
**POST SHUTDOWN RECOMMENDATIONS
FOR THE
RADIOACTIVE MATERIALS HANDLING FACILITY (RMHF)**

This status report was originally prepared in 2007 following the DOE stop work order to place all DOE facilities in to a safe shutdown mode. It has been updated in 2013 to reflect any changes and/or task completions. The 2013 updates are highlighted in red.

Overview

The RMHF is owned by the DOE and co-operated by The Boeing Company on Boeing owned land. The RMHF was designed and constructed in 1959 for the safe storage and handling of new and irradiated nuclear fuel and other radioactive materials. In 1989, the RMHF was authorized under the Federal Resource Conservation and Recovery Act (RCRA) for the storage and treatment of mixed wastes generated at ETEC. The RMHF is authorized for the storage of mixed wastes in containers at three specific locations: Building 4021, Building 4022, and Building 4621 and its associated outdoor asphalt-paved storage yard. The treatment of wastes was limited to the small scale neutralization of acids and waste stabilization at Building 4021. The RMHF operated in its original capacity until research at ETEC involving radioactive materials was completed in 1988. When the DOE-sponsored activities at ETEC began to focus on the D&D of the ETEC facilities, the RMHF was dedicated to the exclusive support of D&D activities at SSFL. In this capacity, only radioactive and mixed wastes were managed at the RMHF. As the D&D of ETEC and subsequent removal of radioactive materials approached completion, the RMHF has been progressively deactivated.

Ten numbered structures at the RMHF currently remain: Building 4021, Building 4022, Building 4621 and the adjacent storage yard, Building 4075, Building 4044, Building 4563, Building 4665, Building 4688, Building 4034, and Building 4658.

In May of 2007 DOE presented Boeing with a Stop Work Order on all D&D activities associated with ETEC. That order required that work being performed at all remaining facilities be halted and that the facilities be placed in a Safe Shutdown condition. Prior to the Stop Work Order activities at the RMHF were focused on preparing Building 4021 and 4022 for demolition.

Due to decontamination and decommissioning efforts, electric service to several buildings has been either completely or partly eliminated and fire protection systems removed. These buildings cannot be used to store combustible or flammable materials. The specific status of each of the affected buildings is discussed below.

Facility Status

B/4022 (2007)

Building 4022 is a high bay building housing seven below grade storage vaults. The building is constructed with a steel frame, sheet steel sides and roofing. The building

houses a 50-ton bridge crane, used to handle materials stored in the vaults, and a compactor used for size-reducing and packaging radiological waste. The vaults vary in size from 7.5 feet wide by 24.5 feet long to 17.5 feet wide by 25 feet long with 30 inch thick concrete walls. The depth of each vault varies from 11.5 feet to 20 feet. Vault 1 and Vaults 3 through 7 were used for the storage of MLLW and LLW. The below-grade storage vaults have been used to store a number of radioactive and mixed wastes. Remote cameras and lights were utilized for regulatory inspection of vault storage areas.

Because the vaults are no longer being used for waste storage, vault camera and lighting systems have been removed or disabled. Weekly inspections are now accomplished via direct visual observation by removing thru-hole covers from the vault shield blocks. Because there are no thru-holes in the Vault 7 shield blocks one block has been removed and safety railings installed to allow direct visual observation.

Each of the seven vaults has been decontaminated to a level that will allow open air demolition. The associated HEPA ventilation system connected to the vaults has been removed.

Prior to receiving the Stop Work Order, efforts were being made to release the above grade portion of the building for disposal as Decommissioned Material. These efforts included abatement of flaking lead based paint. Lead paint abatement activities included HEPA vacuuming of all interior metal surfaces including the 50-ton bridge crane. Waste generated during lead paint abatement was packaged and is being managed as MLLW under the RMHF Site Treatment Plan. Electrical service and fire detection systems remain active.

06/2013

Status is mostly unchanged. The mixed waste generated during the flaking paint abatement has been shipped, however since 2007 paint flaking has continued and additional cleanup may be warranted prior to building demolition. The certification of the 50-ton bridge crane and related lifting fixtures, e.g., strong-back and hardware, has been allowed to expire therefore, recertification will be necessary before being placed into service again.

B/4021 (2007)

Building 4021 is a 3,000-square-foot single-story steel building consisting of a decontamination room, packaging room, hot and cold change rooms and an office area. The building utilizes a high-efficiency particulate air (HEPA) filtered exhaust system located between Buildings 4021 and 4022. This system exhausts through a stack connected to Building 4022. Prior to 1961, this facility was connected to a leach field located north of the facility, outside of the fence line. Floor drains in the building associated with the radioactive water system discharged to a sump located at the west side of the building.

Prior to receiving the Stop Work Order, efforts in Building 4021 were geared towards preparing the building for open-air demolition. Non-essential equipment and tools have been disassembled and packaged for disposal as LLW. Five permitted mixed waste treatment units consisting of two fume hoods, a small ball mill, a concrete mixer and a drum mixer have been packaged for short term shutdown and transferred to an on-site storage area and will require characterization under the facility's Closure Plan.

The building attic area housed HVAC equipment and HEPA ventilation systems ducting. The HVAC equipment was removed, packaged and shipped for disposal during prior decommissioning work. Approximately 350-linear feet of various diameter steel ducts provide HEPA ventilation to the building and remain active. All ventilation duct joints are either welded or soldered. The ducts are suspended from the building roof structure by wires and straps. There are several HEPA system inlets in the Decontamination and Packaging rooms that provided localized HEPA filtered exhaust for various pieces of equipment, e.g., drum mixer, small compactor, fume hoods, grit blaster, etc. Loose contamination remains throughout the duct system with contact dose rates up to 80 mR/hr.

HEPA ventilation is supplied by two external blowers, Unit-4 and Unit-5, located between Buildings 4021 and 4022. Unit-4 is connected via overhead ducting to a HEPA filter plenum housing ten pre-filters and ten HEPA filters. The HEPA filter plenum for Unit-5 is integral to its blower and houses four double stacked pre-filters and four HEPA filters. Both exhaust blowers connect to a complex system of ducting located in the Building 4021 attic.

Removal of non-radioactive plumbing components in Building 4021 has been initiated. Items removed include, restroom fixtures, most sewer vents, electrical components, fire sprinkler systems, and air sample vacuum lines. Sewer vent pipes were joined using lead oakum. Removal of vent lines is necessary in order to remove the lead oakum pipe joints. A number of lead oakum joints remain.

Electrical circuits feeding building 4021 have been disconnected and removed. A separate circuit providing power to the local public address system located inside and outside the building remains active. Additionally, exterior lighting circuits remain active. The fire sprinkler system has been disconnected and capped and all sprinkler heads removed. All fluorescent lamps and ballasts have been removed from the building.

06/2013

Status is mostly unchanged. All waste generated during prior decontamination efforts has been shipped. The two HEPA filtered blower units remain intact, however these systems will require DOS testing prior to being operated for use in the building. The interior of the decontamination and packaging rooms were HEPA vacuumed then painted in 2007 to help fix loose contamination.

4021 and 4022 Radioactive Water System (2007)

The radioactive water drain line system was made up of gravity fed below grade pipes, a transfer tank and pumps, a filter system, evaporator, and an 8,000-gallon storage tank. All water entering the Building 4022 vaults, gravity fed through Vault-6 and into the 4022 deep sump located outside the south end of the building. Water collected in the deep sump was pumped through below grade pipe under Building 4021 into the transfer tank located outside Building 4021. Water used in contaminated areas of Building 4021 gravity fed into the transfer tank. The transfer tank contained an automated pumping system to pump water from the tank through a filter bank inside Building 4021 and ultimately into the Building 4022, Vault-2, 8,000-gallon storage tank. Water from the storage tank was then pumped through above ground pipe into the Building 4021 evaporator.

All above ground components of the radioactive water system, the transfer tank system, and the 8,000-gallon tank were removed, packaged, and shipped for disposal. The below grade piping system was washed with a high-pressure drain cleaning machine. Fixed and removable contamination remains in the transfer tank pit and the below grade piping system.

06/2013

Status is mostly unchanged. Rain and/or groundwater entered the 4022 deep sump causing water to flow into vault six requiring sampling and packaging of the water. Sample results confirmed that the water was not hazardous and the water was absorbed with diatomaceous earth, and shipped for disposal. A rubber gasket with silicon sealer was installed at the cover to minimize future water accumulation.

Building 4034 (2007)

Building 4034 is an 800-square-foot steel building located on the east end of the RMHF complex and serves as the main office and controlled point of entry for the RMHF and houses facility records and procedures.

06/2013

In 2011 the sewage treatment plant that handled all Area 4 sewage was demolished leaving all restrooms inoperable. The RMHF currently (06/2013) has a portable toilet on site which is serviced twice a week. Additionally, all "hard-wired data and communication systems in Area 4 have been severed. Data and communication systems are now wireless.

Building 4044 (2007)

Building 4044 is a 2,160-square-foot steel building located along the east border of the RMHF complex and has served various purposes throughout the life of the RMHF including a clean shop, health physics offices, and break room. The building currently

serves as the RMHF break room and health physics office. The health physics office is used as a counting area for removable contamination measurements, radiation meter storage, and use of calibration sources.

06/2013

Status mostly unchanged except for the loss of restrooms and hard-wired data and communications.

Building 4075 (2007)

Building 4075 is a 2,160-square-foot steel building located on the northwest end of the RMHF complex. The building served as a storage area for radioactive and non-radioactive materials. In 2001, the building was vacated and remains inactive.

Electrical circuits feeding building 4075 have been disconnected and removed. However, a separate circuit providing power to the local public address system located inside the building remains active. The fire sprinkler system has been disconnected and capped and all sprinkler heads removed. All fluorescent lamps and ballasts have been removed from the building.

06/2013

Status unchanged.

Site 4563 (2007)

Site 4563 is a paved area located along the northern border of RMHF east of Building 4075. The site has been used to store radioactive wastes pending shipment to a disposal facility and remains active. There is no electrical or fire protection service to the site.

06/2013

Status unchanged.

Building 4621 (2007)

Building 4621 is a 500 square-foot steel building located along the south border of the RMHF complex. Building 4621 is a permitted MLLW storage unit and is used for the storage of LLW, MLLW, and contaminated equipment and materials. Electrical service to the building is active, however, the fire detection system has been removed.

06/2013

Status mostly unchanged, however, all MLLW and LLW has been shipped for disposal and containerized contaminated equipment has been removed. There are currently two

5-gallon drums containing Am 241 sources stored in the building (see RTS for info). Miscellaneous equipment including vault railings, truck scales and empty drums remain in storage.

Building 4658 (2007)

Building 4658 is a 100 square-foot steel building located at the east end of the RMHF, adjacent to the vehicle entrance gate and was used as a manned security point of entry. Radioactive materials were not managed in this building.

Electrical circuits feeding building 4658 have been disconnected and removed. The fire sprinkler system has been disconnected and capped and all sprinkler heads removed. All fluorescent lamps and ballasts have been removed from the building.

06/2013

Status unchanged building empty.

Building 4665 (2007)

Building 4665 is a 600 square-foot steel building located on the northern border of RMHF, north of Building 4022. The building was used as an oxidation facility and more recently for storage of non-radioactive equipment and materials.

Electrical circuits feeding building 4665 have been disconnected. The fire protection system is inactive and the smoke detector has been removed. All incandescent lamps have been removed.

06/2013

Status unchanged building is empty.

Building 4688 (2007)

Building 4688 is a 600 square-foot open, steel roofed, area located along the eastern border of the RMHF complex. The structure is currently active as a non-radioactive storage area. Electric and fire sprinkler systems remain active. During a recent radiological survey fixed contamination was discovered on a number of structural members and on the concrete slab.

06/2013

Currently the flammable materials storage cabinet is located in this area.

LONG TERM SHUTDOWN

Overview

The RMHF will require specific repairs to prepare various buildings and equipment for long term shutdown. Periodic maintenance is also required to maintain the facility in a safe, stable condition.

RCRA driven weekly inspections are required in several areas within the complex and sampling of uncharacterized containerized waste is required. Additionally, five permitted treatment units are in temporary storage and will need to be repackaged.

Several containers of LLW, MLLW, and radioactive materials and equipment are in storage at various locations within the RMHF complex. Approximately six hundred gallons of radioactive water are stored in a double wall poly tank located in the 4621-Yard.

06/2013

Status mostly unchanged, however all LLW, MLLW and radioactive water has been shipped for disposal. Contaminated equipment and treatment units remain stored in Conex shipping containers located on the concrete pad northeast of B/4621.

Facility Repairs (2007)

Several buildings within the RMHF complex require roof and wall repairs to close openings created during decontamination and sampling activities. Repairs will be required to prevent rain and wind blown dirt and debris from entering the buildings and possibly damaging waste containers, container labels, supplies, and equipment. Additionally, repairing building siding and closing small holes will aid in preventing rodents, snakes, and birds from occupying these areas and damaging materials such as HEPA filters (new and used), bagged diatomaceous earth, equipment, and PPE. Rodents are prevalent in the area and can carry diseases such as Hantavirus. Specific repairs are discussed below **and completions indicated.**

Buildings 4075, 4621, and 4665

Each of these buildings requires roof and wall repairs to close openings created during decontamination and sampling activities. Building 4075 has a one-foot by one-foot hole in the roof and another in the east wall. The north side of the building has several loose siding panels that need to be secured. Building 4621 has a one-foot by one-foot hole in the roof and another in the north wall. Building 4665 has a two-foot by eight-foot opening in the roof, a one-foot by ten-foot opening in the south wall, and a two-foot by two-foot opening in the north wall.

06/2013

This work was completed in late 2007.

Building 4022

There are several openings in the outer walls ranging from three-inches in diameter to ten-square feet requiring sheet metal patches to prevent water and wind blown dirt and debris from entering. Additionally, repairs to the roof are required to prevent rain from leaking into the building and ultimately into the below grade vaults. Water collecting in the vaults will need to be pumped and transferred into on-site storage tanks. Wall openings have been sealed, however, roof repairs have not been made.

06/2013

During periods of heavy rains roof leakage may cause significant water buildup resulting in water intrusion into the vaults.

Building 4021

Several holes in the ceilings between the Decontamination and Packaging rooms and the attic area ranging in size from eight-inches in diameter to eight-square feet need to be closed to prevent loose contamination from migrating from the attic. Several small holes in the outer walls need to be closed and sealed to prevent loose contamination from exiting the building to outdoor areas. Migration of loose contamination can be mitigated by closing and sealing holes and with the application of a fixative (paint) to the walls, ceiling, and floors. Sealing around each of the three rollup doors with silicone or weather stripping materials is also required.

The extensive HEPA ventilation duct system located in the attic area includes three eight-inch diameter ducts passing through the ceiling and into the Decontamination and Packaging rooms. The ducts were originally used to provide localized HEPA ventilation to specific equipment and are no longer in use. Each of the ducts has significant internal loose contamination and must be sealed to prevent contamination from spreading to the Decontamination and Packaging rooms. To prevent internal loose contamination from entering the Decontamination and Packaging rooms, the open end of each duct has been bagged and taped. For long term shutdown, these ducts will require a more substantial closure method.

Due to the removal of facility power, temporary power from two separate 480-volt systems have been established to power portable blowers, area lighting, emergency lighting, HEPA vacuums and various power tools. One of these systems can be removed (480-volt power cords, transformer, auxiliary distribution box, and associated 120-volt power cords) and placed into appropriate storage and the other system established to maintain operation of area lighting, emergency lighting, portable HEPA ventilation for the attic, and occasional HEPA vacuum operation.

Three portable HEPA ventilation blowers are currently providing ventilation for attic entries and decontamination activities. One ventilation blower is located in the Decontamination room and is ducted through the ceiling. The other two ventilation blowers are located in the clean area (laundry room) of 4021 and are also ducted through the ceiling. Two of these ventilation blowers should be removed from service

and their ceiling openings sealed. The remaining ventilation blower should remain to provide attic ventilation during personnel entries and will need minor modification to better secure the inlet duct during long term shut down.

06/2013

Repair of all above referenced holes were completed in 2007. All HEPA blowers are out of service and require inspection and DOS testing prior to return to service. Two portable units originally located in the B/4021 Packaging and Decontamination rooms were disconnected and the ceiling openings closed. One HEPA blower located in the B/4021 laundry room remains connected to the attic, however, is also out of service.

Maintenance

Essential (2007)

Weed abatement is necessary within the RMHF complex and the 4028 water collection tank area. Removal of weeds growing in paved areas helps prevent damage to the asphalt areas. Weed abatement around the 4028 area storm-water collection tank is necessary to provide safe access for personnel.

Asphalt areas are observed regularly for cracking or other damage. Asphalt cracks are filled at least annually or as needed. Paved areas are typically top coated every three to four years by an outside contractor.

General facility cleanup is required following windy conditions to remove dirt and debris.

Rodents and mice are prevalent in the area and are controlled with the use of traps and poisons. Traps are located inside buildings and require daily inspection and frequent removal and replacement. Poison traps are located outside of buildings 4034 and 4044 and are maintained by an outside contractor. Rodents can cause extensive damage to electrical equipment, supplies, and facility records and can spread infectious disease.

DOS testing of all necessary HEPA filters is required annually and after filter replacement. Continuation of DOS testing of the 4021 facility HEPA system, 4021 attic portable HEPA system, and one HEPA vacuum cleaner (for occasional and/or emergency use) is recommended. Any HEPA filters not maintained will require DOS testing prior to startup before they are returned to service. All HEPA units removed from service must be red tagged to prevent accidental use until inspection and DOS testing has been completed.

06/2013

All HEPA units have been removed from service. Prior to return to service thorough inspection of each unit will be required to verify system integrity and filter condition.

Inspections

Daily

Without ongoing routine operations, daily walk through inspections should be initiated to ensure the safe condition of buildings, equipment, containerized radioactive wastes and materials, radioactive water, and facility records. Issues of concern are weather related problems, e.g., wind damage, leaking roofs, and collection of dirt and debris, and container and container label integrity, facility signage condition, removal of rats, mice, and droppings, and replacement of traps as required.

06/2013

Daily walk through inspections are still performed. No containerized wastes are being stored on site.

Weekly

Weekly regulatory inspections are required for all permitted hazardous waste storage areas. These areas include building 4075, 4621, 4621-Yard, 4021, 4022 (and vaults), and Satellite Accumulation areas A and B. Inspections are documented in the RMHF inspection record using the weekly hazardous waste container inspection checklist.

06/2013

Weekly inspections are being performed to maintain compliance with the operating permit. No waste is being generated or stored at the site. Satellite areas A and B were removed from service and no longer require inspection.

Monthly

Fire department personnel inspect fire extinguishers and service as required.

Site Services personnel test safety showers and eye baths.

RMHF personnel inspect DOS test certifications for all active HEPA systems and test as necessary.

06/2013

All HEPA units are out of service and require DOS testing and inspection prior to return to service.

The RMHF PIC reviews and updates training records for personnel working at the RMHF. Records are reviewed and updated to maintain regulatory compliance.

Independent facility audits and inspections are performed by a Quality Assurance representative and include review of inspection and training records, and monitoring location, condition, and tracking of containerized wastes.

06/2013

No longer performed.

Quarterly

Quarterly radiation and contamination surveys of buildings and fixed contamination areas (FCA) are performed.

RMHF surveillance inspections address the general condition of facility structures and outdoor areas. Inspections include checks on area lighting, emergency lighting, housekeeping, unsafe conditions, leaking equipment and plumbing, unusual noises, condition of asphalt areas, safety showers, weeds, and status of pending Site Services work orders.

Fire department personnel inspect buildings to assess fire safety compliance and flow-test fire sprinkler systems along with the associated BCC alarms.

ISMS safety audits are performed at ETEC facilities and electrical substations.

06/2013

BCC no longer monitors RMHF alarms. B/4034 and B/4044 local fire sprinkler flow alarms are the only remaining RMHF facility alarms.

Annual (2007)

DOS testing of facility HEPA Units 4 and 5 and portable vacuums and ventilation blowers will be required to maintain capabilities for occasional personnel entries into contaminated areas, and for cleanup or emergency uses. If annual DOS testing is not performed HEPA units must be removed from service and red tagged to prevent accidental use until inspection and DOS testing has been completed.

The 10,000-pound capacity platform scale and 30,000-pound capacity portable scales are used to weigh waste containers and for waste characterization purposes. The 12,000-gram lab scale is used to weigh waste samples. Each of these scales requires annual inspection and calibration. If annual calibration is not performed, scales removed from service must be red tagged to prevent inadvertent use until calibration has been completed.

The 4022 50-ton bridge crane and its associated strong-back are proof-load tested and inspected annually by an outside contractor. The strong-back also requires an annual magnetic-particle inspection. If annual testing, inspection, and certifications are to be

discontinued, the crane and strong-back must be red tagged, when taken out of service, and not used until recertified.

Air flow across the RMHF facility HEPA system stack is measured annually. Stack velocity measurements are due in September.

06/2013

DOS testing is no longer performed. All HEPA units are inactive and have been removed from service. Lifting equipment and associated hardware certifications are invalid and all scale and thermometer calibrations have lapsed. All equipment testing, certifications and calibrations will need to be made current prior to being put back into service.

Periodic

Direct visual inspection of the 4022 deep-sump, 4022 below grade vaults, and the 4021 outdoor pit is required to assess water accumulation. The 4022 vaults are permitted MLLW storage areas and must be maintained in a dry condition. During winter months ground water seeps into the 4022 vaults and deep sump, and the 4021 outdoor pit. The 4021 pit and 4022 deep sump are each fitted with steel covers and sealed with silicone. Periodically, covers are removed to check for water accumulation, pumped as required, and resealed. Water entering the 4022 below grade vaults drains through Vault-6 and ultimately into the 4022 deep sump. Excessive water levels in the 4022 deep sump will back-flow into vault storage areas. Water removed from sumps must be transferred to on site storage and managed appropriately.

Storm water within the RMHF complex is collected in the 4028 storage tank. Inspection is required to verify the integrity of the tank, pumps, and piping and to determine weed abatement needs.

Site Services technicians and electricians perform routine preventative maintenance and inspections on cranes and hoists, and compressors blowers, motors, and belts (required for operation of the 4021 HEPA ventilation system), and emergency lighting fixtures.

06/2013

Periodic inspections are still required, however, Site Services personnel are no longer available to perform needed repairs or maintenance. These functions are now provided by outside contractors on an as needed basis. Inspection and maintenance of cranes, related equipment, hoists, compressors, blowers, etc. are no longer performed due to inactive status.

Disposition of Tools, Equipment and Supplies (2007)

Tools, equipment, and containers currently stored outdoors should be moved indoors for long term storage. Hazardous materials such as paints, lubricants, cleaners etc. must be removed from the facility and managed appropriately.

Mobile equipment, e.g., propane fueled forklifts and battery operated scissor-lifts, should be radiologically surveyed and released from the facility. Forklift propane supplies should be radiologically surveyed and released from the facility. Mobile equipment not suitable for release must be managed appropriately.

06/2013

The vast majority of tools and equipment once on site have either been released from the facility or shipped for disposal. A few empty (new) containers are being stored for possible use during eventual dismantlement efforts. Some containers are being used to store uncontaminated decon supplies and contaminated tools for reuse. However, the condition of these supplies is unknown and may have deteriorated beyond usable status.

Permitted Treatment Units (2007)

Building 4021 housed five permitted treatment units consisting of a cement mixer, ball mill, drum mixer, and two fume hoods. All treatment units, except the ball mill, have been painted to fix loose contamination. Some disassembly was required to facilitate painting and handling. Each component was wrapped in plastic sheeting, palletized, and placed into a cargo container for short term storage. Current packaging is not adequate for long term storage. To prepare the treatment units for long term storage, all components should be packaged into durable strong-tight containers.

Permitted treatment units must be maintained at the facility for regulatory required sampling and disposition.

06/2013

Status mostly unchanged. The plastic wrapping remains intact. Prior to moving the equipment the plastic wrap and tape seals should be carefully inspected. Contamination surveys should be performed and any decontamination and necessary repairs/upgrades to the wrapping be completed.

Empty Containers (2007)

Empty waste boxes, drums, and roll-offs currently stored outdoors should be moved to an indoor storage area to prevent deterioration and to maintain container integrity.

06/2013

No empty waste boxes, drums or roll-offs are currently being stored outdoors.

Containerized Wastes and Materials (2007)

Currently there are eleven boxes of LLW in storage that are tentatively scheduled for shipment to NTS in July 2007. These containers are stored outside in the RMHF Hold-Yard. If shipment is not made to NTS these containers should be moved to an indoor storage area to protect the containers and associated labels and placards.

Seven containers are currently being managed as MLLW and are stored in 4621. These containers include two boxes and two drums of lead waste and lead associated waste, one drum of absorbed oil, one drum of asbestos insulation, and one drum of PACM waste. Absorbed oil waste has been in storage since February 16, 2007. PACM waste has been in storage since May 01, 2007. Sampling is required to characterize the PACM and absorbed oil wastes and determine appropriate path for disposal. All MLLW containers require weekly inspection and are currently stored in building 4621

Containerized storage items include one drum containing americium-241 sources, one five-gallon pail with three americium-241 smoke detectors, one 1-gallon can with liquid standards, one box of contaminated tools used during vault decontamination efforts, and one drum of 4059 soil samples. Containerized decontamination tools are stored in the RMHF Hold-Yard and should be moved to indoor storage to protect the container and associated labels and placards. All other storage items noted are currently stored in building 4621.

Components from the five 4021 permitted treatment units were palletized, wrapped in plastic, and stored in the south-yard cargo container. Treatment unit repackaging is required to provide for safe, long term storage.

Two HEPA vacuum cleaner catch drums, if not maintained for occasional use, will need to be removed from their vacuum power heads, characterized and managed appropriately. Two additional HEPA vacuum cleaners operated exclusively for abatement of lead-based paint will require filter removal and packaging and appropriate management.

06/2013

All containerized waste has been shipped for disposal. Containerized equipment and supplies remain in storage for future use. Two 5-gallon containers each containing Am 241 sources are stored in B/4621. Treatment units remain in storage in a Conex container. HEPA vacuums previously used for lead abatement were emptied, filters removed, and waste packaged and shipped for disposal. HEPA vacuums are currently out of service.

RESUMPTION OF D&D ACTIVITIES

Overview

Returning the RMHF to operation and D&D activities after long term shut down will require detailed planning. The efforts necessary to reach a pre-shut down state will depend on how long the facility remained inactive. Efforts that should be considered as standard operating procedures include: radiological surveys (including review of past radiological survey data), general facility inspection, testing and certification of fixed facility equipment. However, there are a number of items that warrant special attention prior to the resumption of facility activities. Any personnel that will be assigned to the facility will require some specialized and/or regulatory required training, both for radiological work and for work at a RCRA Treatment and Storage facility. Discussed below are items to be considered when activities are resumed at the RMHF. Many of these have associated procedures and/or operation instructions that should be reviewed prior to performing the work.

Radiological Survey

Regular radiological surveys were performed during facility operations. These included pre and post job surveys along with routine surveys to assure radiological contamination controls were being properly and effectively implemented. Prior to the resumption of activities the most recent radiological surveys should be reviewed and detailed surveys be performed in all posted radiation and contamination areas. Facility tools and equipment should also be surveyed prior to service, repair, or test.

Personnel

Training records for all personnel assigned to the facility must be reviewed to verify they meet regulatory and Boeing Company requirements. Personnel training requirements (pre shut down) are described in both program and facility procedures. Training for personnel not meeting these requirements must be completed prior to assignment to the facility.

Tool and Equipment Setup

Tools and equipment previously placed indoors for secure storage will need to be relocated and set up as appropriate. Portable HEPA ventilation blowers will need to be setup to provide HEPA filtered exhaust for work performed in contamination areas. HEPA filtered vacuum cleaners will need to be reassembled with new catch drums and filters as needed.

06/2013

DOS testing and inspection will be required prior to return to service.

Empty radioactive waste containers, e.g., boxes, drums, and roll-offs will be moved from indoor storage areas to the Empty-Yard as required. In accordance with EID-04482,

“Packaging and Shipment of Radioactive Materials” a representative of the Quality Assurance organization and/or the WCO must inspect containers prior to use.

Inspection, Calibration, and Certification

Prior to return to service, inspection of the radioactive water evaporation system will be necessary to determine suitability for service. All components must be inspected. All fittings and connections should be checked and “O” rings inspected for damage or deterioration. Verify the condition (and presence) of the in-line filters and visually inspect the storage tank for damage or leaks. Prior to receiving the Stop Work Order, the evaporator was required to be exhausted into the facility HEPA system. This was being accomplished by setting the unit outside Building 4021 to facilitate exhausting into the 4021 facility HEPA system.

Facility equipment, e.g., air compressor, HEPA Blowers 4 and 5, vacuum pumps, and portable equipment, e.g., HEPA vacuum cleaners, portable HEPA ventilation blowers etc. will, at a minimum, require inspection and preventative maintenance prior to reuse. Because of the abundance of mice and rats in the area any filters, pre and HEPA, installed in portable equipment that has been in storage must be inspected for degradation and/or damage.

All HEPA filtered systems and equipment not maintained during long term shutdown must be evaluated prior to return to service. Portable systems may require installation of new HEPA and pre-filters. All HEPA filtered systems not currently certified will require visual inspection and DOS testing prior to return to service.

If not maintained during long term shutdown the 50-ton bridge crane, associated strong-back and the 2-ton hoist will require proof testing and detailed inspections prior to use. All stored hoisting and rigging equipment must be thoroughly inspected prior to use with particular attention to slings which may have been damaged by rodents.

The RMHF 10,000-pound capacity platform scale, 30,000-pound capacity portable truck scales and the 12,000-gram sample scale will require inspection and calibration prior to return to service if not maintained during long term shutdown.

Equipment and Supplies

Materials and equipment needed for routine operations will need to be procured as soon as possible during preparations to resume normal operations. Examples of materials needed are; paint, contamination fixatives, expandable foam, PPE, cleaners and other decontamination supplies. Examples of equipment needed are; computers for personnel assigned to the facility, mobile equipment, e.g., forklifts and scissor lifts, and specialty tools that may be necessary for dismantlement of the HEPA ventilation ducts in the Building 4021 attic and below grade radioactive water drain line systems.

06/2013

All facility SOP's must be reviewed and updated prior to the resumption of operations.

ACRONYMS

LLW	Low Level Radioactive Waste
MLLW	Mixed Low Level Radioactive Waste
RMHF	Radioactive Materials Handling Facility
PACM	Potential Asbestos Containing Material
HEPA	High Efficiency Particulate Air Filter
RCRA	Resource Conservation and Recovery Act
DOS	Di-Octyl Sebacate
ETEC	Energy Technology Engineering Center
Q/A	Quality Assurance
ISMS	Integrated Safety Management System
PIC	Person-In-Charge
BCC	Boeing Control Center
NTS	Nevada Test Site
WCO	Waste Certification Official
DOE	Department of Energy
SSFL	Santa Susana Field Laboratory
STP	Site Treatment Plan
HVAC	Heating, Ventilation and Air Conditioning
D&D	Decontamination and Decommissioning