room 145) which is known to contain beryllium and uranium contamination Asbestos-containing materials will be removed from interior areas and equipment After decontamination is complete, the Styrofoam panels will be removed from the walls Then PDS surveys will be conducted

### 4 1.7 Area AG

The east side of the general shop section includes two hot isostatic presses, hydraulic and hydrofrom presses, a forging hammer, various smaller furnaces, and a pit supporting the extrusion press The new hot isostatic press may be surveyed and released for sale or reuse All other equipment will be size-

reduced as necessary and packaged as waste Process exhaust duct servicing equipment will be fixed internally and sectioned as appropriate, lowered to the floor and size-reduced additionally if required, and packaged as waste Pits and sumps will be decontaminated Building exhaust duct leading to Building 868 will be removed after local exhaust ducting is no longer required for any area in the building The remaining supply duct, electrical systems, equipment/fixtures, and partitions will be removed, and the structures surveyed to identify any contamination that may have been covered Structural steel either may be size-reduced and packaged as waste or decontaminated Selected decontamination of structural surfaces is expected to be required in this area, the area is contained within the general shop (Room 145) which is known to contain beryllium contamination Asbestos-containing materials will be removed from interior areas and equipment After decontamination is complete the Styrofoam panels will be removed from the walls Then PDS surveys will be conducted

### 4.1.8 Area AH

The exterior surfaces of Building 865 will have the exhaust fan EF-4 removed from the roof of the office and laboratory section Additionally, any external areas of contamination identified on the building exterior and any exterior dismantlement required prior to the demolition phase will be accomplished Initial PDS surveys will be performed Should surveys indicate areas of contamination, these areas will be isolated, containment systems installed, as necessary, and decontaminated Decontamination efforts are not expected to be required for the building exterior surfaces, and the initial PDS surveys will confirm radiological status

### 4.1.9 Area AJ

Dismantlement and decontamination activities in the West Filter Plenum will be initiated after removal of all process exhaust ducts inside Building 865 and determination that sufficient building ventilation and building negative can be maintained using just the East Filter Plenum in Building 868 A containment structure will be constructed during the removal of the ductwork between Building 865 and Building 867 unless the contamination in the duct is sufficiently immobilized to preclude the release of contamination HEPA filters and equipment will be removed as discussed in the discussion on removal of ventilation systems, and interior surfaces decontaminated or fixed The filter plenum, or at least the original portion of the plenum structure upstream of the first stage of HEPA filtration, is expected to be size reduced in place A containment structure, with temporary HEPA ventilation if necessary, will be constructed during the plenum size reduction unless the interior surface contamination is sufficiently immobilized to preclude the release of contamination The resultant materials will be packaged for disposal as low-level waste Alternatively, the interior structural surfaces may be decontaminated sufficiently to allow all or part of the structure to be released as part of the PDS The plenum is listed as potentially beryllium contaminated

Following removal of contaminated systems and structure, initial PDS surveys will be performed on the slab and any remaining portions of the plenum structure Should surveys indicate areas of residual contamination, these areas will be isolated, containment systems installed as necessary, and the areas decontaminated

### 4.1 10 Area AK

Dismantlement and decontamination activities in the East Filter Plenum will be initiated after contaminated work in the building is sufficiently complete to allow the building ventilation to be shutdown (i e both eliminate pressure differentials and occupational air movement requirements) A containment structure will be constructed during the removal of the ductwork between Building 865 and

Building 868 unless the contamination in the duct is sufficiently immobilized to preclude the release of contamination HEPA filters and equipment will be removed as discussed in the discussion on removal of ventilation systems, and interior surfaces decontaminated or fixed The filter plenum, or at least the original portion of the plenum structure upstream of the first stage of HEPA filtration, is expected to be size reduced in place A containment structure, with temporary HEPA ventilation if necessary, will be constructed during the plenum size reduction unless the interior surface contamination is sufficiently immobilized to preclude the release of contamination The resultant materials will be packaged for disposal as low-level waste Alternatively, the interior structural surfaces may be decontaminated sufficiently to allow all or part of the structure to be released as part of the PDS The plenum is listed as potentially beryllium contaminated

Following removal of contaminated systems and structure, initial PDS surveys will be performed on the slab and any remaining portions of the plenum structure Should surveys indicate areas of residual contamination, these areas will be isolated, containment systems installed as necessary, and the areas decontaminated

### 4.1.11 Area AL

The Process Waste Transfer Station will have all remaining tanks, pumps, piping and other equipment associated with the process waste system dismantled and packaged as LLM or LLW Tanks will likely be characterized, sealed and disposed of as single packages The process waste piping between Building 865 and 866 will be excavated and removed with the appropriate radiological (and hazardous constituent) controls The remaining electrical systems, equipment, and fixtures will be removed Decontamination of structural surfaces is anticipated in this area After decontamination is complete, PDS surveys will be conducted

### 4.1.12 Area AM

This area, consisting of Building 863 (Extrusion Press Substation) and Building C865 (Cooling Tower), is essentially vacant and not expected to contain any contaminated systems or equipment Remaining equipment in these buildings will be removed as necessary and processed for unrestricted release Decontamination efforts are not expected to be required for this area, initial PDS surveys will confirm radiological status

## 5. Demolition

This section contains information on the Building 865 Complex approach to demolition In some instances, the sequence of activities and methods are specified The information contained in this section is based on the current planning basis The actual sequence and selected methods may differ from what is indicated in this section As long as the activity remains within the scope of the *RSOP for Facility Disposition* and consistent with RFCA and the DPP, no additional project-specific RFCA decision documentation will be required

Demolition activities will be planned at an appropriate time in the closure process, before completion of the PDS Actual demolition will not proceed until the LRA has approved the Pre-Demolition Survey Report

The scope of demolition activities includes the structures, facilities, and appurtenances associated with the 865 Complex, such as loading docks, pads, temporary structures, and underground utilities and structural features to the edge of the foundations Sidewalks, fences, and aboveground exterior utilities

will be removed on a case-by-base basis Asphalt roadways and the remaining underground utilities will be addressed under an ER decision document Soils removed incidental to demolition activities will be managed in accordance with the *RSOP for Asphalt and Soil Management* (when approved)

Facility demolition will be accomplished using a variety of mechanized equipment Tracked excavators fitted with quick-change attachments are the preferred piece of equipment, using a variety of hydraulic shears, grapples, thumbs and vibratory demolition hammers to accomplish various demolition needs Additionally, the detachable tools can be fitted with remote operated fogging water-spray nozzles for dust control purposes During demolition, airborne dust will be monitored on a visual presence or absence criterion, with dust control water spray being applied as required from a firehose equipped with a fog nozzle Additional air monitoring will be performed as required for beryllium, radiological, and hazardous constituents

Excavators may direct-load debris into disposal containers or trucks, or front-end loaders may be utilized The anticipated sequence of activities associated with the demolition of the 865 Complex is listed below

- Mobilization
- Demolition site preparation
- Removal of overhead obstructions
- Removal of Site features required to execute demolition (paved lots and streets for ease of access, retaining walls, inactive exterior fire system components)
- Demolition of outbuildings, Building 866 (Process Waste Transfer Station), Building 863 (Extrusion Press Substation), Building C865 (Cooling Tower), and Site features
- Completion of the Building 865 demolition and removal of remnant walls and foundation items to a depth at least 3 feet below grade
- Placement of an engineered backfill in any excavated areas
- Demolition site cleanup
- Demobilization

### *5.1 Mobilization*

Demolition will begin with the mobilization of the demolition contractor followed by site preparation A central staging area will be established in an existing improved area, such as the roadways and parking areas south of and adjacent to the complex The decommissioning contractor may mobilize the following items office trailers, shower facilities, lunchroom, portable toilets, hand wash units, and tool/equipment storage A fence may be installed as an overall access control boundary

### *5.2 Demolition Site Preparation*

As part of demolition site preparation, existing features associated with Site utility systems will be located, marked, and evaluated for isolation purposes The sanitary sewer system will be flushed and isolated to prevent inflow of inappropriate wastewater generated by demolition dust control activities

Electrical power requirements will be identified as part of the planning process Maintaining sump and foundation pumps for control of groundwater and some area lighting will be necessary However, it is likely that the building power feed from the main distribution cutoff located south of Building 865 will eventually be terminated and decommissioning activities will be supported by temporary power

Protective barriers or fences will be erected around permanent Site features designated to remain during demolition and ER Electrical distribution switch gear, overhead electrical distribution lines, area lighting, and fire protection system hydrants and post indicator valves that will remain operational during

and/or after the demolition will be protected, and flagged for added operator awareness and overall visibility

As necessary, run-on and run-off control features will be implemented, temporary diversion berms, erosion control silt fencing and interceptor ditches will be installed, and existing drainage culverts and ditches will be cleaned out as required to divert significant overland flow away from the demolition site

Traffic patterns and specific loading areas for waste management will be established, as will temporary stockpile areas for debris Backfill material that will be stockpiled for a long period of time will require the creation of a more permanent area that will encompass additional erosion or run-on/run-off controls as necessary The location of any long-term backfill stockpile area will be coordinated with the ER Project Finally, any known contaminated surface soils in the areas immediately adjacent to planned demolition activities will be delineated and controlled by ER personnel

### *5.3 Removal of Site Features*

Initial demolition activities will also involve stripping remnant equipment and other miscellaneous materials from rooftops that were not removed earlier during decontamination The removal of overhead obstructions will reduce the possibility of equipment coming in contact with energized electrical lines, and will allow access for operating cranes and long-reach tracked excavators The removal of remnant equipment may be required early in the process to free up the roof system for removal of potential ACM in the membrane of structures with older, multiple fiber-ply, built-up roofing systems

### *5.4 Demolition of Buildings*

The specific details of the demolition given below represent the current approach to addressing the problems posed by the demolition of the 865 Complex

**Building 867 and Building 868** (East and West Filter Plenums) should already have had all or most of the plenum metal structure removed during dismantlement and decontamination, with the major remaining features being the plenum slabs and foundations Any remaining metal structure will be shredded and sized on its slab with a tracked excavator using a detachable hydraulic shear and recycled The concrete slabs and foundations associated with the plenums will be broken up using a vibratory hammer attachment to the excavator, with the rubble being designated as suitable for on-Site backfill

**Building 866** (Process Waste Transfer Station) houses the three (of five original) tanks that collected Building 865 and Building 889 process waste prior to it being pumped to Building 374 through the process waste system It is constructed of cast-in-place reinforced concrete slab foundation and sump, and metal frame and insulated metal walls and roof

The building will have all systems and equipment removed, and is anticipated to meet unrestricted release criteria The building will be shredded and sized on its slab with a tracked excavator using a detachable hydraulic shear Metal materials will be shipped off-Site for recycling, with any non-recyclable items being direct-loaded into containers for off-Site disposal The concrete slab/foundation associated with the building will be broken up using a vibratory hammer attachment to the excavator, with the rubble being designated as suitable for on-Site backfill

**Building 863** (Extrusion Press Substation) is a small, light, steel-framed structure with corrugated metal siding, placed on a cast-in-place concrete slab The building is expected to have all systems and equipment removed, and is anticipated to meet unrestricted release criteria The building will be shredded and sized on its slab with a tracked excavator using a detachable hydraulic shear Metal materials will be shipped off-Site for recycling, with any non-recyclable items being direct-loaded into containers for off-Site disposal The concrete slab/foundation associated with the building will be broken

up using a vibratory hammer attachment to the excavator, with the rubble being designated as suitable for on-Site backfill

**Building C865** (Cooling Tower) was constructed on a reinforced cast-in-place concrete basin The tower and associated piping and equipment is anticipated to meet unrestricted release criteria The demolition approach consists of using a tracked excavator with a shear/crusher attachment to remove any residual items, and reduce all remaining structural materials to rubble The recycle and waste materials will be segregated and dispositioned, and the concrete rubble will be staged for use as backfill material

**Building 865** is a large, single-story building composed of two major sections the general shop section, and the office and laboratory section The general shop section is constructed of pre-cast concrete columns and pre-cast twin-tee panels walls and roof The office and laboratory section is constructed of concrete block walls and steel interior columns, with twin-tee roofing similar to the general shop section An addition located east of the general shop is steel frame with insulated metal walls The foundation of the whole building is cast-in-place beams with a slab floor, supported by cast-in-place pilings The pilings typically penetrate at least four feet into bedrock The roof is covered with rigid insulation material and membrane roofing over a poured concrete topping Insulation and roofing material will be removed prior to demolition activities if required for asbestos remediation

It is expected that following the decontamination activities, the structure, including any equipment items left in place, will meet unrestricted release criteria Large equipment may remain in the facility and be removed once a wall or the roof is breached

The initial objective during demolition will be to remove structures and appurtenances connected and adjacent to the primary Building 865 structure to allow unrestricted access to that structure In addition to the various outbuildings, this includes the addition located on the east of side of the general shop section of the building Removal of these features exposes the main structure and allows access to the elevated portions of Building 865, as well as providing loading platforms for loading waste containers and debris-hauling trucks

After the east addition, the next portion of the structure to be demolished will be the office and laboratory section on the north side of the building The concrete block walls will be demolished at the edge of the structure, and the roof demolished inward Attempts will be made to separate and lift out twin-tee roofing pre-cast sections as single pieces to be crushed separately When the office and laboratory section has been demolished, work will begin on the general shop section Twin-tee wall panels will be separated from the building frame and lowered as single pieces After the walls have been removed, the roof will be removed in essentially the same fashion as the roof of the office and laboratory section The structure will be demolished using a tracked excavator equipped with hydraulic attachments (shear/crusher, clamshell, etc ), working north to south across the floor slab Crane assistance may be required The slab and floor beams will be removed down to the tops of the pilings, at which point the reinforcing steel will be cut and the portions of the pilings below three feet below-grade will be left in place Consideration will be given to use of explosive demolition

As materials are removed from the structure, they will be segregated into appropriate waste streams (e g , concrete for on-site recycling, steel for off-site recycling), and further size reduced as necessary Asbestos, PCB-painted, and potential beryllium contaminated sanitary waste will be identified and disposed of appropriately It is anticipated that materials remaining after the completion of decontamination activities will not require additional radiological of hazardous contamination screening prior to being loaded into containers for disposition Concrete backfill material created from the recycle of demolition debris will be used to fill the remaining visible voids and air spaces to create a flat surface Soil backfill will be placed to complete the backfilling operation to conform to the subsidence limits contained in the *RSOP for Recycling Concrete*

### *5.5 Site Cleanup and Demobilization*

The decommissioning contractor will perform any backfill and compaction necessary to render the site safe for personnel involved in follow-on site closure actions Concrete backfill material will be placed in voids Once this material was exhausted, a soil backfill would be placed to complete the backfilling operation The decommissioning contractor shall also be required to install final, or stabilize existing, temporary run-on/run-off controls or erosion controls Any placement of topsoil or revegetation will be consistent with ER requirements The decommissioning contractor shall then clean up the site for trash and miscellaneous debris, and demobilize

## 6. Decommissioning Waste Estimates

The 2005 Target waste projections that are incorporated in BEST and shown below were developed for Building 865 decommissioning based on building walkdowns conducted during the Systems Engineering Analysis in 1994, and modified by actual experience during the Building 123 and Building 779 decommissioning projects

The Building 865 waste estimates will be updated and revised once the historical site assessment and reconnaissance level characterization are complete The revised estimates would be expected to show significantly lower volumes of low-level waste (LLW/LLM) and significantly higher volumes of asbestos (ACM) and Sanitary waste After the estimates are revised based on walkdowns of the facilities, this strategy will be revised and the estimates will be shown by quarter The waste data is shown in fiscal year All waste numbers are in cubic meters

| Waste Type | FY01 | FY02 | FY03 | FY04 | FY05 |
|---|---|---|---|---|---|
| LLW/LLMW | 0 | 0 | 0 | 42 | 8089 |
| Other | 0 | 0 | 0 | 0 | 4 |
| ACM | 0 | 0 | 0 | 0 | 4 |
| Sanitary | 0 | 0 | 0 | 23 | 874 |

It is anticipated that the rubble created from the demolition of Building 865 will meet the criteria of the RSOP for Recycling Concrete and be suitable for re-use as backfill It is projected that approximately 2,596 cubic meters of rubble will be available as backfill after the demolition

## 7. Under Building Contamination Remediation

There is currently one designated UBC site associated with Building 865 in the Draft Final Industrial Area Sampling and Analysis Plan Consistent with the IASAP and Decommissioning/ER Interface Guidelines, UBC investigation would occur concurrently with decommissioning removing the slab If necessary, initial characterization will be planned as soon as the building slab is accessible Sampling locations would be selected based on process knowledge, existing data (if any) and decommissioning sampling results

Uncontaminated structures that are located greater than three feet below existing grade may be left in place ER will identify contaminated areas and remediate contaminated soil between buildings in the 865 Complex following removal of any contaminated structures



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