TABLE OF CONTENTS

ATTACHMENT 1

FACILITY DESCRIPTION

B. FACILITY DESCRIPTION....1

B-1 General Description....1

B-2 Topographic Map....23

B-3 Location....24

B-3a Seismic Standard....24

B-3b Floodplain Standard....24

B-4 Traffic Information....25

LIST OF EXHIBITS

Exhibit B-1. Map of the INL Showing Major Area Locations....22

B. FACILITY DESCRIPTION

B-1 General Description [Idaho Administrative Procedures Act (IDAPA) 58.01.05.012; Title 40 of the Code of Federal Regulations (CFR) 270.14(b)(1)]

The Advanced Mixed Waste Treatment Project (AMWTP) is located at the Radioactive Waste Management Complex (RWMC) on the Idaho National Laboratory (INL). Exhibit B-1 is a map of the INL showing the major area locations and buildings. The Transuranic (TRU) Storage Area (TSA), also located at the RWMC, includes the following mixed waste (MW) management units (MWMUs):

- Seven Type II Modules [Waste Management Facility (WMF) – 628 through WMF-634] (up to three more Type II Modules may be built),
- A Type I Module (commonly known as WMF-635),
- The Stored Waste Examination Pilot Plant (SWEPP) (commonly known as WMF-610), and
- The Advanced Mixed Waste Treatment Facility (AMWTF) (commonly known as WMF-676).

WMF-628 through WMF-635 collectively comprise the Waste Storage Facility (WSF). The WSF, SWEPP, and AMWTF are operated by Bechtel BWXT Idaho, LLC (BBWI) under contract with the United States (U.S.) Department of Energy-Idaho Operations Office (DOE-ID). The MWMUs' primary purpose is the storage, characterization, and treatment of MW. BBWI/DOE-ID has the goal of treating TSA waste to produce final waste forms that are certified for disposal at the Waste Isolation Pilot Plant (WIPP) in New Mexico or at another waste management unit. The AMWTP is designed to treat primarily alpha low-level waste (αLLW), TRU MW, and radioactive only waste (ROW).

A portion of the waste to be treated may also contain polychlorinated biphenyls (PCBs), which may be regulated by the Toxic Substances Control Act (TSCA). Discussion of TSCA-regulated wastes managed at the MWMUs is for informational purposes only, as PCBs are not subject to the Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA). Comprehensive Environmental Response Compensation and Liability Act (CERCLA) waste may be managed in the MWMUs. All CERCLA waste will be managed

in accordance with this document while in the MWMUs, but final disposition of the waste will be managed under the CERCLA regulations.

Because the HWMA/RCRA-regulated wastes managed at the MWMUs are typically MW, references to radiological and radiochemical data are made throughout this document. Information on radiological and radiochemical characteristics is provided for informational purposes only, as HWMA/RCRA applies only to the hazardous waste constituents of the MW.

Unless otherwise noted, attachments and appendices referenced in this document refer to attachments and appendices of this document. Appendices are located at the end of this document. Sections, tables, and exhibits cited herein refer to portions of the attachment in which they are cited, unless otherwise noted. Drawings (typically referenced using the number format ##-####) and exhibits (typically referenced using the appendix number and a single digit as follows: ##-#) provide additional information relevant to the MWMUs. Drawings and exhibits included in an appendix are listed on the appendix title page. Alphanumeric or numeric identifiers located in parentheses refer to the mechanical data sheets (MDSs) found in appendices associated with the relevant attachment. MDSs are listed on the appendix title page. Exhibits in Attachments are listed in the List of Exhibits at the beginning of the applicable Attachment.

Drawings are intended to provide a pictorial representation of the building. The drawings provide information as to how personnel and processes flow from one area of the building to another. All dimensions are approximate and are provided to give the viewer a scale of size. The number and location of items depicted (e.g., gas bottles, wall mounted units, mobile equipment, lockers in change rooms, etc.) are not exact.

AMWTP Process Description

The TSA stored waste slated for storage, characterization, and treatment in the AMWTP MWMUs is retrieved from storage, characterized for storage and treatment or direct shipment, stored in preparation for treatment or shipment, pretreated (if necessary), treated (as required), then sent for packaging and certification (as required) for shipment to the WIPP or to another waste management unit. Containers are typically transported/transferred to, from, and within the AMWTP MWMUs using forklifts, trucks, trucks with trailers, conveyors, hand trucks, and other

transport vehicles/devices. A schematic flow diagram of the processes for the AMWTP is shown in the process flow sheets, Exhibits I-1 and I-2, which are located in Appendix I. The process flow sheets represent the majority of the anticipated processes for the AMWTP and are based on design estimates.

Retrieval

Waste requiring retrieval is enclosed by an earthen-covered berm, which is located within the TSA-Retrieval Enclosure (TSA-RE). The TSA-RE provides confinement and weather protection for retrieval operations. The locations of the MWMUs and the TSA-RE are shown on the RWMC/AMWTP Topographic Map, which is located in Appendix II.

Retrieval operations, in part, may involve sampling soil within the TSA-RE; removing the soil, sheeting, and wood components from the container stacks; removing the waste containers from the stacks; inspecting, monitoring, and barcoding containers; overpacking or repairing containers, as necessary; then transporting containers to other MWMUs.

Preliminary Characterization

Characterization primarily occurs within WMF-634, WMF-628, WMF-610, or WMF-635. WMF-634 houses real time radiography (RTR) units, drum assay units, a box assay unit, a combined drum venting system (DVS) and headspace gas sampling unit, portable headspace gas sampling units, a unit for the treatment (via addition of absorbent to containers with liquids, decanting liquids, neutralization of liquids, repackaging of waste, the sizing of waste, or by the mechanical vibration of waste) and visual examination of containers, a drum core sample retrieval system (DCSRS), and an area for performing macroencapsulation. Containers are received at WMF-634 for characterization and/or treatment. Waste is stored in WMF-634 while awaiting characterization, treatment (as required), and/or transport to the Type I or Type II Modules or the TSA Interim Status (IS) Units (located within the TSA-RE – designated as TSA Pads 1, 2, and R) for storage, pending disposition. Select drums pass through the DVS and DCSRS in WMF-634 prior to routing for further disposition. A plan view and equipment layout for WMF-634, Drawing 53-10374, and a typical traffic plan for the AMWTP, Exhibit II-1, are located in Appendix II.

Typically, retrieved containers undergo RTR examination to determine physical waste parameters (e.g., metals, cellulosics, rubber, plastics, soil, sludge, etc.) and to detect prohibited items (e.g., liquids, elemental mercury, etc.). The visual review of RTR images also validates existing characterization data, or, in the case of containers with unknown contents, helps to correlate the contents of the container with known waste types. Characterization activities are described in more detail in Attachments 1.A, 1.C, 1.D, 1.E, 1.F, and 2.

Storage

After preliminary characterization, containers are typically taken to the Type I or Type II Modules, where the containers are stored by parameters such as item description code (IDC), container type, and fissile material content. The purpose of this storage is to decouple treatment from retrieval and characterization operations and to build up an inventory of waste to facilitate efficient treatment and direct shipment strategies.

Direct Shipment

Once characterized, certain waste containers may be determined suitable for direct shipment to the WIPP [e.g., meets the WIPP waste acceptance criteria (WAC)] or to another waste management unit.

Pretreatment

Waste containers to be treated in WMF-676 are transported from storage to the waste receiving and storage areas of WMF-676. The containers are then transferred within WMF-676 to the box lines, drum repack system, special case waste (SCW) glovebox system, or supercompactor. The primary processes contained within WMF-676 to sort the waste include the box line and the drum repack system.

Treatment

Various methods of treatment are permitted in the MWMUs. These methods of treatment are absorption, decanting, neutralization, repackaging of waste, the sizing of waste, the mechanical vibration of waste, the macroencapsulation of waste, and miscellaneous mechanical

processing (e.g., supercompaction), which are performed individually or in conjunction with each other to treat the waste in the most effective manner possible. A brief description of the treatment activities is provided below. See Attachments 1.A, 1.F.i, 1.F.ii, 1.F.iii, and 1.F.iv for further information on the treatment methods.

Absorption. Liquid waste is absorbed with a compatible absorbent. Absorption of liquids in containers, sumps, or troughs may occur after decanting (if performed), to absorb any liquids that have not been decanted. Absorption may also occur during decanting by decanting into a container with absorbent. Absorption of liquids that have previously been decanted (and potentially co-mingled) or neutralized may also occur. Co-mingling only occurs after compatibility of the wastes has been addressed.

Decanting. Liquid wastes are decanted from containers, sumps, or troughs into containers. The decanted wastes are then neutralized and/or absorbed. Co-mingling of decanted liquids or absorbed wastes may occur, as applicable, after compatibility of the wastes has been addressed.

Neutralization. Corrosive liquids are neutralized either prior to absorption or absorbed with a neutralizing absorbent. Co-mingling of neutralized liquids or the absorbed neutralized liquids may occur, as applicable, after compatibility of the wastes has been addressed.

Repackaging. Waste from a container may be repackaged either into another container, or into multiple containers. Waste from multiple containers may be collected in a single container after compatibility of the wastes has been addressed. While repackaging the waste, items that are prohibited for disposal at a waste management unit or prohibited for processing in the various AMWTP waste management units (e.g., supercompactor) may be removed. Repackaging may also be utilized to aid in the characterization of waste (e.g., visual examination to confirm container contents, etc.).

Sizing. Waste from a container may be sized for repackaging into the original container or into another container. Co-mingling of wastes will occur after the compatibility of the wastes has been addressed. Equipment that may be used for the sizing of waste includes, but is not limited to, shears, nibblers, scrapers, etc.

Mechanical Vibration. Containers of waste are mechanically vibrated in an effort to consolidate free liquids located within the void space of solidified waste so that the liquid may be absorbed or decanted. Mechanical vibration is not intended to separate absorbed liquid from the waste matrix. Equipment that may be used for mechanically vibrating waste includes a vibrating table or similar equipment.

Macroencapsulation. A container(s) of waste may be repackaged into either a stainless steel container or a container with a stainless steel liner. After loading the stainless steel container/liner with waste, the stainless steel container/liner is welded closed to meet the macroencapsulation standard of IDAPA 58.01.05.011 (40 CFR 268.45). Co-mingling of wastes will occur only after the compatibility of the wastes has been addressed.

Supercompaction. The supercompaction process receives lidded drums of sorted waste from the box line or drum repack system areas or direct feed drums from the waste receiving and storage areas via the material transfer system (MTS). The drums of waste are punctured within a glovebox environment and then compacted by a hydraulic press that controls the shape of the resultant supercompacted puck through the use of a mold. The volume reduction for each drum is dependent on the drum contents and packing fraction, but is expected to average 80 percent (%). Pucks from supercompaction are placed into a puck drum, located in the postcompaction glovebox. Attachment 1.F.iii describes the supercompaction process in more detail.

SCW Glovebox System. SCW includes waste that may require additional characterization and/or pretreatment (e.g., decanting, neutralization, absorption) prior to processing or final treatment prior to disposal. Some examples of SCW that may be managed in the SCW glovebox system are listed below:

- Containers of liquids and pressurized containers removed from the original waste containers;
- Small inner containers (i.e., container removed from another container) of solidified inorganics (SI) or solidified organics (SO);
- Free liquids removed from the original waste containers and containerized prior to treatment;

- Residual liquids accumulated in the waste sort troughs in treatment areas (e.g., box line waste sort troughs, sumps, etc.) that are removed and containerized prior to treatment;
- Elementary mercury, in the form of containerized liquid, free liquid, or residual liquid; and
- Waste streams that warrant further evaluation prior to treatment.

Containerized (from original waste containers), free and residual liquids, and elemental mercury are expected to be the most common types of SCW encountered at the AMWTP.

WSF Type II Module Description

As shown on the RWMC/AMWTP Topographic Map, located in Appendix II, the Type II Modules are conveniently located near the TSA-RE and WMF-676, which avoids moving wastes across public roads for characterization and treatment. Other buildings, such as the Type I Module and the Waste Aggregation Facility (WAF), are also located near the Type II Modules. Therefore, containers retrieved from the TSA IS Units remain within the boundaries of the TSA until transport for final disposal at the WIPP or another waste management unit. The Type II Modules allow for the visual examination of waste; the repackaging of waste; the absorption, decanting, and neutralization of liquids; the sizing of waste; the mechanical vibration of waste; and the storage of containers.

The Type II Modules are pre-engineered structural steel buildings that rest on concrete foundations with sealed concrete floors. In addition to the main portion of the Type II Module, each unit has an electrical room, fire water riser room, and ventilation system. Drawing 51-9907, located in Appendix III, presents a plan view of a Type II Module. See Attachment 1.B for further information on the Type II Modules.

AMWTP Waste Characterization Facility Description

The Type II Module designated as WMF-634 is a container storage and treatment unit that is also used for waste characterization. Waste characterization operations are performed to certify waste container compliance with the applicable WAC of WMF-676, WIPP, or other waste management unit. Characterization of waste is required prior to treatment in WMF-676

and prior to shipment to the WIPP or to another non-AMWTP waste management unit. In addition to providing a container storage area, WMF-634 accommodates various characterization equipment, associated control rooms, and a drum coring room with vestibule (see Appendix II, Drawings 53-10374 and 53-10375, for additional details). WMF-634 also allows for the absorption of liquids in containers by the manual addition of absorbent, the decanting of liquids, and the neutralization of corrosive liquids; and allows for the repackaging of waste, the sizing of waste, the mechanical vibration of waste, the macroencapsulation of waste, and the visual examination of waste.

WMF-634 is divided into three ventilation confinement zones to minimize the potential for waste to be released to the environment via the air pathway. Air within WMF-634 generally flows from the outside through the clean areas into Zone 1, then into Zone 2, and finally into Zone 3. Exhaust from the Zone 2 ventilation confinement zones is drawn, via exhaust fans, through two stages of high-efficiency particulate air (HEPA) filters, then discharged via the exhaust duct and stack. Likewise, the Zone 3 air supply is drawn from the Zone 2 areas and is exhausted through three stages of HEPA filters prior to being discharged to the main exhaust duct and stack. Under normal operating conditions, uncontained waste is located only in Zone 3 areas, while Zone 1 and 2 areas remain clean (i.e., radiologically uncontaminated) and accessible to workers.

Building egress systems are provided per the National Fire Protection Association (NFPA) 101, wherein a means of egress is a continuous and unobstructed way of exit travel from any point in the building or structure to an exit. Means of egress are provided via the access corridors around and through the building.

WMF-634 is composed of the following areas:

- Personnel Support Areas
    - Personnel Access/Entry Areas
        - RTR Control Room
        - Assay Control Room
        - Drum Core Sampling Vestibule
- Storage Area

- Characterization/Treatment Areas
  - Drum/Box RTR Lines
  - Drum/Box Assay Lines
  - Drum Venting Area
  - Drum Coring Room with Treatment Area
  - Containment Enclosure
  - Macroencapsulation Area

A brief discussion of the above areas follows.

Personnel Support Areas

Personnel support areas are located along the north exterior wall of WMF-634. The RTR control room is located in the northwest corner of the building. The assay control room resides in the northeast corner. Additionally, the drum core sampling vestibule is located in the northeast portion of the building. Personnel access into WMF-634 is provided through entry doors located on all sides of the building. See Appendix II, Drawing 53-10374 for additional information.

Storage Area

The storage area, located on the south side of WMF-634, receives and stores containerized wastes. From the storage area, containers are transferred within WMF-634 to the appropriate characterization process.

Characterization/Treatment Areas

Waste characterization within WMF-634 occurs primarily in the northern half of the building. The RTR area is located in the northwestern section of the building. Adjacent to the RTR equipment, the conveyor system delivers containers to the drum assay and drum venting units, which are located immediately east of the RTR units. The box assay unit is located in the north central area of the building. The drum coring room is located in the eastern section of WMF-634 and typically receives containers via the conveyor system. Absorption of liquids in containers occurs within the drum coring room in WMF-634, either via direct addition or by the

absorption of decanted liquids. Neutralization of decanted liquids also occurs within the drum coring room in WMF-634. Absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; and the visual examination of waste may occur in the drum coring room or in a containment enclosure in WMF-634. Mechanical vibration of waste may occur in a containment enclosure or it may also occur outside of a containment enclosure in an area designated for performing the operation. Macroencapsulation of waste may occur in an area designated for performing the treatment operation.

WAF Description

The WAF, commonly known as WMF-618, is a pre-engineered metal structure measuring approximately 80 feet (ft) by 50 ft. The WAF is located northwest of WMF-634. See the RWMC/AMWTP Topographic Map, located in Appendix II, for the location of the WAF at the RWMC. The purpose of the WAF is primarily to provide a location for the loading and unloading of TRU Package Transporter (TRUPACT) casks or other packaging required by an off-Site disposal facility. To facilitate loading and unloading activities, MW containers may be located in the WAF for up to 30 calendar days. All MW containers located within the WAF, including the TRUPACT casks, are inspected each working day for leakage, and corrective actions are initiated as required. A maximum of 104 55-gallon (gal) drums, or volume equivalent, may be located in the WAF at any given time. The storage configuration of containers is such that emergency equipment is accessible. After the TRUPACT cask or any other approved transport device has been loaded with containers and leak tested, the transport vehicle may be parked inside the WAF for a period of time not to exceed 10 working days.

Storage of transport trailers with loaded TRUPACT casks may occur on the asphalt pad to the west of WMF-635 or on the asphalt pad to the west of the TSA-RE. The storage area to the west of WMF-635 is approximately 200 ft by 250 ft, and the storage area to the west of the TSA-RE is approximately 150 ft by 1,200 ft. See the RWMC/AMWTP Topographic Map, located in Appendix II, for the areas designated for the storage of the trailers with TRUPACT casks. TRUPACTs on trailers that are stored, as described above, have completed the loading and leak analysis process necessary for shipment to the WIPP or to another waste management unit. To facilitate shipment activities, any single trailer may be stored for up to a total of 10

working days. Up to a total of 50 trailers may be stored between the two storage areas mentioned above. The storage locations of the trailers are such that access for inspections and emergency response is provided. The trailers and TRUPACT casks are inspected each working day for leakage, and corrective actions are initiated as required. If any leakage is noted, spill response will be completed in accordance with Attachment 7 and the closure of the trailer storage areas will be addressed during closure of the WSF. If no leaks/spills occur, then documentation of the termination of the use of the trailer storage areas will be placed in the Operating Record.

Storage of transport trailers with loaded TRUPACT casks may also occur within and around WMF-602. See the RWMC/AMWTP Topographic Map, located in Appendix II, for the areas designated for the storage of trailers with TRUPACT casks. TRUPACTs on trailers that are stored have completed the loading and leak analysis process necessary for shipment to the WIPP or to another waste management unit. To facilitate shipment activities, any single trailer may be stored for up to a total of 10 working days. Up to a total of 10 trailers may be stored in the WMF-602 storage areas. The storage locations of the trailers are such that access for inspections and emergency response is provided. The trailers and TRUPACT casks are inspected each working day for leakage, and corrective actions are initiated as required. If any leakage is noted, spill response will be completed in accordance with Attachment 7 and the closure of the trailer storage areas will be addressed during closure of the WSF. If no leaks/spills occur, then documentation of the termination of the use of the trailer storage areas will be placed in the Operating Record. If conditions arise which would require the loaded TRUPACT to remain at the WMF-602 storage areas longer than 10 calendar days, then the loaded trailer will be transferred into one of the AMWTP waste management units.

Type I Module Description

A single Type I Module, WMF-635, is located on the north end of the TSA. See the RWMC/AMWTP Topographic Map in Appendix II. The Type I Module is a container storage unit, which is also used for waste characterization, treatment, and preparation of containers for shipment to the WIPP or to another waste management unit. See Appendix IV, Drawing 51-9912 for a plan view of the Type I Module. WMF-635 also allows for the

absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; the mechanical vibration of waste; the macroencapsulation of waste; and the visual examination of waste. The Type I Module may also house portable headspace gas sampling units.

The Type I Module is composed of the following areas:

- Main Storage Area (MSA),
- Payload Assembly and Aspiration Area (PAAA),
- Waste Characterization and Repackaging Area (WCRA), and
- TRUPACT Loading Area (TLA).

A brief discussion of the above areas follows.

Main Storage Area

The MSA is primarily used to receive, store, treat, and weigh containerized waste. From the storage area, containers are transferred within the Type I Module to the appropriate characterization process, such as the drum venting facility (DVF). The DVF, located in the southwest corner of the MSA, is used to vent drums, insert a filter into a vented container, add absorbent to containers with liquids, decant liquids, neutralize liquids, and perform visual examination of containers. Drums are delivered to the DVF via a conveyor. From the DVF, the conveyor transports drums to the PAAA. Containers that do not require venting are typically transported to the PAAA/WCRA from the MSA, bypassing the DVF. See Appendix IV, Drawing 51-9912 for additional information. The MSA may also include equipment for conducting gas generation and headspace gas testing. The MSA is also identified as an area which may be used for the absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; the mechanical vibration of waste; and the visual examination of waste in a containment enclosure. The MSA may also have areas for the mechanical vibration of waste outside of a containment enclosure and for the macroencapsulation of waste.

Payload Assembly and Aspiration Area

The PAAA, located in the south central area of the Type I Module, includes storage areas and equipment for the management of containers. Containers are typically stored in the PAAA pending transport to the TLA for assembling and/or loading into the TRUPACT casks or to the WCRA for gas generation and headspace gas testing. The PAAA is also identified as an area which may be used for the absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; the mechanical vibration of waste, and the visual examination of waste in a containment enclosure. The PAAA may also have areas for the mechanical vibration of waste outside of a containment enclosure and for the macroencapsulation of waste.

Waste Characterization and Repacking Area

The WCRA, located in the southeast corner of the Type I Module, includes storage areas and equipment for conducting gas generation and headspace gas testing. The WCRA is also identified as an area which may be used for the absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; the mechanical vibration of waste; and the visual examination of waste in a containment enclosure. The WCRA may also have areas for the mechanical vibration of waste outside of a containment enclosure and for the macroencapsulation of waste.

TRUPACT Loading Area

The TLA, located in the northeast corner of the Type I Module, includes an electrical room, storage area, and an area for assembling and loading containers into TRUPACT casks. TRUPACT casks are assembled in the TLA by retrieving containers from storage in the PAAA/WCRA and placing the containers into a payload assembly, such as a TRUPACT payload assemblage (TPA). A gantry crane is used to assist with container movement.

SWEPP Description

The SWEPP is a two story building. On the main level are offices, an electrical room, a room for heating and ventilation equipment, a generator room, and a High Bay area. The second level contains personnel support areas. The SWEPP storage area (SSA), located in the SWEPP

High Bay, is used to store containers of waste before, during, and pending transfer to other MWMUs. The SSA may also be used as an area for the absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; the mechanical vibration of waste; and the visual examination of waste in a containment enclosure. The SSA may also have areas for the mechanical vibration of waste outside of a containment enclosure and for the macroencapsulation of waste. SWEPP contains three assay units [two gamma ray spectrometers and one passive active neutron (PAN) unit] and an RTR unit. The gamma ray spectrometers are located in the western portion of the SSA, and the RTR and PAN assay units are located in the east central area of SWEPP. See Appendix V, Drawing 51-9906 for further information. The north and south ends of SWEPP are used as loading/unloading areas, and are enclosed to assist in year round operations. Up to two mobile units (RTR and/or assay) mounted on trailers may be installed in the loading/unloading areas.

WMF-628 Characterization Facility Description

The Type II Module designated as WMF-628 is a container storage unit that is also used for waste characterization. Waste characterization operations are performed to certify waste container compliance with the applicable WAC of WMF-676, WIPP, or other waste management unit. Up to six mobile characterization units may be located in WMF-628. The mobile units may perform RTR, gamma spectroscopy assay, PAN assay, and/or visual examination. Additionally, portable headspace gas sampling units and gas generation testing units may be located within WMF-628. See Appendix VI, Drawing 51-10009 for further information. WMF-628 also allows for the absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; the mechanical vibration of waste; and the visual examination of waste in a containment enclosure. WMF-628 may also be used for the mechanical vibration of waste outside of a containment enclosure and for the macroencapsulation of waste.

WMF-676 Description

WMF-676 is a two-story industrial structure with a rooftop mechanical penthouse and attached utility room. Overall dimensions for the WMF-676 first (ground) floor are approximately 230 ft by 275 ft (excluding the utility room). The general building height is about

44 ft. WMF-676 houses approximately 52,000 square feet (ft^2) per floor. The rooftop mechanical penthouse encloses approximately 15,500 ft^2 of additional space and the roof is about 67 ft above ground level. The utility room, attached to the south end of WMF-676, is about 64 ft by 114 ft. The main stack, also on the south end of the building, extends above the roof of the utility room. The stack, actually an open, rectangular, steel frame that supports individual flues, is approximately 90-ft high. Further information on the stack can be found in Attachment 1.F.

The process portion of WMF-676 is generally described as having two levels, but many of the spaces are open from the first floor to the roof structure; others have mezzanine levels or intermediate equipment access platforms. AMWTP operations and maintenance personnel may access various work areas via corridor systems. See Appendix VII, Drawings 53-0201, 53-0207, and 53-0212 for additional information.

The ventilation within WMF-676 is managed by confinement zones to minimize the potential for waste to be released to the environment via the air pathway. Air within WMF-676 generally flows from the outside through the clean areas into areas of equal or increasing contamination. Exhaust from the ventilation confinement zones is drawn, via extract fans, through air pollution control equipment, then discharged via the main stack. See Appendix VII, Drawing 53-0624 for additional information.

WMF-676 also includes features and systems that compartmentalize WMF-676 into separate fire zones that comply with applicable Uniform Building Code (UBC) and NFPA standards. Fire compartmentalization is provided to create separate fire zones or areas of fire control within WMF-676 and create a protected means of egress from WMF-676 in the event of a fire.

Although significant portions of the WMF-676 waste management areas are not continuously manned, building egress systems are provided per the Life Safety Code (NFPA 101), wherein a means of egress is a continuous and unobstructed way of exit travel from any point in the building or structure to an exit. Means of egress comprising vertical (stairs) and horizontal travel (corridors), including intervening room spaces, are provided via the access corridors around and through the pretreatment and treatment areas of WMF-676 and stair towers. WMF-676 is composed of the following areas:

- Administrative/Personnel Support Areas

  Personnel Access/Entry Area

  Offices/Meeting Room Areas

  Control Room/Computer Room Areas

  Men's/Women's Clean Change Rooms

  Backup Monitoring Room
- Subchange Rooms
- Container Import/Export Areas

  North

  - Drum Storage Areas (A, B, and C)
  - Waste Drum Import/Export
  - Puck Drum Import/Export

  East

  - Waste Receiving Area
  - Low-level waste (LLW) Container Import/Export Area

  West

  - Central Conveyor System (CCS), Room 147, Area
  - Drum Assay/Storage
  - North Box Line Drum Conveyor Area
  - South Box Line Drum Conveyor Area
- Box Line Areas
- Drum Repack System and SCW Area

  Drum Repack System [Drummed Waste Handling Enclosure (DWHE) and Drummed Waste Packaging Glovebox (DWPG)]

  SCW Glovebox System
- Supercompaction Area
- Maintenance Areas
- Supplies Receiving Areas
- Electrical Rooms
- Filter Rooms

- Heating, Ventilation, and Air Conditioning (HVAC) Equipment Rooms
- Other Waste Storage Areas

  Filter Rooms

  Filter Maintenance Areas

A discussion of some of the listed areas follows, while other areas are described in Attachments 1.F, 1.F.i, 1.F.ii, 1.F.iii, and 1.F.iv.

Administrative/Personnel Support Areas

The administrative and personnel support areas are located along the south exterior wall on the first and second floor levels and are separated from the waste handling and process areas of the building. The administrative area houses AMWTP operations and shift management personnel and provides open cubicle office space. Design of the administrative portions of WMF-676 includes provisions for the physically impaired as required by American National Standards Institute (ANSI) A117.1 [DOE-ID Architectural Engineering Standards (AES) 0110]. Two main clean change rooms are provided for changing into and from protective clothing and to provide an interface between clean areas and potentially contaminated areas.

The central control room (CCR) is accessible through the administrative area, and houses the majority of the WMF-676 control interface equipment. The backup monitoring room, located on the first floor near the south end of WMF-676, houses controls, monitors, and alarms which may be used for limited control and safe shutdown of WMF-676 during an emergency.

Subchange Rooms

Subchange rooms are provided within WMF-676 as a means for AMWTP personnel and supplies to pass from one ventilation zone to another without disrupting the airflow to other ventilation areas. This arrangement helps prevent the release of waste constituents into the environment via the air pathway.

Container Import/Export and Storage Areas

The waste import/export areas are located on the east and north sides of WMF-676, while the storage areas are located throughout WMF-676. The north end of the first floor contains the puck drum import/export area, waste drum import/export area, and various storage areas for containers. The puck drum import/export area consists of four conveyor sections that are used for receiving/storing empty puck drums, storing puck drums containing waste, and exporting puck drums to other MWMUs. See the general arrangement drawings in Appendix VII for further detail.

The waste drum import/export area consists of two conveyor sections that are used for importing waste drums destined for pretreatment/treatment, the storage of containers, and exporting containers from WMF-676. Drums are not typically exported through this area; however, it may be used as an alternative export route.

Storage areas A, B, and C, located at the north end of the first floor, are used for the storage of drums in the puck drum import/export and waste drum import/export conveyor sections. See the general arrangement drawings in Appendix VII for further detail.

The waste box receiving and storage area, empty drum receiving and storage area, the empty container/LLW export area, and the clean supplies receiving area are located on the east side of WMF-676. The waste box receiving and storage area, located along the central east wall of WMF-676, receives containers destined for treatment in the box lines. The empty drum receiving and storage area, located on the east wall, immediately south of the waste box receiving and storage area, is used for the receipt and storage of empty drums that are used to contain waste from the processes (e.g., box line waste sorting). The empty container/LLW export area, located along the east exterior wall near the south end of the process portion of the building, receives empty containers used in the WMF-676 processes. In addition, containers containing LLW (sized-reduced empty containers) are stored in this area pending transfer out of WMF-676. The supplies receiving area, directly north of the empty container/LLW import/export area, receives various non-waste supplies needed for WMF-676.

Room 147 is located on the west side of WMF-676. This area consists of a storage area serviced by a drum-handling robot and conveyor sections, which are used for the transfer of waste and empty drums. Waste drums are stored in this storage area pending treatment or assay. Empty drums are stored pending use in the processes.

Box Line Areas

Waste sorting within WMF-676 occurs primarily in the box lines. WMF-676 currently contains two box lines, located on the central south side of the second floor of the building. A series of first floor conveyors and elevators feeds empty containers up to the second floor box line sorting areas. The empty containers are filled with waste from the box lines, lowered to the box line/drum conveyor areas, lidded at one of two automated drum lidded stations, and transferred to downstream treatment.

Drum Repack System and SCW Area

The drum repack system and SCW area is located on the north end of the second floor and occupies an area approximately of 75 ft by 38 ft. The SCW glovebox system (located on the south side of the room) consists of the following sections: transfer glovebox, treatment glovebox, sampling glovebox, container-in-container glovebox, and bag-out transfer ports. Containers are received into the SCW glovebox system through an airlock and elevator that interfaces with the MTS on the first floor.

The drum repack system consists of a waste handling enclosure (i.e., DWHE) and a waste packaging glovebox (i.e., DWPG). Containers are received into the DWHE through an airlock door and elevator that interfaces with the MTS on the first floor. The DWHE consists of a container opening station with a ventilation hood, sorting cart(s), container lifting/tipping equipment, various tools/equipment, an empty container crushing machine, and an area for the storage of waste containers. The DWPG portion of the drum repack system is used for the repackaging of waste into containers. A drum opening hood enclosure (DOHE) is used to further contain activities within the DWHE. A door in the DOHE allows for personnel access between the DWHE and the DOHE, and also provides access for the transfer of equipment and waste.

Typically, SCW items are bagged within the drum repack system and hand carried to the SCW glovebox system.

Supercompaction Area

The supercompaction area is located on the north side of WMF-676 in an area of the first floor that is open to the second floor. The area consists of a venturi glovebox, the infeed glovebox, the supercompactor glovebox, and the postcompaction glovebox. Containers that are destined for supercompaction are conveyed into the infeed glovebox, where they are prepared (i.e., punctured) for supercompaction. From the infeed glovebox, containers enter the supercompactor, where they are compacted with a hydraulic press. Once compacted, the pucks are transferred to the postcompaction glovebox. The postcompaction glovebox contains a puck storage area and a puck drum loading area. Typically, up to five pucks are loaded from the storage area into a puck drum. Once fully loaded, the puck drums are transferred out of the postcompaction glovebox, via conveyors, to the drum storage areas; from there, the containers are transferred out of WMF-676.

Maintenance Areas

Areas for maintenance of process equipment are located within WMF-676. The preferred location for performing maintenance activities is within the area where the equipment is located, particularly if the equipment is located in a higher ventilation confinement (e.g., Zone 3) area. An equipment maintenance area (Room 224B), located on the second floor south of the box lines, is provided for performing maintenance on contaminated equipment. Maintenance of equipment that is not contaminated may occur in the Zone 1 maintenance area (Room 115) on the first floor. An electrical and instrumentation maintenance area (Room 161) is also located on the first floor.

HVAC Equipment Rooms

The main HVAC equipment rooms for the waste management areas are located in the rooftop penthouse above the central portion of the building. A HEPA filter room is located on the second floor along the east wall of the building. Terminal filter rooms are provided for local process area air filtering. Localized terminal filters are located on the west end of the drum

repack and SCW area (Room 236). A terminal filter room is located just south of the supercompactor room (Room 142B), while another is located south of the south box line/drum conveyor area (Room 122A).

ARA	=	Auxiliary Reactor Area
CFA	=	Central Facilities Area
CTF	=	Containment Test Facility
EBR-I	=	Experimental Breeder Reactor I (Historical Monument)
INTEC	=	Idaho Nuclear Technology and Engineering Center
IET	=	Initial Engine Test
MFC	=	Materials & Fuels Complex
NRF	=	Naval Reactors Facility
PBF	=	Power Burst Facility
RTC	=	Reactor Technologies Complex
RWMC	=	Radioactive Waste Management Complex
TAN	=	Test Area North
TSF	=	Technical Support Facility
WRRTF	=	Water Reactor Research Test Facility

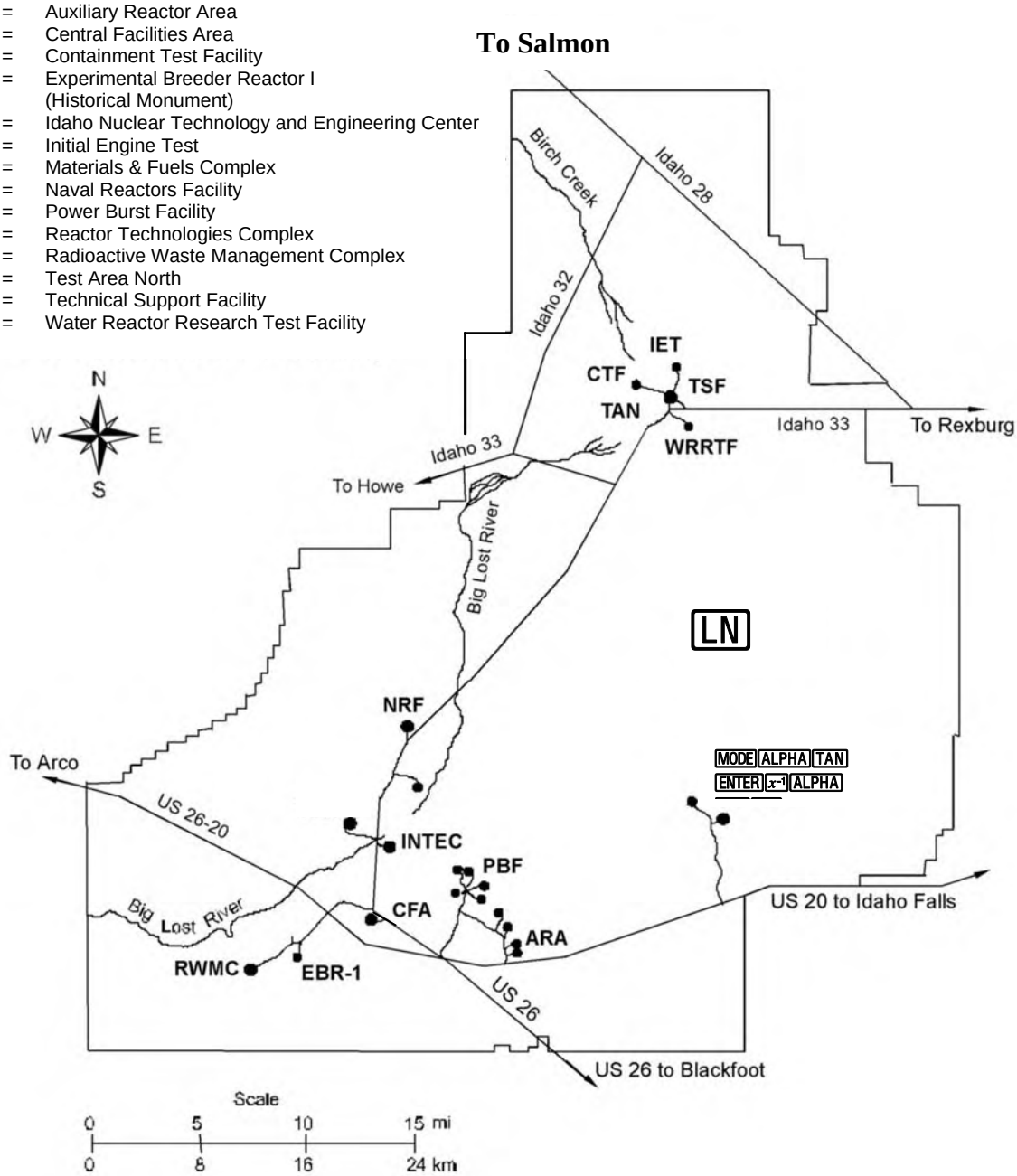


Exhibit B-1. Map of the INL Showing Major Area Locations

B-2 Topographic Map [IDAPA 58.01.05.012; 40 CFR 270.14(b)(19)]

A topographic map of the RWMC/AMWTP providing the information required by IDAPA 58.01.05.012 [40 CFR 270.14(b)(19)] is included in Appendix II.

B-3 Location [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.18 and 270.14(b)(11)]

B-3a Seismic Standard [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.18(a) and 270.14(b)(11)(i) and (ii)]

The RWMC is located in Butte County, Idaho. Butte County is not listed in IDAPA 58.01.05.008 (Appendix VI to 40 CFR 264) as a county that requires demonstration of compliance with IDAPA 58.01.05.008 [40 CFR 264.18(a)].

B-3b Floodplain Standard [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.18(b) and 270.14(b)(11)(iii) and (iv)]

A 2001 flood evaluation study ("100-Year Floodplain and 25-Year Runoff Analyses for the Radioactive Waste Management Complex Area at the Idaho National Engineering and Environmental Laboratory," T. Mitchell, S. Mitchell, J. Humphrey, D. Kennedy, and T. Funderburg, December, 2001) analyzed the extent of a 100-year (yr) floodplain. Based on this analysis, there are no MWMUs located within the 100-yr floodplain at the RWMC. The requirements of this section are, therefore, not applicable.

B-4 Traffic Information [IDAPA 58.01.05.012; 40 CFR 270.14(b)(10)]

U.S. Route 20/26 is the general access route to the RWMC and the AMWTP. Van Buren Boulevard intersects U.S. 20/26 northeast of the RWMC and the AMWTP and is the direct access road leading to the Experimental Breeder Reactor I (EBR-I). Adams Boulevard intersects Van Buren Boulevard just north of EBR-I and is the direct access road leading to the RWMC and the AMWTP. East of the bridge located on Adams Boulevard is a road that is designated as the primary access road for the AMWTP. This road runs along the outside of the RWMC perimeter fence, and is designated as the RWMC North/South Road on Exhibit II-1 in Appendix II. Primary access to the AMWTP area is gained via use of this road and one of the gates located on the south end of the TSA. Typically, waste shipments to and from the AMWTP/RWMC travel via Adams Boulevard and Van Buren Boulevard. The heaviest traffic on the roads leading to the RWMC and the AMWTP occurs between 6:00 and 8:30 a.m., and again from 4:00 to 6:30 p.m., Monday through Friday. The morning traffic primarily consists of employees driving to work, as well as passenger buses transporting employees to work. The evening traffic primarily consists of employees leaving work. From Memorial Day until Labor Day, passenger vehicle traffic increases slightly on Van Buren Boulevard as tourists visit EBR-I.

Adams Boulevard is made of asphalt. The local runoff flood channel bridge on Adams Boulevard is designed to be consistent with the Adams Boulevard roadway. The Adams Boulevard roadway total vehicle capacity of the bridge is 78 metric tons; this assumes special overload vehicle axle load combinations of 76,100 pounds (lb) (3 axles at 12,683 lb/wheel), 81,300 lb (2 axles at 20,925 lb/wheel), and 15,000 lb (1 axle at 7,500 lb/wheel). The typical daily volume of vehicles on the TSA access roads is about 125 to 130 vehicles, mainly cars and trucks.

Employee Traffic

All employees enter the AMWTP through controlled access points (see Appendix II, Exhibit II-1). Employee-owned vehicles are not allowed to enter the TSA, unless security has cleared the vehicle to enter. Employees traveling within the TSA either walk or are transported by contractor or federally owned vehicles.

Operations Material Supply Traffic

Typically, operations supply vehicles enter the AMWTP area through the south gate, which is dedicated for AMWTP operations. Usually, this traffic travels to the WSF buildings on Road #3, located near WMF-676. The projected trips per week (annual average) by supply vehicles are listed in a table on Exhibit II-1 in Appendix II. Vehicles may also enter the AMWTP area through the main RWMC gate at WMF-637.

Operations Waste Flow Traffic

Exhibit II-1 in Appendix II shows the typical waste flow traffic among the various TSA buildings, as well as the projected annual average shipments/day for each route. Typically, retrieved containers from the TSA-RE are transferred to WMF-634 for preliminary characterization. Containers are then normally transported to the Type II Modules for storage or to WMF-676 for treatment.

Traffic Control Signs, Signals, and Procedures

Traffic control procedures within the AMWTP controlled areas support plant operations, maintenance, and on-Site delivery and shipments. These traffic procedures are implemented using standard highway traffic control and informational signs. No traffic signals are required for the AMWTP. The typical sign types that may be used, if required, in the AMWTP area are listed in the following table.

SIGN TYPE	LOCATION
STOP	Access gates and some plant road intersections, as necessary
CLEARANCE	Where electrical lines pass over the roadway and restrict traffic
SPEED LIMIT	Various signs on each roadway, as necessary
DIRECTIONAL	Various roadways indicating traffic flow direction, as necessary
INFORMATIONAL	Various roadways indicating facility locations, receiving, loading, unloading, and visitor areas

TABLE OF CONTENTS

ATTACHMENT 1.A

PROCESS INFORMATION

D. PROCESS INFORMATION 1

D WMF-634 Design 1

D-1 Containers 17

D-1a Containers with Free Liquids 17

D-1a(1) Description of Containers 17

D-1a(2) Container Management Practices 22

D-1a(3) Secondary Containment System Design and Operation 25

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids 26

D-1a(3)(b) Containment System Drainage 27

D-1a(3)(c) Containment System Capacity 27

D-1a(3)(d) Control of Run-On 28

D-1a(3)(e) Removal of Liquids from Containment System 29

D-1b Containers Without Free Liquids 29

LIST OF TABLES

Table D-1. WMF-634 Secondary Containment System Capacity Calculations 31

LIST OF EXHIBITS

Exhibit D-1. Example Hazardous Waste Label 32

Exhibit D-2. Typical TRUPACT Assemblage 33

D. PROCESS INFORMATION

D WMF-634 Design

WMF-634 is used to store characterize, and treat ROW and MW. A total of seven Type II Modules currently exist, and as many as ten modules may be constructed. This attachment covers only one module, WMF-634. Wastes currently in storage, as well as newly generated waste from on- and off-Site generators, may be moved to, stored, characterized, and treated in the WMF-634 Type II Module.

Unless otherwise noted, drawings referenced in this attachment are located in Appendix II.

WMF-634 houses a number of activities, which include:

- Receiving and storing waste containers for characterization;
- Examining containers using RTR;
- Processing drums, as required, through the DVS in which a HEPA filter is inserted to vent radiolytically generated hydrogen (H_2) gas and/or performing headspace gas sampling;
- Radiological surveying of containers;
- Treating liquids in containers, as required, by the addition of absorbent;
- Decanting of liquids from containers, as required, in the DCSRS;
- Neutralization of liquids in a container in the DCSRS;
- Drum coring, as required, and core sample preparation in the DCSRS;
- Repackaging of waste from one container into another container(s);
- Sizing of waste such that the waste may meet size constraints for subsequent waste management activities;
- Mechanical vibration of waste; and
- Macroencapsulation of waste in stainless steel containers or containers with stainless steel liners.

The physical layout of the equipment in WMF-634 is shown on the general arrangement drawing (see Drawing 53-10374). The equipment layout matches the sequence of operation in a

west to east flow. Typically, waste containers enter WMF-634 on the west side and exit on the east side, after characterization/treatment is complete. Containers are received into WMF-634, and are off-loaded and stored on the south side of the building. As each container is placed into its designated input storage area, the container's barcode label is scanned to update the container's location information maintained in the AMWTP data management system (DMS).

Typically, the first characterization operation performed on containers is RTR examination. RTR is used to determine the waste material parameters and detect prohibited items and special conditions. RTR examination is also used to validate existing waste characterization data, or in the case of unidentified waste containers, to correlate the contents of the container with known waste types from generator sites.

Drums identified as requiring venting and/or headspace gas analysis are usually then transferred to the DVS. If previously vented drums require headspace gas sampling, this can be performed using portable headspace gas sampling units. The WMF-634 DVS system performs an automated process of partially inserting a self-drilling and self-tapping HEPA filter, which penetrates the drum lid and liner (if present). If required, a sample of the internal headspace gas is then drawn through the HEPA filter sample port and directed to analytical equipment. The filter vent is then seated against the container lid. The DVS system is also able to perform an automated process of drilling a hole, which penetrates the lid of a container. A HEPA filter may then be inserted into the hole and seated against the lid of the drum or a HEPA filter with an adhesive surface (e.g., paper HEPA filter) may be placed over the hole in the drum lid. At all times during the operation of fitting the HEPA filter and taking samples of gas, the container is located in a continuously ventilated chamber. The ventilation system of the DVS is HEPA filtered prior to discharge to the WMF-634 main exhaust stack. The filter vent insertion operation is performed within a purged housing that seals against the container lid to minimize the spread of contamination. As required, containers are sampled for potential flammable headspace gases.

Containers are radioassayed to determine the amount of fissile material present in each container. The containers are assayed in order to determine the amount and isotopic composition of nuclear material, TRU isotope activity, and decay heat. The data are used to implement criticality control throughout the AMWTP waste management units.

Drums identified for core sampling, visual examination, and/or treatment are typically diverted to the drum coring room, while all other containers are transferred to the output storage area. The drum is moved to the DCSRS conveyor and transferred into the DCSRS for coring, examination, and/or treatment. Drawing 53-10374 presents a plan view layout of the drum coring room and the DCSRS. Upon completion of the coring, the core sample is transferred to the sample preparation glovebox, and absorbent is added to the container, as required. Waste in containers may also be taken into the DCSRS without performing the coring operation, in order to absorb liquids, decant liquids, neutralize liquids, perform visual examination, repackage waste, and size waste. These containers are typically examined visually prior to treatment. Upon completion of operations in the DCSRS (e.g., treatment, coring), a lid is placed onto the container, and the drum is then removed from the DCSRS and transferred to the output storage area of the building. Sample preparation is performed in the sample preparation glovebox. Samples for volatile organic compound (VOC) analysis of hard sludge material are collected from the core and transferred to suitable, sealed containers as quickly as practicable to reduce the potential for loss of VOCs. All samples are transferred out of the glovebox and packaged appropriately for transport to an independent laboratory for analysis.

Waste treatment in WMF-634 may also be conducted in a containment enclosure (absorption, decanting, neutralization, repackaging, sizing, and mechanical vibration) or outside a containment enclosure (mechanical vibration and macroencapsulation). A containment enclosure is a moveable, non-permanent structure used to provide contamination control during container management. Containment enclosures may be mounted to the floor using anchor bolts, as necessary. All anchor footing floor penetrations are constructed and sealed such that the integrity of the secondary containment system is maintained. Information on how penetrations are made to a secondary containment coating and how the integrity of the secondary containment coating is maintained is kept as part of the Operating Record. Containment enclosures are divided into at least two sections, one section for providing a radiological contamination buffer area and another section for performing operations. Additional sections may be added to provide for additional radiological contamination control, as required. Air flows from the outside of the enclosure into the various sections of the enclosure (e.g., containment area, operations area, etc.). Air from the operating area of the enclosure is vented through a HEPA filter outside of the enclosure. An enclosure may contain a gantry chain area with cranes, inspection/treatment

stations, and roller conveyors for moving containers. However, equipment within the enclosure will vary depending upon the type of operation being performed.

Treatment. Various methods of treatment are performed in WMF-634: absorption, decanting, and neutralization of liquids; the repackaging of waste; the sizing of waste; the mechanical vibration of waste; and the macroencapsulation of waste. These methods are performed individually and in conjunction with each other to treat the waste in the most effective manner possible. Treatment operations typically include:

- Repackaging of waste from a container(s) into another container(s);
- Physical sizing of waste from one container such that the waste may meet size constraints for subsequent waste management activities;
- Co-mingling of compatible waste from multiple containers during the repackaging and sizing process;
- Decanting liquids in containers;
- Decanting liquids into containers with absorbent;
- Adding absorbent to liquids;
- Neutralizing liquids in containers;
- Simultaneous absorption and neutralization of liquids by adding a neutralizing absorbent to liquids (either prior to or after the liquid is added);
- Decanting followed by neutralization then absorption;
- Absorption followed by decanting and further absorption;
- Co-mingling of compatible liquids prior to neutralization and/or absorption;
- Co-mingling of compatible absorbed liquids;
- Mechanically vibrating waste so that free liquids may be absorbed and/or decanted; and
- Placing waste into a stainless steel container/liner such that the container/liner can be welded closed to meet the macroencapsulation treatment standard specified at IDAPA 58.01.05.011 (40 CFR 268.45).

The methods of treatment are summarized below. When more than one treatment is performed on a waste, the individual operations may be combined.

Absorption. The treatment objective of absorption is to select a suitable absorbent material to absorb any free liquid waste. Prior to absorption, the compatibility of the liquid with the absorbent being used is addressed and documented, as required. Compatibility evaluations are typically performed through process knowledge and/or RTR examination. Absorbent materials are also checked for compatibility with the waste types, and stored accordingly in the MWMUs. The following are the general steps that are used during the absorption/treatment process:

- The volume of waste to be treated is estimated.
- The amount of appropriate absorbent [selected based upon visual examination, process knowledge, acceptable knowledge, or other appropriate means (e.g., water miscibility)] is estimated.
- The absorbent is added to the liquid.
- The absorbent and waste may be mixed, if required.
- Treated waste is visually inspected for signs of free liquids. If no free liquids are present, the treatment is considered successful.
- If the absorption is not effective, the cause of the process failure is evaluated. If insufficient absorbent was used, the process may be repeated with additional absorbent.

The steps outlined for absorption are repeated no more than three consecutive times. If a treatment is unsuccessful after three attempts, the adequacy of the procedure is analyzed and continued treatment is handled on a case-by-case basis in consultation with the State of Idaho Department of Environmental Quality (DEQ).

Initial testing of absorbents has been conducted to determine an appropriate absorbent material for the types of wastes present in the AMWTP inventory. The criteria for evaluation included stability, pH, sorbent capacity, sorbency rate, curing time, composition of sorbent, sorbent dust production potential, and free liquid/sorbent combination response to temperature extremes (freezing and elevated) similar to those experienced during shipping. The results of this evaluation indicate that Aquaset, a water activated, granular solidification agent composed of clays modified by a proprietary process from Fluid Tech Inc., meets the requirements for the treatment of liquids via absorption. Based upon the testing of the performance of absorbents, it has been determined that Aquaset may be used for the absorption of aqueous liquids. Additional

evaluation indicated that Petroset IIG, also manufactured by Fluid Tech Inc., meets the requirements for the treatment of organic liquids via absorption. For additional information, see "Aqueous and Oil/Organic Liquid TRU Waste Solidification Method Test Plan and Report," Rocky Flats Environmental Technology Site, PRO 1582 PQP/PQR, Revision 0.

A second supplier of absorbents, Nochar, supplies Petro Bond N990 and Acid Bond A610. Petro Bond has been tested and found to be effective at absorbing oils and organic liquid at a waste:absorbent ratio of approximately 1:1. Acid Bond has been tested and found to be effective at absorbing acidic and basic liquids. Acid Bond is routinely mixed at a waste:absorbent ratio of 8:1 when the waste is neutral to slightly basic, 4:1 when the waste is basic, and approximately 1:2 when the waste is acidic. Actual waste:absorbent ratios are determined using operating instructions. Additionally, Petro Bond and Acid Bond may be combined to absorb liquids with both aqueous and organic components. The results of treatability testing indicate that Nochar's Petro Bond and Acid Bond meet the requirements for the treatment of liquids via absorption. Based upon the testing and performance of absorbents, it has been determined that Petro Bond N990 and Acid Bond A610 may be used for the absorption of liquids. For additional information, see "PUREX Waste Solidification," Savannah River Technology Center, WSRC TR-2001 00526, Revision 0.

Decanting. The treatment objective of decanting is to remove a sufficient volume of free liquid so that the free liquid remaining in the original container, sump, or trough can be treated through the addition of absorbent, as described above, and/or to transfer the decanted liquid into another container. The primary method for decanting liquids is to use equipment (e.g., disposable pipettes, pumps, ladles, cups, drip pans, etc.) to transfer liquid into a container that is located in a drip pan or some other type of liquid containment device. Efforts will be made to minimize the spread of MW contamination during waste transfer using drip pans and other equipment, as described above. The decanted liquid is typically absorbed after selecting a suitable absorbent material to absorb the free liquid. The following are the general steps that are used during the decanting treatment process:

- The volume of liquid waste to be treated is estimated.
- The appropriate container size is estimated.

- The free liquid is decanted from the original container, sump, or trough and placed in a second container. Absorbent is added to the second container either prior to or after the liquid waste is added to the container, if required.
- Additional absorbent is added to the treatment container, sump, or trough, as required, and the absorbent and waste may be mixed, if required.
- Any free liquid remaining in the original container, sump, or trough is treated via absorption and/or neutralization.

Neutralization. The treatment objective of neutralization is to adjust the pH of liquid waste to a desired range for absorption. The desired pH, which depends on the waste type and determines the specific absorption agent(s) to be used, is established prior to conducting treatment. The following information presents the general treatment steps that are used in neutralizing a liquid waste:

- The weight or volume of the waste is determined and recorded.
- A pH measurement is taken.
- The appropriate types and amounts of neutralizing agents are weighed/measured out and added. The primary acidic neutralizing agents include acids, such as citric acid. The primary basic neutralizing agents include bases, such as calcium carbonate.
- The treatment agents and waste are mixed.
- A pH measurement is taken to verify results against the pH end-point established to confirm treatment effectiveness.
- If the neutralization is not effective, the cause of the process failure shall be evaluated. If insufficient reagents were used, the process may be repeated with additional reagents.

The steps outlined for neutralization are repeated no more than three consecutive times. If a treatment is unsuccessful after three attempts, the adequacy of the procedure is analyzed and continued treatment is handled on a case-by-case basis in consultation with the DEQ.

Once neutralized, the liquid may be mixed with appropriate absorbents, unless the neutralizing agent is also an absorbent.

Repackaging/Sizing of Containers. The treatment objective of repackaging and sizing waste will vary upon the waste being managed. For example, typical objectives of repackaging/sizing include:

- Transferring the contents from a container with poor integrity into another container with acceptable integrity.
- Transferring the contents from one container (e.g., box) into different container(s) (e.g., 55-gal drums) in preparation for downstream processing (e.g., shipping, headspace gas sampling, etc.).
- Transferring the contents of multiple containers into a single container.
- Transferring the contents of a single container into another container.
- Removing items prohibited from downstream AMWTP processes (e.g., supercompaction) or items prohibited from disposal at the identified disposal facility (e.g., WIPP).
- Physically reducing the size of waste such that the waste is acceptable for subsequent waste management activities.

Mechanical Vibration. The treatment objective of mechanical vibration is to consolidate free liquids that are located within the void space of a solidified waste so that the liquid may be treated, as required. Mechanical vibration is not intended to separate solidified liquid waste from a waste matrix. The primary method for consolidating free liquids is to use equipment (e.g., vibrating table) to move liquid from the waste matrix to the sides, bottom, and/or top of the container. This liquid can then either be absorbed or decanted, as required.

Upon completion of the mechanical vibration process, containers will undergo RTR examination to verify that the mechanical vibration was effective in consolidating the free liquids. If RTR examination indicates that all of the free liquids have not been consolidated, then mechanical vibration may be performed again in an effort to consolidate the remaining free liquids. RTR examination shall be performed after mechanical vibration has been completed to determine the effectiveness of the mechanical vibration.

Mechanical vibration may either be performed in a containment enclosure or in an area with a secondary containment system that is designated for performing mechanical vibration. If mechanical vibration is performed outside of a containment enclosure, then the container will be overpacked prior to performing the treatment. If the mechanical vibration is performed inside a containment enclosure, then overpacking of the container is not required.

Macroencapsulation. The treatment objective of macroencapsulation is to meet the LDR treatment standard for mixed low-level debris waste specified at IDAPA 58.01.05.011 (40 CFR 268.45). To meet the LDR treatment standard, a stainless steel container or container with a stainless steel liner is used to provide a jacket of inert material that substantially reduces surface exposure to potential media. The stainless steel container/liner completely encapsulates the debris waste, and is resistant to degradation by the debris and its contaminants and materials into which it may come into contact with after disposal (e.g., leachate, other waste, microbes). All stainless steel containers/liners are continuously welded to ensure complete encapsulation. Liquids are not placed into a stainless steel container/liner. The presence of liquid, or absence of, is confirmed either through RTR or visual examination. A list of stainless steel containers and containers with stainless steel liners approved for macroencapsulation is provided in Section D-1a(1).

Prior to placing waste into a stainless steel container/liner, the container/liner shall be inspected to ensure the integrity of the stainless steel container/liner. Upon placing waste into a stainless steel container/liner, the stainless steel container/liner will be continuously welded closed. Upon performing the welding of the stainless steel container/liner, the weld will be inspected by a certified welding inspector to ensure proper closure. Precautions to prevent ignition of ignitable waste during the welding process are provided in Attachment 6.

During the macroencapsulation treatment process, stainless steel containers and container with stainless steel liners will be inspected per the schedule provided in Attachment 4. All stainless steel containers and containers with stainless steel liners shall be managed in accordance with Section D-1a(2) when in storage.

WMF-634 does not contain toilet facilities. Smoking is only allowed outside of WMF-634 in designated areas.

Fill and Grading

The areas on which the Type II Modules are constructed were graded prior to construction. The area between the modules is graded from a high point midway between the modules to provide drainage away from the modules. This drainage is provided via a 2 % slope

to the north and south and approximately 1% slope to the east and west from the mid-point between the buildings. The run-off is channeled into drainage ditches or culverts running north-south along the east and west sides of the modules. These ditches/culverts, in turn, slope northward with a 1% slope to provide run-off drainage away from the Type II Modules and into the main RWMC drainage ditch. See Drawing 52-1900 for the WMF-634 grading plan.

The modules are located on the east side of the TSA as shown on the RWMC/AMWTP Topographic Map, located in Appendix II. As the map shows, WMF-634 is currently the southern-most module, and a road oriented north-south is located on both the east and west sides of the Type II Modules. The roads are paved with asphalt. Backfill compaction is 95% of maximum density. To minimize slab frost heave and to prevent slab cracking, a layer of nonfrost-susceptible granular fill was placed over the graded area prior to placing the foundation. The fill thickness is from 6 inches (in.) to 5 ft.

The fill material used was select pit run gravel available at on-Site gravel pits. Leveling coarse material used was a mixture of crushed gravel, crushed stone, and natural or crushed sand. Backfill material consists of soil material free of clay, rock, and gravel larger than 3 in., debris, frozen materials, or vegetable material. All soil materials used comply with the American Association of State Highway Testing Officials (AASHTO) M145 soil classification Groups A-1, A-2-4, A-2-5, and A-3.

Foundations and Floors

The foundation and floor requirements for WMF-634 are the same as those identified in Attachment 1.B for the other Type II Modules addressed in this document. The following additional requirements are specific to WMF-634.

The floor of the coring room is thickened to provide structural support for the coring room walls and elevated slabs. The floor of the coring room is a 14-in. thick concrete slab, reinforced with two layers of #5 reinforcing steel spaced at 12 in. increments in each direction in the top and bottom of the concrete slab. The concrete slab was placed directly on the existing structural backfill, as excavated, to accommodate the 14-in. depth of the concrete slab.

Characterization and other equipment are mounted to the floor using anchor bolts and vibration-dampening pads, as necessary. Interior enclosures are attached to the floor using anchors or concrete footings. All anchor and footing floor penetrations are constructed and sealed such that the integrity of the secondary containment system is maintained. A 6-in. thick by 6-in. high concrete curb surrounds the open storage area. In addition, a 4-in. high concrete curb surrounds the drum coring room in WMF-634. Curbing was also placed at the entrance doors to the RTR and assay control room. Ramps at the emergency egress doors in the RTR and assay control rooms slope from the 6-in. perimeter containment curb to the floor, and are typically constructed of concrete or steel.

Structural Parameters

The structural parameters for WMF-634 are the same as those identified in Attachment 1.B for the other Type II Modules addressed in this document. The following structural parameters are specific to WMF-634. See Drawing 53-10374 for a general arrangement drawing of WMF-634.

WMF-634 interior walls are insulated with a vinyl vapor barrier backed fiberglass insulation. The overhead doors located on the east and west ends of the building, as well as all personnel doors located on the exterior walls, are insulated steel doors.

The RTR and assay control rooms are located along the north wall and sit on the concrete pad that makes up the floor. Both rooms have interior access doors and exterior emergency egress doors and are constructed of steel studs with sheet rock walls. The drum coring room is located toward the northeast central section of WMF-634. It is of block construction and has two personnel access doors, two emergency egress doors, and one roll-up type door for equipment access.

Heating, Ventilation, and Air Conditioning System

The HVAC system for WMF-634 conforms to the requirements of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). WMF-634 is heated and ventilated by a once-through air distribution system, which is used to control carbon monoxide (CO) accumulation from equipment and vehicle operations. The ventilation system is only

operated as required to maintain CO within acceptable levels. Heat is supplied by four indirect fired propane unit heaters, located inside. Two propane fired makeup air heaters, located outside, preheat makeup air entering the building. The makeup air heaters are supplied with fans, inlet filters, bird screens, and insulated ducting to direct the preheated makeup air into the module via wall penetrations. See Drawing 53-10374 for the location of heaters.

The control rooms are supplied with independent electric HVAC units, whereas the coring room is heated indirectly by drawing air in from the module. Direct expansion air cooling coils are provided to control the coring room temperature. The control rooms and the coring room are normally air conditioned.

Preheated ventilation air is supplied to the building through associated ductwork and multiple transfer air grilles. The grilles are located along the base of the north and south walls of the building. Manual dampers are provided in the ducting to balance the makeup air flow to each wall penetration. A motorized parallel blade damper is also provided at each wall penetration to isolate makeup air in case of a fire. The building air is exhausted through multiple exhaust grilles and associated ductwork connected to a single ground-mounted exhaust fan and then through a single exhaust stack.

The makeup air heater intakes consist of louvers fitted with a rain hood and bird screen. A filter assembly inside the heater cabinet filters out particulates from the incoming air. Each air intake is designed for an intake of 6,400 cubic feet per minute (cfm). The filters are of nonwoven cotton fabric media and are disposable. The filters are Underwriters Laboratories (UL) Class II. See Attachment 1 for additional information on the ventilation system in WMF-634.

Electrical Power

The electrical system for WMF-634 complies with the National Electrical Code (NEC), the NFPA, the National Electrical Manufacturers Association (NEMA), and the Occupational Safety and Health Administration (OSHA). See the electrical one-line diagram, Drawing 54-9926, and Site utilities (underground yard piping plan), Drawing 56-1901.

WMF-634 receives electrical power from a nearby 3-phase, 277/480-volt (V), 12.5-kiloVolt (kV) stepdown transformer. Service disconnects are located as close as practicable to the exterior service entrance. The system is grounded and equipped with circuit breakers.

Lighting

The lighting requirements for WMF-634 are the same as those identified in Attachment 1.B for the other Type II Modules.

Operating Record

Typically, the AMWTP uses a computerized system for overall data management and recordkeeping. Exhibits VIII-1 and VIII-2 in Appendix VIII show the DMS system components and interfaces. The Operating Record, typically via the DMS, provides the following functions:

- The Operating Record tracks waste via AMWTP personnel data entry, barcode label readers, and/or close interface with the appropriate control system from the point of waste retrieval and throughout the process until the point of dispatch to the WIPP or to another waste management unit. Product quality information is collated and included in the Operating Record as waste is processed.
- The DMS maintains a portion of the Operating Record required by applicable regulations, as described below in the Operating Record Maintenance section. The DMS interfaces with computer and database systems, including the integrated control system to sequence waste through the various AMWTP units.
- AMWTP management and operations personnel have a direct interface to on-line operational data that is simple to use, while allowing detailed and comprehensive queries and reports to be generated. Information may be downloaded to networked computers; the user is supplied with a number of pre-configured reports, queries, trends, and other specific functions.

The Operating Record, typically via the DMS, is used to maintain many other records and supervise system functions, as noted in the process descriptions of the various MWMU systems.

Waste Tracking

Barcode readers at key locations are used to scan the barcode labels of containers. The unique barcode identifies the container, enabling access to some of the stored Operating Record information that matches the container. As the container progresses through a MWMU,

information is appended to the records either automatically (e.g., radiological assay results) or manually (e.g., RTR observations) via local workstations. AMWTP personnel are presented with an electronic form that allows observations to be entered. The workstation also aids AMWTP personnel by supplying information such as container destination routes.

The Operating Record, typically via the DMS, maintains positional status of containers and/or waste at all locations within the MWMUs. For example, when a container is moved from position A to position B, the container is recorded in the Operating Record as being at position B. Documentation is maintained of the locations a waste item and/or container resides. At certain locations, the position of a container within a MWMU is verified by scanning the container barcode label. The Operating Record is used to provide a complete inventory, at any time, of the waste containers held within the MWMUs, and the waste contents, to the extent known.

Operating Record Maintenance

The Operating Record is maintained in accordance with IDAPA 58.01.05.008 (40 CFR 264.73). The DMS contains a portion of the Operating Record, and it is periodically backed up on magnetic tape or similar media. Hard copy and electronic records (e.g., completed inspection log sheets) are maintained in a retrievable manner. The following information is recorded, as it becomes available, and maintained in the Operating Record until closure of a MWMU (unless otherwise specified):

1. A description and the quantity of waste in each container received, and the method(s) and date(s) of its treatment, storage, or export.

2. The location of MW containers within a MWMU and the quantity of waste at each location, including cross-references to specific manifest document numbers, if the waste was accompanied by a manifest.

3. Records and results of analyses and determinations performed, as specified in:

    - IDAPA 58.01.05.008 (40 CFR 264.13) including, but not limited to, the following:

- Detailed chemical and physical analyses of MW managed at the MWMUs, consisting of actual analytical data and process knowledge records (process knowledge based hazardous waste determinations, waste stream descriptions, descriptions of the generating processes, and any temporal changes to the packaging and generating processes). For existing MW, the process knowledge based waste profiling utilizes existing databases, engineering design files (EDFs), reports, and analytical data.
- Waste analysis plan (WAP) for the MWMUs (see Attachment 2) and also the individual WAPs prepared for 90-day generator exempt activities (if required), per IDAPA 58.01.05.011 [40 CFR 268.7(a)(5)].
- Waste analyses received from off-Site generators.

• Results of ignitability, reactivity, and compatibility evaluations [per IDAPA 58.01.05.008 (40 CFR 264.17, 264.172, 264.176, and 264.177)] based on process knowledge, analytical data, engineering/scientific literature, inhouse testing, and Environmental Protection Agency (EPA) procedures/guidance (e.g., A Method for Determining the Compatibility of Hazardous Wastes, EPA-600/2-80-076).

4. Summary reports and details of incidents that require implementation of the Contingency Plan, such as fire, explosion, or release of MW. Attachment 7 lists the information required in the reports.

5. Records and results of area and equipment inspections, recorded on log sheets. These log sheets are kept per IDAPA 58.01.05.008 (40 CFR 264.73). See Attachment 4 for specific requirements and inspections.

6. Monitoring, testing or analytical data, and corrective action. Results of sampling and analysis of waste to verify that the operating requirements established in this document achieve the performance standards.

7. Written notices sent to off-Site generators stating that the AMWTP has the appropriate permits in place and is accepting their waste {per IDAPA 58.01.05.008 [40 CFR 264.12(b)]}.

8. A certification prepared, at least annually, that the AMWTP has a waste minimization program in place that reduces the volume and toxicity of AMWTP-generated wastes to the extent determined to be economically practicable. The intent of the program is to minimize the present and future threat to human health and the environment.

9. Written one-time notices and LDR certifications, as required, sent by the AMWTP to treatment, storage, and/or disposal (TSD) facilities that are receiving AMWTP-generated wastes {per IDAPA 58.01.05.011 [40 CFR 268.7(a) and (b)]}.

D-1 Containers

D-1a Containers with Free Liquids

The containers stored at the MWMUs generally contain either (1) no free liquids or (2) free liquids at less than 1% of the total container volume. All containers are managed as if they contain free liquids, unless it can be documented, other than by historical record, that no free liquids are present. Incompatible wastes, if present, are segregated into discrete areas within the MWMUs.

The presence of liquid in the containers stored at the MWMUs is determined using either of three methods. The first method involves process knowledge supplied by the waste generators. Process knowledge is substantiated by the waste acceptance process described in Attachment 2. The second method is the use of RTR to remotely examine the waste containers for liquids and other parameters. RTR process description is presented in more detail in Attachments 1 and 2. The third method for identifying free liquids is through the visual examination of waste in the MWMUs.

D-1a(1) Description of Containers [IDAPA 58.01.05.008; 40 CFR 264.171 and 264.172]

The containers typically used to store wastes in the MWMUs are listed below. Container labels and markings are also described as follows. All containers used for storing wastes are compatible with the wastes stored in the MWMUs.

1. The 30-gal drum [Department of Transportation (DOT) 7A Type A, or equivalent] is a carbon-steel drum with a removable head, gasket, and bolt ring.

2. The 55-gal drum/90-millimeter (mil) high-density polyethylene (HDPE) liner combination (DOT 7A Type A, or equivalent) is a carbon-steel drum with a removable head, gasket, and bolt ring. The liner is constructed of 90-mil molded polyethylene, and has an open head with a sealable positive closure lid.

3. The 83/85-gal overpack drum is a carbon-steel drum with a removable head, gasket, and bolt ring.

4. The DOT 6M, or equivalent, packaging consists of a 55-gal drum or a 100-gal drum with fiberboard centering media and a DOT Specification 2R, or equivalent, inner containment vessel. The drum head, gasket, and bolt ring are removable. DOT 6M, or equivalent, packaging is acceptable for waste storage if the drum has a mechanism for filtered venting of the interior.

5. The DOT 2R, or equivalent, containment vessel is made of stainless or carbon steel per 49 CFR 178.104(3)(b). The height of the polyethylene liner is 7.5 in. less than the inside height of the drum. The maximum inside diameter of the container is 5.25-in. For Bettis Atomic Power Laboratory shipments, 5-in. Schedule 40 piping has been approved for use as a container. The Schedule 40 pipe ends are fitted with a screw-type closure or flanges to provide containment. One or both of the Schedule 40 pipe ends may also be permanently closed by a welded or brazed plate to provide containment.

6. The DOT 7A, or equivalent, steel bin (M series) meets the requirements of 49 CFR 178.350 (DOT 7A, or equivalent). It is a rectangular steel bin made of 12-gauge steel used for shipment of waste or DOT-approved containers of waste. When used as an overpack, it will hold eight 55-gal drums in two layers of four drums each, or ten 30-gal drums in two layers of five drums each. The bins are nominally 4-ft wide by 5-ft long by 6-ft high, although this series of bins covers a range of sizes and some structural variations. At the time of use, one bin type entitled M-III met the DOT 7A requirements. The M-III bins now meet the DOT requirements for a strong-tight container.

7. The DOT 7A Steel Box, or equivalent, was designed at the Sandia National Laboratory. These boxes come in a range of sizes ranging from 68- to 88-in. long, 48- to 54-in. wide, and 71- to 98-in. high. The container is welded closed, once filled with waste.

8. The DOT 7A Steel Box TX-4, or equivalent, has been developed by the Lawrence Livermore National Laboratory for use in packaging TRU waste. The TX-4 is a mild-steel welded-construction box with a gasketed bolted closure. The container is fabricated from a steel sheet supported by an external framework of four 4-in. by 2-in. square tubing. The container corners are reinforced with 2-in. angle stock, skip welded. Four 3-in. steel channels support the container, allowing standard forklift handling. This

box type comes in a range of sizes: 74- to 92-in. long, 46- to 52-in. wide, and 36- to 57-in. high. This type of box may be lined with two 40-mil or one 80-mil polyvinyl chloride (PVC) liners. The top of the liner is folded over the top and outside of the box and secured with duct tape.

9. The TRUPACT II Standard Waste Box (SWB) is a DOT 7A Type A, or equivalent, container, nominally 71-in. long by 55-in. wide by 37-in. high. This box is constructed of steel and has the lid bolted to the box.

10. The DOT 7A Type A Mark III box, or equivalent, is constructed of concrete with an integral polyethylene liner and a lead liner installed if necessary. The container is 96-in. long by 48-in. wide by 48-in. high. The polyethylene liner has a height of 5 in. less than the inside height of the concrete container. The polyethylene liner can be thermally sealed using electric current, and the concrete lid can be bolted down.

11. The steel overpack box may be used for overpacking boxes. This box is constructed of carbon steel supported by an external framework of four 4-in. by 2-in. square tubing (container corners are reinforced with 2-in. angle stock). Two 2-in. by 1-in. steel channels support the container for forklift access. The dimensions of this box are 92-in. long by 56-in. wide by 55-in. high. A variety of other sizes may be used; special sizes are fabricated to handle a variety of overpack needs.

12. The DOT 7A, or equivalent, 55-gal drum is a carbon-steel drum constructed of 16-gauge material with a removable lid, gasket, and bolt ring.

13. The wooden boxes are constructed of plywood. At the time of use in the 1970s, these boxes met the DOT 19A packaging requirements. The boxes come in a range of sizes, but are generally 7-ft long by 4-ft wide by 2- or 4-ft high. The lids are either nailed or glued shut. This container is only used for existing wastes.

14. The fiberglass-reinforced plywood (FRP) boxes are constructed in the same manner as the wooden boxes described above with the same range of dimensions. However, the exterior of the box is coated with at least 1/8 in. of fiberglass-reinforced polyester. This container is only used for existing wastes.

15. The UN1A2, or equivalent, 30-gal drum is a carbon-steel drum with a removable head, gasket, and bolt ring.

16. The UN1A2, or equivalent, 55-gal drum with 90-mil HDPE liner combination is a carbon-steel drum with a removable head, gasket, and bolt ring. The liner is constructed of 90-mil molded polyethylene, and has an open head with a sealable positive closure lid.

17. The UN1A2, or equivalent, 55-gal drum is a carbon-steel drum with a removable head, gasket, and bolt ring.

18. The UN1A2, or equivalent, 83/85-gal overpack drum, that may include a roto-mold liner, is a carbon-steel drum with a removable head, gasket, and bolt ring.

19. The DOT 7A Type A, or equivalent, 71-gal drums are square steel drums with one of the following; a crimp type gasketed cover; removable head with gasket and bolt ring; or fully removable head with gasket and bolted closure.

20. The 55-gal Recycled Shielded Storage Container (RSSC), or equivalent, has stainless-steel inner and outer shells that encapsulate lead shielding with bolt-on end plates and rings. The RSSC is approximately 44.5-in. high by 36.1-in. maximum outside diameter.

21. The DOT 7A Type A, or equivalent, "B" series of filtered and nonfiltered boxes come in various sizes, including the B-25 style bin (4.3-ft high by 4-ft wide by 6-ft long) and B-52 style bin (3.5-ft high by 4.5-ft wide by 4.5-ft long).

22. The RH-TRU Shielded Overpack, or equivalent, is a 30- & 55-gal drum overpack assembly that has a 25-in. inside diameter and 32-in. outside diameter steel cylinder with a bolted steel flange. This overpack design contains no lead as steel is used to provide shielding.

23. The AMWTP puck drum, or equivalent, is a carbon steel container with a removable lid, gasket, and bolt ring. The drum is approximately 32-in. high with a 31-in. inner diameter. An inner cage consisting of mild steel bars may be utilized to prevent direct contact between the waste and the container. The puck drum has a capacity of approximately 100-gal and meets the WIPP stacking criteria.

24. The Ten-Drum Overpack (TDOP) is a welded-steel, right circular cylinder, with a removable bolt lid on one end. The TDOP may be loaded directly or it may be loaded with ten 55-gal drums, up to six 85-gal drums, or one SWB.

25. The AMWTP LLW export box, or equivalent, is constructed of carbon steel. The container is 96-in. long by 48-in. wide by 48-in. high, and may be reinforced with steel bracing on the inside of the container.

26. The "slim" 55-gal overpack drum is a carbon-steel drum that may be loaded with 55-gal drums. The "slim" 55-gal overpack has dimensions slightly larger than that of a standard 55-gal drum.

27. A bag or plastic wrapping material that is secure and leak tight. Bags/plastic wrapping material may be used to store rigid waste (e.g., plywood, pallets, etc.) or non-rigid waste [e.g., personal protective equipment (PPE), radiological swipes, etc.].

28. Any other approved DOT container.

International cargo containers are also used to hold approved containers of existing waste.

Exceptions to the above-specified containers do occur and are called non-standard waste containers. These generally involve variations in dimensions and weight limits. Non-standard waste containers may be approved by the appropriate AMWTP personnel on a case-by-case basis given that the container meets the requirements of IDAPA 58.01.05.008 (40 CFR 264.171, .172, and .177).

Stainless steel containers or containers with stainless steel liners which are approved for storage and macroencapsulation are as follows:

1. The Industrial Packaging – 2 (IP-2) cargo shipping container with an inner stainless steel liner. The cargo shipping container is constructed of carbon steel. The inner stainless steel liner is constructed from continuous welded stainless steel panels covering the sides, top, bottom and back end surfaces. The liner is constructed with a minimum thickness of 12 gauge stainless steel.

Container Labels

Containers may be labeled with hazardous waste labels, barcodes, appropriate radiation labels, and appropriate hazard labels. Exhibit D-1 is an example of a label which may be used on containers. Additional labels may be used to indicate the generator of the waste stream, the date of generation, the container number, the lot number, or other data. Typical labels that may be affixed to containers entering the MWMUs include:

- Generator's name,
- Generator's address,
- "Hazardous Waste,"
- INL Tracking Number,
- Barcode (required),
- Awaiting Analysis,
- Container pack date, and
- Generation date.

Containers with unknown contents are labeled with the words "Hazardous Waste" and an AMWTP barcode label, at a minimum. Additional labels are affixed to those containers with unknown contents, as new information becomes available. For wastes received at the AMWTP that are subject to LDR requirements, the labels also include the date the wastes were placed into storage at the TSA or the date the container was packaged at the generator's facility. Other appropriate labels are attached, as required, prior to receipt in the MWMUs.

D-1a(2) Container Management Practices [IDAPA 58.01.05.008; 40 CFR 264.173]

Containers are managed and stored in a manner to prevent container rupture or leakage and to minimize exposure to personnel of MW constituents. All containers are kept closed during storage. AMWTP personnel follow procedures and instructions that establish operating practices designed to minimize the probability of accidents, which may result in a release of MW to the environment. Containers are visually inspected for integrity to determine if there are signs of significant corrosion, visible pitting, leaks, or apparent structural defects threatening container integrity. Containers that fail this visual inspection for integrity are either repaired, overpacked,

or repackaged, as required. Containers used by the AMWTP are compatible with the types of wastes managed at the AMWTP.

TPAs and TDOPs are separated from the general population of waste. TPAs shall be stored in rows not to exceed one (1) TPA high by one (1) TPA wide by “n” TPAs long, allowing for aisle spacing requirements. TDOPs shall be stored in rows not to exceed one (1) TDOP high by one (1) TDOP wide by “n” TDOPs long, allowing for aisle spacing requirements.

Repaired containers are separated from the general storage population upon removal of the container from the general waste population. Repaired containers are stored in a configuration of no more than two containers wide by two containers high by “n” containers long, allowing for aisle spacing requirements. In the event that a repaired container develops additional leaks/pinholes or the repair fails, the container will be overpacked or repackaged.

Stainless steel containers and containers with stainless steel liners that are used for macroencapsulation are separated from the general population upon being designated for treatment via macroencapsulation. Stainless steel containers and containers with stainless steel liners are stored in a configuration of no more than two containers wide by two containers high by “n” containers long, allowing for aisle spacing requirements.

Bags and plastic wrapping material used as containers are separated from the general population. Bag/plastic wrap containers with rigid wastes are stored no more than four containers wide by five containers high by 22 containers long. A protective sheet (e.g., plywood) will be used in-between each bag/plastic wrap container layer for protective purposes. Bag/plastic wrap containers with non-rigid waste are stored no more than four containers wide by one container high by 22 containers long.

Container loading and unloading activities are conducted in accordance with established procedures for:

- Work control;
- Transfer, storage, handling, and tracking of waste;
- Receipt, inspection, and documentation of waste;
- Logkeeping practices and checklists;

- Truck/trailer waste container unloading; and
- Overpacked drum recovery.

Each container received at WMF-634 has a unique barcode attached. The barcode is used to identify containers before and after any transfers to ensure the proper containers are moved and to identify their new location. This information is used to track the movement via the AMWTP DMS.

Main access within WMF-634 is provided by a 20-ft wide center aisle (excluding support beams and portable equipment). Three-ft wide aisles (excluding support beams and portable equipment) are provided between the rows of containers and the walls to allow personnel access. In the event that emergency equipment is needed, access to the containers is provided through the center aisle of the building. Drawing 53-10374 presents a typical waste storage configuration within WMF-634.

WMF-634 waste storage areas can accommodate any container previously listed in D-1a(1) of this section and TPAs. All containers are stored on pallets or risers which are arranged into rows. Containers may be located on the floor while in transition (e.g., loading/unloading trailers or other equipment) for a period of time not to exceed the end of the work shift in which the container was placed onto the floor. The storage configuration for these areas is based on the placement of containers on these pallets or risers. The storage configuration presented in Drawing 53-10374 represents the configuration for the number of pallets or risers that may be stored while maintaining a minimum 3-ft aisle space (excluding support beams and portable equipment) between the rows and walls and providing a 20-ft center aisle (excluding support beams and portable equipment).

Any combination of container types may be stored in WMF-634 at any given time. Boxes, calculated at a nominal 4-ft by 4-ft by 8-ft, are used to determine the maximum potential waste volume that can be stored in the south half of WMF-634. Calculations for containers other than boxes and 55-gal drums are not provided because the potential maximum waste volumes for other containers are less than the corresponding values for boxes.

A normal pallet may support eight 55-gal drums per layer, up to five drums high, for a total of 40 55-gal drums per pallet. A total of four boxes may be placed on each normal pallet (one box per layer, up to four boxes high).

Calculated maximum capacity in the south half of WMF-634 is based on containers stored in the following configuration. There are up to 21 rows (including two partial rows) of drums. A row is defined as up to four drums wide by up to five drums high by up to 22 drums in length (i.e., depth). The drum storage capacity of the south half of WMF-634 is 9,080 drums. For boxes, the configuration of a row is up to four wide, up to four high, and up to 11 long. In the corners of the building the length of a row is shorter to allow space for access ramps. The box storage capacity in the south half of WMF-634 is 1,128 boxes. TDOPs and TPAs may also be stored in WMF-634; however, TDOPs and TPAs are not typically stored in WMF-634. TPAs are assembled by placing two levels of drums on a circular TRUPACT pallet. Exhibit D-2 shows a typical configuration for a TPA. These storage configurations allow for operational flexibility in utilizing available storage space while minimizing radiation exposure to personnel. Incompatible wastes are segregated from the other waste in accordance with Attachment 6.

Typically only the south half of WMF-634 is used for storage of containers to support routine operations. However, the unoccupied space (i.e., the areas not taken by characterization equipment and control rooms) in the north half of the building may be used to store waste containers, as necessary, to support operations. The secondary containment system capacity is more than sufficient to contain 10% of the volume of the additional containers or the volume of the largest container (whichever is greater). See Appendix IX for additional information on the secondary containment system capacity for WMF-634. In addition to the primary 6-in. containment curb surrounding the interior of WMF-634, a 4-in. curb surrounding the coring room provides additional containment and minimizes the potential of contamination from DCSRS operations.

D-1a(3) Secondary Containment System Design and Operation [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(a) and (d), and 270.15(a)(1)]

WMF-634 is a fully enclosed structure. The secondary containment system consists of a concrete floor, concrete sealer, and an epoxy type coating, or equivalent. Additional coating(s)

may be placed onto the secondary containment system. This coating(s) is typically used to prevent degradation of or damage to the secondary containment system, by providing protective layers. The secondary containment system is maintained to provide containment that is sufficiently impervious to leaks, spills, and accumulated precipitation until the collected material is detected and removed.

The secondary containment system is designed to resist frost heave and the types of wastes stored. A secondary containment system is also provided for the coring room. The secondary containment system provides sufficient capacity to hold, at a minimum, 10% of the maximum liquid volume stored or the volume of the largest container (whichever is greater) in the storage area(s) in accordance with HWMA/RCRA requirements. Container storage areas holding only wastes that do not contain free liquids do not require a containment system. See Section D-1b for additional information.

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids [IDAPA 58.01.05.008; 40 CFR 264.175(b)(1)]

A detailed description of the design and materials of construction of the base and containment curbs is provided in Section D. The concrete base is free of significant cracks and gaps. The base is constructed with a minimum of expansion joints, and all joints are filled. The field construction joint consists of a backer rod and sealant.

The secondary containment system is resistant to a wide range of acids, alkalis, solvents, oxidizers, oils, and grease, as well as radiation. The containment coating(s) is applied per manufacturer's recommendations. The design of the floor and the application of the secondary containment system coating(s) (i.e., concrete sealer and an epoxy type coating, or equivalent), together, are more than sufficient to contain any leaks or spills of waste and prevent migration of spilled contaminants into underlying concrete. As stated above, multiple coatings may be utilized for protective purposes, so long as liquid is contained without allowing contact to the concrete/concrete sealer.

D-1a(3)(b) Containment System Drainage [IDAPA 58.00.05.008 and 58.01.05.012; 40 CFR 264.175(b)(2) and 270.15(a)(2)]

The MWMUs are designed to collect any liquid accumulation resulting from spills or leaks. As described earlier, the wastes stored at the MWMUs are essentially solid in form. There is little likelihood of a spill or leak involving free liquid.

The floor of the Type II Modules is sloped approximately 1 in. in 20 ft from the north and south sides towards the east-west midline of the module. This promotes collection of any snow, ice, or water that may be brought in by trucks entering the building to unload containers and to prevent contact of such material with the containers.

Containers in storage are elevated above the floor slab to preclude container contact with liquids or spills. The pallets or risers may be steel, plastic, wood or other similar type of material; secondary containment-type pallets or pans may also be used. Large steel pallets may be used that are the same as commercially available steel pallets except they are constructed of a heavier gauge steel.

Precipitation is not a factor in the secondary containment system, since the MWMUs are totally enclosed buildings. In addition, the Type II Module entrances are at least 6 in. above grade. The doors of the modules are typically kept closed except when occupied for container handling operations, inspections, maintenance, etc. The area around the MWMUs is graded to promote drainage and run-off away from the module exterior entrances. Run-on and run-off controls are discussed in Section D-1a(3)(d).

The storage areas of the MWMUs are inspected weekly for leaks and spills. In the event that a leak or spill is detected, the spill is removed in accordance with spill response procedures or the Contingency Plan as described in Attachment 7.

D-1a(3)(c) Containment System Capacity [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(3) and 270.15(a)(3)]

The secondary containment systems for the Type II Modules are sized to contain, at a minimum, 10% of the maximum liquid waste volume or the volume of the largest container (whichever is greater) stored in the area at any given time, if secondary containment is required.

Section D-1a(2) describes the storage configuration that is typically used in WMF-634. Table D-1 summarizes the secondary containment capacity calculations for WMF-634. Appendix IX presents the calculations and assumptions used in compiling Table D-1.

D-1a(3)(d) Control of Run-On [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(4) and 270.15(a)(4)]

Run-on in the vicinity of the MWMUs is of three types: rainfall, snow, and snowmelt. Meteorological records for the INL indicate that the mean annual total precipitation is slightly less than 9 in. and is well distributed throughout the year. Approximately 0.5 in. falls each month, with 1.2 in. per month during May and June. The maximum historical precipitation experienced in a 24-hr period was 1.6 in. Mean annual precipitation as snow is 27 to 28 in. The maximum recorded monthly snowfall was 22 in., and the maximum 24-hr snowfall totaled approximately 9 in. Precipitation, in one form or another, occurs on the average of about 28 days each year. Average snow depth during the months of December through March ranges from 2 to 4 in. per month. Snowfall extremes of 6 to 9 in. have occurred during a few 24-hr periods. See Attachment 1 for floodplain information details.

Appendix II contains a topographic map indicating the location of the MWMU buildings and the nearby area. As shown on this map, the RWMC is located in a topographic depression and is bounded by higher ground to the north, west, and south. As a result, run-on and run-off controls are present at the TSA and nearby Subsurface Disposal Area (SDA) that are designed to handle local run-on from surrounding high ground and run-off from the RWMC waste management areas. The RWMC/AMWTP topographic map, as shown in Appendix II, illustrates the drainage ditch system comprising the local run-off control system. As shown in the RWMC/AMWTP topographic map, drainage ditches around the TSA and SDA collect run-off, and the ditches lead to a common ditch running to the northeast along Adams Boulevard. Approximately 2,500 ft northeast along Adams Boulevard, the drainage ditch turns to the north-northeast, runs under the road, and continues northward toward the Big Lost River. Culverts direct run-on within the TSA to the main drainage channel via drains placed in paved areas. Snow around the MWMUs is removed when necessary.

The MWMUs are totally enclosed structures, so run-on is prevented from entering the buildings. To aid in local run-off/drainage, the MWMUs are constructed on prepared surfaces. See Section B-3 in Attachment 1 for more details.

Analysis of a 25-yr, 24-hr storm event at the TSA ("25-year, 24-hour Storm Evaluation for the Advanced Mixed Waste Treatment Project," Mark Varvel, April 2007) was conducted to evaluate external and internal drainage at the TSA and the adequacy of the RWMC drainage ditch system. The analysis concluded that the current ditch and culvert system could adequately handle a 25-yr, 24-hr storm event for the MWMUs as required by IDAPA 58.01.05.008 [40 CFR 264.175(b)(4)]. As stated in the "25-year, 24-hour Storm Evaluation for the Advanced Mixed Waste Treatment Project, the drainage system located outside of the TSA is adequate to handle a 25-yr, 24-hr storm event. This evaluation is documented in the "100-Year Floodplain and 25-Year Runoff Analyses for the Radioactive Waste Management Complex Area at the Idaho National Engineering and Environmental Laboratory," T. Mitchell, S. Mitchell, J. Humphrey, D. Kennedy, and T. Funderburg, December, 2001.

D-1a(3)(e) Removal of Liquids from Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 264.175(b)(5) and 40 CFR 270.15(a)(5)]

The MWMUs are inspected for container condition, spills, leaks, and accumulated liquids as described in Attachment 4. Operational history over the past 20 yrs indicates that leaks from the containers in storage are not likely to occur. Any spills, leaks, or accumulated liquids are cleaned up or otherwise mitigated in a timely manner upon discovery within these areas.

In the event of a leak/spill, AMWTP personnel may implement the Contingency Plan as described in Attachment 7. All equipment and any liquids generated during implementation of the Contingency Plan are managed appropriately, depending on the waste being cleaned up.

D-1b Containers Without Free Liquids [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(c) and 270.15(b)]

All containers stored at the MWMUs are managed in compliance with HWMA/RCRA requirements for containers with free liquids, unless documented not to contain any free liquids. Containers documented not to contain any free liquids through means other than historical knowledge (e.g., RTR, visual examination, etc.) may be stored in a MWMU without a secondary

containment system that meets the requirements of IDAPA 58.01.05.008 [40 CFR 264.175(b)]. If RTR is used to document that a container does not contain any free liquids, then at least two AMWTP personnel will verify that the container does not contain free liquids.

Containers without free liquids shall be stored in an area that is sloped or otherwise designed to drain and remove liquid resulting from precipitation or the containers without free liquids shall be elevated or otherwise protected from contact with accumulated liquid in accordance with IDAPA 58.01.05.008 [40 CFR 264.175(c)]. Containers received for storage at the MWMUs are handled and stored as described in Section D-1a.

Table D-1. WMF-634 Secondary Containment System Capacity Calculations[a]

PARAMETER	CAPACITY
Maximum Waste Volume Stored	1,231,430 gal
Maximum Liquid Volume Stored	320,172 gal
10% of Maximum Liquid Volume[b]	32,017 gal
Secondary Containment Capacity	123,143 gal
Volume Displaced by Containers, Pallets, and Structural Features	43,047 gal
Available Secondary Containment[c]	72,541 gal

a. Calculations supporting these values are provided in Appendix IX. Volumes are for the maximum number of boxes in the typical storage configuration in the storage areas (south half of the building) plus the approximate maximum number of drums in process in the north half of WMF-634.

b. Minimum secondary containment capacity that must be made available.

c. Available secondary containment equals secondary containment capacity minus the volume displaced by containers, pallets, equipment, and structural features. Must equal or exceed the 10% of maximum liquid waste volume.

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPER D.O.T. SHIPPING NAME _____ **UN or NA #** _____

GENERATOR INFORMATION

NAME _____

ADDRESS _____

CITY _____ **STATE** _____ **ZIP** _____

EPA ID NO. _____ **EPA WASTE NO** _____

ACCUMULATION START DATE _____ **MANIFEST DOCUMENT NO** _____

HANDLE WITH CARE!

CONTAINS HAZARDOUS OR TOXIC WASTES

Exhibit D-1. Example Hazardous Waste Label

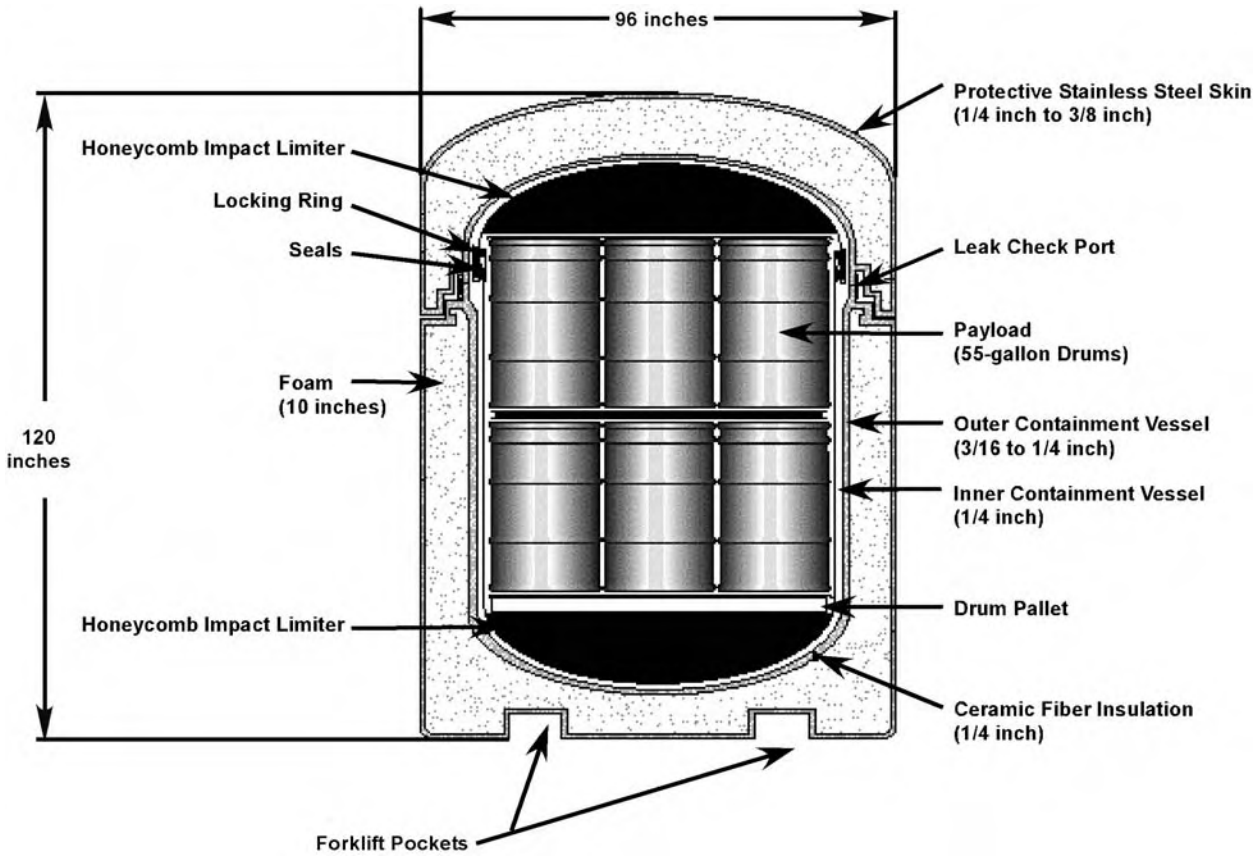


Exhibit D-2. Typical TRUPACT Assemblage

TABLE OF CONTENTS

ATTACHMENT 1.B

PROCESS INFORMATION

D. PROCESS INFORMATION 1

D Type II Modules Design 1

D-1 Containers 6

D-1a Containers with Free Liquids 6

D-1a(1) Description of Containers 6

D-1a(2) Container Management Practices 6

D-1a(3) Secondary Containment System Design and Operation 7

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids 7

D-1a(3)(b) Containment System Drainage 7

D-1a(3)(c) Containment System Capacity 8

D-1a(3)(d) Control of Run-On 8

D-1a(3)(e) Removal of Liquids from Containment System 8

D-1b Containers Without Free Liquids 8

LIST OF TABLES

Table D-1. Type II Module Secondary Containment System Capacity Calculations....9

D. PROCESS INFORMATION

D Type II Modules Design

The Type II Modules are used to store and treat ROW and MW. A total of seven Type II Modules currently exist, and as many as ten modules may be constructed. This attachment covers the Type II Modules with the building designations of WMF-629 through WMF-633. The Type II Module designated as WMF-634 is described in Attachment 1.A and the Type II Module designated as WMF-628 is described in Attachment 1.E. Wastes currently in storage, as well as newly generated waste from on- and off-Site generators, may be moved and stored in the Type II Modules.

Unless otherwise noted, drawings for the Type II Modules are located in Appendix III. The Type II Modules house a number of activities, which include:

- Receiving and storing waste containers;
- Performing treatment, via absorption, of liquids;
- Performing treatment, via decanting, of liquids from containers, as required;
- Performing treatment, via neutralization, of liquids in a container;
- Performing visual examination of waste in containers;
- Repackaging of waste;
- Sizing of waste;
- Performing treatment, via mechanical vibration of waste; and
- Performing treatment, via macroencapsulation of waste in stainless steel containers.

Waste treatment is conducted in a containment enclosure (absorption, decanting, neutralization, repackaging, sizing of waste, and mechanical vibration) or outside a containment enclosure (mechanical vibration and macroencapsulation). See Attachment 1.A for additional information on the containment enclosure requirements and treatment operations.

Fill and Grading

See Attachment 1.A for information on fill and grading requirements for the Type II Modules. See Drawing 52-9501 for additional information on the grading plan for the Type II Modules.

Foundations and Floors

The Type II Module design incorporates reinforced concrete footings. The footing depth is below the maximum frost depth for the RWMC site. The footings are designed to be in conformance with all applicable requirements of the American Concrete Institute (ACI).

The floor of the Type II Modules is comprised of a concrete slab-on-grade, 8-in. thick with #4 bar reinforcement on 12-in. centers, located 3 in. from the top of the floor, placed over 2-in. sand and 4-in. gravel fill. The floor is sloped 1 in. per 20 ft from the north and south sides toward the midline of the building (the midline runs east-west). The floor has been constructed with minimal slope to meet seismic design criteria and to ensure stability of the waste stacks. A 6-in. thick by 6-in. high concrete curb surrounds the open storage area.

The concrete reinforcement is in conformance with all applicable requirements of the ACI, the Concrete Reinforcing Steel Institute (CRSI), and the American Society for Testing and Materials (ASTM). The concrete was proportioned in accordance with ACI requirements to have a specified minimum 28-day compressive strength of 4,000 pounds per square inch (psi) for floor slabs and tiltup wall panels, 3,000 psi for building foundation, and 2,000 psi for conduit encasements. Ready-mix concrete used complies with ASTM requirements. Surfaces not exposed to view are rough formed, while those that can be viewed have a smooth form. The exposed floor slabs are cured and sealed, and a floor hardener applied that is compatible with the paint used on the floors.

The base is constructed with a minimum of expansion joints, and all joints are filled. The field construction joint consists of a backer rod and sealant. Floor slab seams are impermeable and chemically resistant to wastes managed in the Type II Modules. The design includes a backer rod, 9-in. neoprene dumbbell-type waterstop, and compressible joint filler.

Ramps are located at the east and west overhead access doors. The ramps are constructed of concrete and have a slope of approximately 1:15. The personnel access doors on the north, south, east, and west walls of the Type II Modules are 6 in. above grade and have concrete landings or stairs. See Drawings 51-9907 and 51-9913 for further information.

Other coatings may be used (e.g., non-slip coating, traffic and zone marking paint, etc.) that is compatible with the floor coating, may be used to mark aisles and a numbered storage grid on the floor, as necessary, to facilitate operations. The concrete curbing and flooring surfaces are

filled with compatible block filler and finished with an epoxy-type coating that is compatible with the wastes stored in the Type II Modules.

Structural Parameters

The Type II Modules are pre-engineered structural steel buildings. The primary and secondary framing design for the buildings comply with Project Design Criteria specified in Department of Energy (DOE) Order 6430.1A and the Metal Building Manufacturers Association (MBMA). All of the primary framing connections utilize high-strength bolts conforming to ASTM A325, A490, or equivalent. The buildings are constructed of metal walls and roof panels (prepainted), and a clear-span rigid frame. No interior columns are used in the basic frame. A long-span rigid frame, approximately 240-ft long by 120-ft wide, is used with an eave height of 26 ft. Each Type II Module has an interior floor space of approximately 28,800 ft^2. The roof slope for the Type II Modules is approximately 1:12. The walls are fastened to the structural girders, which in turn are anchored to the foundation. The building girts and purlins are cold-formed Z- or C-shaped sections. Diagonal bracing rods provide structural bracing for the building.

As shown in Drawing 51-9907, each Type II Module may be accessed through an overhead door located on the east and west sides of each building. The doors are electrically powered and equipped with a manual override. In addition to these doors, there is a metal personnel access door next to each overhead access door; and one on both the north and south sides of the building, approximately mid-way.

The exterior of each Type II Module is clad in ribbed metal siding with a standing seam metal roofing. The roof is of Factory Mutual Class 1 construction. Lightning protection systems in accordance with NFPA requirements are provided.

An electrical room is located along the exterior west wall of each Type II Module midway between the west overhead access door and the southwest corner of the building. This room is a pre-engineered structure that rests on a concrete slab. The metal wall panels are insulated. It has its own exterior personnel access door on the north end of the room. There is a firewall between the electrical room and the module, which is of 2-hour (hr) fire-rated construction.

There is a fire sprinkler riser room adjacent to the electrical room. The fire sprinkler riser room houses the fire water riser pipes and connections. This room has its own exterior entrance.

HVAC System

The HVAC system of the Type II Modules conforms to the same standards as those for the WMF-634 building, described in Attachment 1.A.

The Type II Modules are not routinely heated or cooled, but are ventilated by a once-through air distribution system to control CO accumulation from equipment and vehicle operations. The ventilation system is only operated as required to maintain CO within acceptable levels. Ventilation air is drawn into the building through eight louvers equipped with filters for dust control. The louvers are located along the base of the north and south walls of the building, four equally spaced on each wall. The building air is exhausted through eight exhaust grilles and associated ductwork connected to a single ground mounted exhaust fan and then through a single exhaust stack.

The air intakes consist of louvers fitted with a bird screen. A motorized parallel blade damper is used to adjust the air intake. A filter assembly on the louver filters out particulates from the incoming air. The air intakes are designed for an intake of 1,800 cfm each.

Electrical Power

The Type II Module electrical power system and requirements are the same as those listed for WMF-634. See Attachment 1.A for further information. See Drawings 54-9760, 54-9715, 54-9716, and 54-9717 for the electrical one-line diagram for the Type II Modules. See Drawings 56-1901 in Appendix II and 56-9500 in Appendix III for the Site utilities for the Type II Modules.

Lighting

All walkways, entrances, and exits are provided with lighting. Interior building lighting is typically provided by metal halide or fluorescent light fixtures suspended from the ceiling of the building. Exterior lighting is provided along the building exterior and nearby roadways.

Operating Record

Typically, the AMWTP computerized system is used for overall data management, recordkeeping, and waste tracking. See Attachment 1.A for further information on the Operating Record requirements.

D-1 Containers

D-1a Containers with Free Liquids

See Attachment 1.A, Section D-1a for further information on containers with free liquids.

D-1a(1) Description of Containers [IDAPA 58.01.05.008; 40 CFR 264.171 and 264.172]

The containers used to store wastes in the Type II Modules are the same as those described in Attachment 1.A, Section D-1a(1). Container labels and markings are also described in Attachment 1.A, Section D-1a(1).

D-1a(2) Container Management Practices [IDAPA 58.01.05.008; 40 CFR 264.173]

Details on container management practices are described in Section D-1a(2) of Attachment 1.A. The following text addresses variations to those practices that are specific to the Type II Modules designated as WMF-629 through WMF-633.

Main access into a Type II Module is provided by a 20-ft wide center aisle (excluding support beams and portable equipment). Three-ft wide aisles (excluding support beams and portable equipment) are provided between the rows of containers and the walls to allow personnel access. All containers are stored on pallets or risers which are arranged into rows. Containers may be located on the floor while in transition (e.g., loading/unloading trailers or other equipment) for a period of time not to exceed the end of the work shift in which the container was placed onto the floor. In the event that emergency equipment is needed, access to the containers is provided through the center aisle of the building. Drawing 51-9907 presents a typical waste storage configuration within a Type II Module.

Any combination of container types may be stored in the Type II Modules at any given time. Boxes, calculated 4-ft by 4-ft by 8-ft, are used in Appendix IX to determine the maximum potential waste volume that can be stored in a Type II Module.

For maximum capacity, containers are stored in the following configuration. There are up to 42 rows of drums per Type II Module. A row is defined as up to four drums wide by up to five drums high by up to 22 drums in length (i.e., depth). The drum storage capacity in a Type II Module is 18,160 55-gal drums. For boxes, the configuration of a row is up to four wide, up to four high, and up to 11 long. The maximum storage capacity per Type II Module is 2,256 boxes.

In the corners of the buildings, the length of a row is shorter to allow space for access ramps. TDOPs and TPAs may also be stored in the Type II Modules as described in Section D-1a(2) of Attachment 1.A.

Incompatible wastes are managed in the Type II Modules in accordance with Attachment 6.

D-1a(3) Secondary Containment System Design and Operation [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(a) and (d), and 270.15(a)(1)]

Each Type II Module is a fully enclosed structure. The secondary containment system consists of a concrete floor, concrete sealer, and an epoxy type coating, or equivalent. Additional coating(s) may be placed onto the secondary containment system. This coating(s) is typically used to prevent degradation of or damage to the secondary containment system, by providing protective layers. The secondary containment system is maintained to provide containment that is sufficiently impervious to leaks, spills, and accumulated precipitation until the collected material is detected and removed.

The secondary containment system is designed to resist frost heave and the types of wastes stored. The secondary containment system provides sufficient capacity to hold, at a minimum, 10% of the maximum liquid volume stored or the volume of the largest container (whichever is greater) in the storage area(s) in accordance with HWMA/RCRA requirements. Container storage areas holding only wastes that do not contain free liquids do not require a containment system. See Section D-1b for additional information.

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids [IDAPA 58.01.05.008; 40 CFR 264.175(b)(1)]

The requirements for the base or liner to contain liquids are the same as those described in Section D-1a(3)(a) of Attachment 1.A. A detailed description of the design and materials of construction of the base and containment curbs is provided in Section D of this attachment.

D-1a(3)(b) Containment System Drainage [IDAPA 58.00.05.008 and 58.01.05.012; 40 CFR 264.175(b)(2) and 270.15(a)(2)]

The containment system drainage requirements are the same as those described in Section D-1a(3)(b) of Attachment 1.A.

D-1a(3)(c) Containment System Capacity [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(3) and 270.15(a)(3)]

The secondary containment system for the Type II Modules is sized to contain, at a minimum, 10% of the maximum liquid waste volume or the volume of the largest container (whichever is greater) stored in the area at any given time, if secondary containment is required. Section D-1a(2) describes the storage configuration that is used in the Type II Modules. Table D-1 summarizes the secondary containment capacity calculations for the Type II Modules. Appendix IX presents the calculations and assumptions used in compiling Table D-1.

D-1a(3)(d) Control of Run-On [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(4) and 270.15(a)(4)]

The requirements for control of run-on are the same are those described in Section D-1a(3)(d) of Attachment 1.A.

D-1a(3)(e) Removal of Liquids from Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(5) and 270.15(a)(5)]

The requirements for the removal of liquids from the containment system are described in Section D-1a(3)(e) in Attachment 1.A.

D-1b Containers Without Free Liquids [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(c) and 270.15(b)]

Containers without free liquids are managed as described in Section D-1b of Attachment 1.A.

Table D-1. Type II Module Secondary Containment System Capacity Calculations[a]

PARAMETER	CAPACITY
Maximum Waste Volume Stored	2,159,985 gal
Maximum Liquid Volume Stored	561,596 gal
10% of Maximum Liquid Volume[b]	56,160 gal
Secondary Containment Capacity	123,143 gal
Volume Displaced by Containers, Pallets, and Structural Features	40,236 gal
Available Secondary Containment[c]	82,907 gal

a. Calculations supporting these values are provided in Appendix IX. Volumes are for the maximum number of boxes in the typical storage configuration in the storage areas in a Type II Module.

b. Minimum secondary containment capacity that must be made available.

c. Available secondary containment equals secondary containment capacity minus the volume displaced by containers, pallets, and structural features. Must equal or exceed the 10% of maximum liquid volume.

TABLE OF CONTENTS

ATTACHMENT 1.C

PROCESS INFORMATION

D. PROCESS INFORMATION 1

D Type I Module Design 1

D-1 Containers 9

D-1a Containers with Free Liquids 9

D-1a(1) Description of Containers 9

D-1a(2) Container Management Practices 9

D-1a(3) Secondary Containment System Design and Operation 11

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids 12

D-1a(3)(b) Containment System Drainage 12

D-1a(3)(c) Containment System Capacity 13

D-1a(3)(d) Control of Run-On 13

D-1a(3)(e) Removal of Liquids from Containment System 13

D-1b Containers Without Free Liquids 13

LIST OF TABLES

Table D-1. Type I Module Secondary Containment Capacity Estimate 14

D. PROCESS INFORMATION

D Type I Module Design

The Type I Module is used to store, characterize, treat, and package containers of ROW and MW into TRUPACT casks in preparation for shipment to the WIPP or to another waste management unit.

Unless otherwise noted, drawings for the Type I Module are located in Appendix IV.

The Type I Module houses a number of activities, which include:

- Receiving and storing waste containers for characterization using the DVF and/or the headspace gas sampling equipment;
- Performing treatment, via absorption, of liquids;
- Performing treatment, via decanting, of liquids from containers, as required;
- Performing treatment, via neutralization, of liquids in a container;
- Preparation of containers in the TLA for shipment;
- Performing treatment through the repackaging of waste in containers;
- Performing treatment through the sizing of waste;
- Gas generation testing on containers;
- Performing treatment, via mechanical vibration of waste; and
- Performing treatment, via macroencapsulation of waste in stainless steel containers.

Waste treatment (absorption, decanting, neutralization, repackaging, sizing, and mechanical vibration) is conducted in the DVF (WMF-615) and in a containment enclosure, which is typically located in the WCRA in WMF-635, but may also be located in the MSA or PAAA. Waste treatment (mechanical vibration and macroencapsulation) may also be performed outside of a containment enclosure. See Attachment 1.A for additional information on the containment enclosure requirements and treatment operations.

The physical layout of the Type I Module is shown on Drawing 51-9912. Typically, waste containers enter the Type I Module on the west side and exit on the east side of the

building. Containers are received into the Type I Module, and are off-loaded and stored. As each container is placed into its designated storage area, the container's barcode label is scanned to update the container's location information maintained in the AMWTP Operating Record.

The MSA is used to receive, store, treat, and weigh containers, as appropriate. Drums identified as requiring venting may be sent to the DVF, where the drums are loaded onto a conveyor. Once on the conveyor, drums are moved into the DVF, where the lid and liners, if present, are punctured and a filter is inserted. A HEPA filtration system is part of the DVF. The HEPA filtration system functions to control airborne contamination released during drum venting. See Drawing 51-9912 for further information. After venting, containers are then transferred to storage via equipment or the headspace gas is sampled using portable headspace gas sampling equipment. Portable headspace gas sampling equipment may be located in either the MSA, PAAA, or the WCRA. The sample is collected by drawing the sample through the existing filter or through a sampling port specifically designed for sampling through a drum lid.

The DVF is also used to perform treatment of liquids, via absorption. Equipment consisting of a portable gantry crane, vented fume hood, and radiological containment systems (for personnel access) is available in the DVF/MSA to facilitate treatment activities. Once a container requiring treatment is inside the DVF silo, the container is positioned under the fume hood, which is vented to the DVF HEPA exhaust system. Following placement of the container under the fume hood, the drum lid is removed and any free liquids may be absorbed in place by the addition of absorbent to the container. Containers with liquids requiring absorption are treated as described in Section D of Attachment 1.A.

Drums identified for gas generation testing are transferred to the gas generation testing units, and are stored within the Type I Module while testing is performed. Up to 100 gas generation testing units may be located within the Type I Module. See Drawing 51-9912 for further information. The gas generation testing units consist of a gas test canister, which is a closed canister (shell and base plate) that can hold a drum and retain all gases released from the drum until the canister is sampled at the end of the test. A mobile analytical system is used to sample and analyze the gas in each canister.

TRUPACT cask assembly is conducted in the TLA by retrieving containers from storage in the PAAA/WCRA. The containers are typically assembled into either TDOPs, TPAs, or SWBs, which are subsequently packaged into a TRUPACT cask. TPA stabilization is provided by wrapping individual levels of drums with a clear plastic stretch-wrap material under tension. TPAs are assembled on the stretch wrapper by placing two levels of drums on a circular TRUPACT pallet. Each level consists of multiple drums arranged in a circular manner. See Exhibit D-2 in Attachment 1.A for an example of a TPA in a TRUPACT cask. A single level of the TPA consists of a maximum of seven 55-gal drums or 3 100-gal drums. The pallet and inter-level reinforcing plate have slipsheets installed between the drums and metallic support surfaces, to stabilize the TPAs during handling operations.

Once the containers are assembled into TDOPs, TPAs, or SWBs, they may be stored in the TLA pending loading into a TRUPACT cask. If free liquids are present in a container, then the container will be stored on a spill pallet, or equivalent, in accordance with Section D-1a(3). Assembled TPAs, two SWBs, or one TDOP may be loaded into a TRUPACT cask, using an overhead crane system in the TLA. After loading, TRUPACT casks may either be loaded directly onto a truck for shipment to the WIPP or to another waste management unit, or are placed into storage, typically within the TLA of the Type I Module. See Drawing 51-9912 for TRUPACT cask storage areas located in the TLA.

The Type I Module does not contain toilet facilities. There are no areas designated for smoking in the Type I Module.

Fill and Grading

The area on which the Type I Module is built was graded prior to construction. A minimum slope of 1% has been provided to ensure adequate drainage away from the Type I Module. See Drawing 52-9500 for further information on the grading plan.

Backfill compaction requirements and fill material for the Type I Module are the same as those identified in Attachment 1.A.

Foundations and Floors

The Type I Module design uses concrete pedestals supported by footings. The footing depth is below the maximum frost depth for the RWMC site. The footings are designed to be in conformance with all applicable requirements of the ACI.

The concrete floors of the MSA and TLA are 8-in. thick with #5 bar reinforcement on 15-in. centers, placed 2 in. from top, over a 6 in. gravel fill. The TRUPACT cask storage room floors in the TLA are 8-in. thick concrete. The PAAA/WCRA floor is 12-in. thick, constructed with #6 bar reinforcement on 15-in. centers. Secondary containment is provided by a 6-in. thick by 6-in. high curb installed around the MSA and PAAA/WCRA and where column piers and pipes penetrate the floor.

The concrete reinforcement is in conformance with all applicable requirements of the ACI, the CRSI, and the ASTM. The concrete was proportioned in accordance with ACI requirements to have a specified minimum 28-day compressive strength of 4,000 psi for floor slabs and tiltup wall panels, 3,000 psi for building foundation, and 2,000 psi for conduit encasements. Ready-mix concrete used complies with ASTM requirements. Surfaces not exposed to view are rough formed, while those that can be viewed have a smooth form. The exposed floor slabs are cured and sealed, and a floor hardener applied that is compatible with the paint used on the floors.

The base is constructed with a minimum of expansion joints, and all joints are filled. Floor slab seams are impermeable and chemically resistant to wastes managed in the Type I Module. The design includes a stainless steel plate at floor elevation, backer rod, 9-in. neoprene dumbbell-type waterstop, and compressible joint filler.

A depression is located in the interior of the Type I Module from one access door to the other. The depression runs east-west, 252-ft long by 12-ft wide, and is sloped to the midline from the north and south edges. The slope is 1/8 in. per ft; therefore, the east-west midline is about 3/4 in. below grade. This depression collects any water, snow, or ice that may be tracked in with equipment or containers entering the building, thereby precluding contact of the containers with such material. The floors of the MSA and TLA are sloped approximately 1 in. in

20 ft. The PAAA/WCRA floor is flat to meet seismic design criteria and ensure stability of the equipment and containers during storage.

Ramps are located at the east and west access doors, between the MSA and TLA, and at the west and north interior entrances to the PAAA/WCRA. Ramps are also located on the north, south, east, and west personnel doors. Additional ramps are located at the north and west PAAA/WCRA doors. See Drawing 51-9912 for further information. All the ramps are constructed of concrete, with a slope of approximately 5%. All personnel access doors are elevated approximately 6 in. above grade. There is no ramp in the doorway between the PAAA and WCRA.

Other coatings may be used (e.g., non-slip coating, traffic and zone marking paint, etc.) that is compatible with the floor coating, may be used to mark aisles and a numbered storage grid on the floor, as necessary, to facilitate operations. The concrete curbing and flooring surfaces in the MSA, PAAA, and WCRA are filled with compatible block filler, finished with two coats of an epoxy-type coating, or equivalent, that is compatible with the wastes stored in the Type I Module. The TLA may be coated with an epoxy-type coating, or equivalent, that is compatible with the wastes stored in the Type I Module.

Structural Parameters

The Type I Module is a pre-engineered structural-steel building. The primary and secondary framing design for the pre-engineered building complies with Project Design Criteria specified in DOE Order 6430.1A and the MBMA. The framing consists of a clear-span rigid frame with a gabled roof and building width extensions. The roof has a slope of approximately 1:12. All of the primary framing connections utilize high-strength bolts conforming to ASTM A325, A490, or equivalent. The roof and wall coverings are preformed metal siding and roofing. The roof and walls of the Type I Module are insulated with glass fiber insulation, which is partially covered with metal liner panels. The walls are fastened to the structural girders, which in turn are anchored to the foundation. The wall separating the PAAA and WCRA is fastened to 6 in. metal studs, which are fastened to the bottom runners of the metal wall anchored directly to the concrete floor. The building girts and purlins are cold-formed Z- or C-shaped sections.

Diagonal bracing rods provide structural bracing for the building. See Drawings 51-9926 and 51-9919 for further information.

The Type I Module is designed to withstand a 50-year, 80-miles-per-hour wind at a 33-ft elevation. A snow load of 30 lbs per ft^2 is used for roof design, with the effects of drifting snow added, in accordance with ANSI standards.

The Type I Module is clad in ribbed metal siding with a standing seam metal roof. The roof is Factory Mutual Class 1 construction. The Type I Module has a long-span rigid frame, approximately 254-ft long by 160-ft wide, with a 26-ft eave height. This provides an interior space of approximately 40,745 ft^2. Lightning protection systems, in accordance with NFPA requirements, are provided. See Drawing 51-9919 for further information.

Exposed exterior concrete walls are coated with a washable enamel painted finish, or equivalent. Insulation is provided throughout the Type I Module on the roof, foundation perimeter, exterior doors, and door frames. Interior partitions are metal panels or concrete masonry units covered with metal panels. The partitions are coated in a washable enamel finish. An 8-in. thick concrete firewall, 4-hr-rated, is located between WMF-617 (located on the southeast exterior of the Type I Module) and the Type I Module. A 2-hr rated firewall separates the electrical room from the rest of the building.

As shown in Drawing 51-9912, there are two waste access doorways, one on the east side and one on the west side of the building. These doorways are equipped with overhead doors approximately 12-ft wide by 16-ft high. Internal doorways providing access to the PAAA and WCRA are equipped with overhead doors approximately 10-ft wide by 16-ft high. The doors are horizontal sectional or coil type, electrically operated with manual override.

Metal personnel entrance/egress doors are located on the west, north, south, and east side of the building. Metal personnel doors are also located near the internal west PAAA and north WCRA access doors.

As described previously, the interior of the Type I Module is divided into three storage areas: the MSA, TLA, and PAAA/WCRA. The north portion of the MSA measures approximately 82-ft by 72-ft and the south portion, by the DVF, measures approximately 84-ft

by 84-ft. The TLA measures approximately 169-ft by 72-ft. Five storage rooms are located along the north wall of the TLA. These storage areas may be removed from the TLA, based upon operational needs. Three of the storage rooms are approximately 11-ft wide by 10-ft long, and two of the storage rooms are approximately 15-ft wide by 10-ft long. All five storage rooms are approximately 12-ft high.

The electrical room, located along the north wall of the TLA, is approximately 16-ft wide by 10-ft long. The PAAA is approximately 86-ft by 113-ft, and is located in the south central part of the building. The WCRA, approximately 86-ft by 56-ft, is located in the southeast portion of the building adjacent to the PAAA. The interior wall separating the WCRA and the PAAA is constructed of heavy gauge metal studs, covered with metal corrugated siding similar to the other walls of the PAAA/WCRA. The wall extends from floor to the ceiling and is built directly on the concrete floor slab.

HVAC System

The HVAC system conforms with the requirements of ASHRAE. The Type I Module is heated and ventilated to control CO accumulation from equipment and vehicle operations. The ventilation system is only operated as required to maintain CO within acceptable levels. The fire protection and electrical room in the northwest corner of the MSA is heated to prevent freezing. All heaters are equipped with safety controls to disconnect the heater in the event normal operating temperatures are exceeded.

Ventilation air is drawn into the building through multiple louvers. The intakes are fitted with interlocked dampers and are equipped with filters for dust control. A total of six roof-mounted intakes are located in the PAAA/WCRA. Air is exhausted through two louvers into the central exhaust duct. Approximately 5,800 cfm is exhausted via an electrically powered fan through the building stack.

Electrical Power

The Type I Module electrical system complies with the NEC, NFPA, NEMA, and OSHA requirements. The Type I Module is equipped with a 12.5-kV primary stepdown transformer exclusive to the building. The transformer is located outside the building, providing 480-V

three-phase distribution within the building. 120-V nominal, single-phase power is also provided. In addition, the Type I Module has an exclusive 480-V main service distribution panel board, 480- to 120/208-V transformer, and 208/120-V power panels. See Drawings 54-9721, 54-9722, and 54-10380 for further information. See the Site utilities, Drawing 56-9500 in Appendix III for further information. The system is grounded and equipped with circuit breakers.

Lighting

All walkways, entrances, and exits are provided with lighting. Interior building lighting is typically provided by metal halide or fluorescent light fixtures from the ceiling of the building. Exterior lighting is provided along the building exterior and nearby roadways.

Operating Record

Typically, the AMWTP computerized system is used for overall data management, recordkeeping, and waste tracking. See Attachment 1.A for further information on the Operating Record requirements.

D-1 Containers

D-1a Containers with Free Liquids

See Attachment 1.A, Section D-1a for further information on containers with free liquids.

D-1a(1) Description of Containers [IDAPA 58.01.05.008; 40 CFR 264.171 and 264.172]

The containers used to store wastes in the Type I Module are the same as those described in Attachment 1.A, Section D-1a(1). Container labels and markings are also described in Attachment 1.A, Section D-1a(1).

D-1a(2) Container Management Practices [IDAPA 58.01.05.008; 40 CFR 264.173]

Details on container management practices are described in Section D-1a(2) of Attachment 1.A. The following addresses variations to those practices that are specific to the Type I Module.

The storage configuration in the MSA, PAAA, and WCRA areas is based on the placement of containers on pallets or risers. All containers are stored on pallets or risers, which are arranged into rows. Containers may be located on the floor while in transition (e.g., loading/unloading trailers or other equipment) for a period of time not to exceed the end of the work shift in which the container was placed onto the floor. The storage configuration presented in Drawing 51-9912, represents the number of pallets or risers that are stored while maintaining a minimum 3-ft aisle space (excluding support beams and portable equipment) between the rows and walls and providing a 10-ft access aisle (excluding support beams and portable equipment) in the PAAA/WCRA. Storage of containers in the TLA is on spill pallets/pans, or equivalent, if free liquids are present. The TLA floor may also be coated with an epoxy-type coating that is compatible with the types of waste stored.

Any combination of container types may be stored in the Type I Module at any given time. Boxes, calculated at 4-ft by 4-ft by 8-ft, are used in Appendix IX to determine the maximum potential waste volume that could be stored. Calculations for containers other than boxes and 55-gal drums have not been provided for the MSA and PAAA/WCRA because the

potential maximum waste volumes for other containers are less than the corresponding values for boxes. Calculations related to volumes of waste stored in the TLA are based on the volumes of the TPA and SWB containers.

For maximum capacity in the PAAA/WCRA, containers are stored in the following configuration:

- six 60-ft rows (90 pallets),
- two 24-ft rows (12 pallets)
- one 32-ft row (8 pallets), and
- three 36-ft rows (27 pallets).

This maximum storage configuration, as shown in Drawing 51-9912, allows the placement of 137 individual pallets within the PAAA/WCRA. Each pallet may support eight 55-gal drums per layer (four wide by two long), up to five drums high for a total of 40, 55-gal drums per pallet. The drum storage capacity of the PAAA/WCRA is 5,160 drums. A total of four boxes may be placed on each pallet (one box layer, up to four boxes high). The box storage capacity is 516 boxes.

All containers stored in the MSA are arranged on pallets or risers, as described for the PAAA/WCRA. Based on the storage configuration shown in Drawing 51-9912, the storage capacity for the MSA is as follows:

- one 56-ft long by 8-ft wide row (14 pallets),
- one 16-ft long by 8-ft wide row (4 pallets), and
- four 24-ft long by 8-ft wide rows (24 pallets).

This configuration allows the placement of 42 individual pallets within the MSA. Based upon this, the drum storage capacity is 1,680 55-gal drums, and the box storage capacity is 168 boxes.

Containers stored in the TLA are typically TPAs, TDOPs, SWBs, or TRUPACT casks on spill pallets/pans, or equivalent. There are 17 locations identified for storage of these containers in the TLA:

- five along the north wall,
- four to the east of the electrical room along the north wall, and
- eight between the TLA platforms used for TRUPACT cask loading/unloading.

See Drawing 51-9912, for the storage locations. The maximum storage capacity in the TLA is when all 17 locations are occupied by TPAs in TRUPACT casks or on spill pallets/pans. Based upon this, the drum storage configuration is 238 55-gal drums, and the box storage configuration is 34 boxes.

Incompatible wastes are managed in the Type I Module in accordance with Attachment 6.

D-1a(3) Secondary Containment System Design and Operation [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(a) and (d), and 270.15(a)(1)]

The PAAA/WCRA and MSA are fully-enclosed structures. The secondary containment system consists of a concrete floor, concrete sealer, and an epoxy type coating, or equivalent. Additional coating(s) may be placed onto the secondary containment system. This coating(s) is typically used to prevent degradation of or damage to the secondary containment system, by providing protective layers. The secondary containment system is maintained to provide containment that is sufficiently impervious to leaks, spills, and accumulated precipitation until the collected material is detected and removed.

The secondary containment system is designed to resist frost heave and the types of wastes stored. The secondary containment system provides sufficient capacity to hold, at a minimum, 10% of the maximum liquid volume stored or the volume of the largest container (whichever is greater) in the storage area(s) in accordance with HWMA/RCRA requirements.

Secondary containment, as required, in the TLA is provided by the TRUPACT casks, spill pallets, containment pans, or equivalent. Secondary containment in the TLA may also be provided by a secondary containment system, as described for the PAAA/WCRA and MSA, designed to resist the types of waste stored. These secondary containment systems provide sufficient capacity to hold, at a minimum, 10% of the maximum liquid volume or the volume of the largest container (whichever is greater) stored on them. During the loading process of TDOPs within the TLA, secondary containment is not provided as the TDOP provides the

secondary containment for containers being loaded into the TDOP. After the lid of the TDOP has been secured, secondary containment will be provided, as required. Container storage areas with containers that do not contain free liquids do not require a containment system. See Section D-1b of Attachment 1.A for additional information.

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids [IDAPA 58.01.05.008; 40 CFR 264.175(b)(1)]

A detailed description of the design and materials of construction of the base and containment curbs is provided in Section D. The concrete base is free of significant cracks and gaps. The base is constructed with a minimum of expansion joints, and all joints are filled. All expansion joints are equipped with dumbbell-type neoprene waterstops, except for the expansion joint in the ramp between the TLA and MSA.

The MSA and PAAA/WCRA secondary containment systems are resistant to a wide range of acids, alkalis, solvents, oxidizers, oils, and greases, as well as radiation. The containment coating(s) is applied per manufacturer's recommendations. The design of the floor and the application of the secondary containment system coating(s) (i.e., concrete sealer and an epoxy type coating, or equivalent), together, are more than sufficient to contain any leaks or spills of waste and prevent migration of spilled contaminants into underlying concrete. As stated above, multiple coatings may be utilized for protective purposes, so long as liquid is contained without allowing contact to the concrete/concrete sealer.

D-1a(3)(b) Containment System Drainage [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(2) and 270.15(a)(2)]

The MSA and PAAA/WCRA are designed to collect any liquid accumulation from spills or leaks. As described earlier, the wastes stored at the Type I Module are essentially solid in form. There is little likelihood of a spill or leak involving free liquids. Nevertheless, containers stored in the Type I Module are placed on pallets or risers to ensure spill drainage away from the containers.

The Type I Module is an enclosed building. The external pavement is sloped to promote run-off away from the building exterior and entrances. The doors of the building are typically

kept closed except when occupied for container handling operations, inspections, maintenance, etc. Run-on controls are discussed in Section D-1a(3)(d).

The storage areas of the Type I Module are inspected weekly for leaks and spills. In the event that a leak or spill is detected, the spill is removed in accordance with spill response procedures or the Contingency Plan, as described in Attachment 7.

D-1a(3)(c) Containment System Capacity [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(3) and 270.15(a)(3)]

The secondary containment system for the Type I Module is sized to contain, at a minimum, 10% of the maximum liquid volume or the volume of the largest container (whichever is greater) stored in the area at any given time, if secondary containment is required. Section D-1a(2) describes the storage configuration that is typically used in the Type I Module. Table D-1 summarizes the secondary containment capacity calculations for the Type I Module. Appendix IX presents the calculations and assumption used in compiling Table D-1.

D-1a(3)(d) Control of Run-On [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(4) and 270.15(a)(4)]

The control of run-on requirements are the same as those described in Section D-1a(3)(d) of Attachment 1.A.

D-1a(3)(e) Removal of Liquids from Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(5) and 270.15(a)(5)]

The requirements for the removal of liquids from the containment system are described in Section D-1a(3)(e) of Attachment 1.A.

D-1b Containers Without Free Liquids [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(c) and 270.15(b)]

Containers without free liquids are managed as described in Section D-1b of Attachment 1.A.

Table D-1. Type I Module Secondary Containment Capacity Estimate[a]

Storage Area	Maximum Waste Volume Stored (gal)	Maximum Liquid Volume Stored (gal)	10% Of Maximum Liquid Volume[b] (gal)	Volume Displaced By Containers, Pallets, and Structural Features (gal)	Secondary Containment Capacity (gal)	Available Secondary Containment[c] (gal)
MSA	160,850 (boxes)	41,821	4,182	12,314	48,775	36,463
PAAA/WCRA	494,039 (boxes)	128,450	12,845	10,869	52,528	41,659
TLA	13,090 (17 TPAs)	200 [in 1 TPA (14 drums)]	20	N/A[d]	85[e]	85
Totals	667,979	170,471	17,047	23,168	101,388	78,218

a. Calculations supporting these values are provided in Appendix IX. Volumes are for the maximum number of boxes in the typical storage configuration in the storage areas.

b. Minimum secondary containment capacity that must be made available.

c. Available secondary containment equals secondary containment capacity minus the volume displaced by containers, pallets, and structural features. Must equal or exceed the minimum capacity.

d. TPAs stored in the TLA are on spill pallets, pans, TRUPACT cask, or equivalent or the concrete floor is coated with an epoxy-type coating that is resistant to the types of waste managed.

e. Minimum available secondary containment system capacity associated with using spill pans.

TABLE OF CONTENTS

ATTACHMENT 1.D

PROCESS INFORMATION

D. PROCESS INFORMATION 1

D SWEPP Design 1

D-1 Containers 7

D-1a Containers with Free Liquids 7

D-1a(1) Description of Containers 7

D-1a(2) Container Management Practices 7

D-1a(3) Secondary Containment System Design and Operation 9

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids 9

D-1a(3)(b) Containment System Drainage 10

D-1a(3)(c) Containment System Capacity 10

D-1a(3)(d) Control of Run-On 10

D-1a(3)(e) Removal of Liquids from Containment System 11

D-1b Containers Without Free Liquids 11

LIST OF TABLES

Table D-1. SWEPP Storage Area Secondary Containment Capacity Estimate 12

D. PROCESS INFORMATION

D SWEPP Design

The SWEPP, commonly known as WMF-610, is used to store and characterize ROW and MW. Wastes currently in storage, as well as newly-generated waste from on- and off-Site generators, may be moved, stored, and characterized in SWEPP.

Unless otherwise noted, drawings for SWEPP are located in Appendix V.

SWEPP houses a number of activities, which include:

- Receiving and storing of waste containers;
- Staging of containers;
- Performing nondestructive assay;
- Examining containers using RTR;
- Performing treatment, via absorption, of liquids;
- Performing treatment, via decanting, of liquids from containers, as required;
- Performing treatment, via neutralization, of liquids in a container;
- Performing visual examination of waste in containers;
- Repackaging of waste;
- Sizing of waste;
- Performing treatment, via mechanical vibration of waste; and
- Performing treatment, via macroencapsulation of waste in stainless steel containers

Waste treatment is conducted in a containment enclosure (absorption, decanting, neutralization, repackaging, sizing, and mechanical vibration) or outside a containment enclosure (mechanical vibration and macroencapsulation). See Attachment 1.A for additional information on the containment enclosure requirements and treatment operations.

The physical layout of the equipment in SWEPP is shown on the general arrangement drawing (see Drawing 51-9906). As shown on the general arrangement drawing, the SSA is located on the south end of the building. The storage area is used to store containers before,

during, and after examination (e.g., assay, RTR), pending transfer to another waste management unit. The container staging areas, designated as Staging Areas 1 and 2, are located in the SWEPP High Bay. Additional staging areas are located in the north and south loading/unloading areas.

Loading and unloading areas are located on the north and south ends of SWEPP. These areas are steel framed, fabric-covered buildings, which are constructed on asphalt pads. See Drawing 51-9906 for the location of the north and south loading/unloading areas. Up to two trailer characterization units (RTR and/or assay unit) may be connected to or located within the loading/unloading areas of SWEPP. A conveyor system may be located within the loading/unloading areas to assist in transporting containers.

Containers are typically received on the south side of SWEPP, where they are off-loaded and stored in the SSA. As each container is placed into its designated storage area, the container's barcode label is scanned to update the container's location information maintained in the AMWTP Operating Record. Typically, the first characterization operation performed on containers is RTR examination. See Attachments 1.A and 2 for further information on RTR examination. Containers are then assayed to determine the amount of fissile material present in each container. At this point, containers are stored in preparation for shipment to another waste management unit.

Fill and Grading

The area on which SWEPP is constructed was graded prior to the construction of the building. The area was excavated and a subbase was placed under the building foundation. Six-in. layers of drainage fill material (crushed stone or gravel) was placed on the subbase and compacted up to the level of the building slabs (up to 4.4 ft in places). The fill was graded as appropriate to obtain a level base, compacted, and overlain by 4 in. of gravel. See Drawing 52-9500 in Appendix IV for further information on the grading plan.

The area around the SWEPP building is paved with concrete and/or asphalt, and the areas are sloped to promote drainage away from the building. A 6-in. thick, 10-ft wide concrete pad runs along the entire length of the west side of SWEPP. This concrete area has a slope of

approximately 0.5%. Adjoining the concrete area is 3-in. thick asphalt paving. The asphalt paving is underlain by 2 in. of crushed gravel and 6 in. of pit run gravel base. A 38-ft wide concrete grout paved area runs along the entire length of the east side of SWEPP.

Prior to placement of the pit run gravel base for the asphalt paving, the existing area was stripped of all vegetation, brought to the optimum moisture content, and compacted to at least 90% maximum density as determined by AASHTO requirements. Pit run gravel was then added to make grade. Each layer of pit run gravel was uniformly compacted to 95% of maximum density as determined in accordance with AASHTO requirements. A 3.5-in. thick crushed gravel base was then spread and compacted for its full width. This base was then covered with an asphalt layer approximately 2.5-in. thick. The asphalt surface is finished with approximately a 2% grade from the centerline to allow for drainage.

Foundations and Floorings

The foundation of the SWEPP building is constructed of reinforced concrete, and is designed in accordance with applicable ACI requirements. The concrete has a minimum specified 28-day compressive strength of 4,000 psi. Reinforcing steel conforms to ASTM requirements.

An 8-in. wide by 3-ft deep concrete frost wall, reinforced by steel, extends around the perimeter of the SWEPP building. The concrete slab-on-grade at the SSA is 6-in. thick, reinforced with 6-in. by 6-in. welded wire fabric. The floor slab was poured in 20-ft by 20-ft sections. Individual pours were joined by notching or overlapping sections. The entire floor slab is coated with an epoxy coating, or equivalent. The floor has a load-bearing capacity of 250 lb per ft^2. Specific floor areas have been reinforced to support heavier system components.

The floor for the SWEPP High Bay slopes approximately 0.5% toward the north. On the east side of the SSA, the floor is sloped from the south side toward the north at approximately 0.4%. The floor on the west side of the SSA is sloped from the northwest corner to the east at approximately 0.6%.

Structural Parameters

SWEPP is a pre-engineered structural steel building which measures approximately 162-ft 8-in. by 60-ft. The roof framing for the SWEPP High Bay is supported by 8-in. wide steel frames, which form the columns, located on 20-ft centers. Interior surfaces of the columns are furred with 3.5-in. metal girts and wrapped in gypsum board. Exterior metal wall panels are attached to the metal girts. The interior wall surfaces are metal liner panels. A standing seam metal roof is attached to 8-in. roof purlins. The finished surface of the ceiling consists of metal liner panels. See Drawing 51-9914 for additional information.

SWEPP is designed to meet the 1982 edition of the UBC. The building is designed to withstand a snow load of 30 lb per ft^2 and a wind load of 20 lb per ft^2.

All interior walls, except office area walls, are constructed of reinforced concrete block. The interior wall surfaces of the south, west, and east sides of the SSA are metal liner panels finished with factory paint. The north wall on the west side is concrete block finished with masonry paint.

Curbing has been installed around the outer portions of the SSA other than by the access ramp located in the center of the building and around certain building columns. Columns without curbing have flashing installed around them, approximately 6 in. above floor level. The flashing is 6-in. by 4-in. by 5/16-in. angle iron fastened to the floor with slotted sleeve anchor bolts. Joints between the flashing, floor, and wall are sealed with caulking. The SSA concrete curbing is 6.5-in. high and ranges from 6.5-in. to 8-in. wide, and is sealed with an epoxy coating. Flashing is also coated with epoxy, or equivalent. The sloped area on each side of the ramp, located on the north end of the SSA, is approximately 8.5-ft long, with a level area approximately 2-ft long at the ramp center. The ramp is approximately 22-ft wide, with curbing installed on each side. The 3.5-in. high center of the ramp is the north central boundary of the SSA. A second ramp is located under the 16-ft wide overhead door on the south end of the SSA. This ramp is 3-ft wide and extends 0.5 in. above the adjoining floor. The ramps are concrete or steel and are sealed with an epoxy coating, or equivalent.

As shown in Drawing 51-9906, personnel doors provide access to the High Bay area of SWEPP from the building exterior. One personnel door, with a raised threshold of 2 in., is located on the west wall of the SSA. The other personnel door is located on the east wall north of the SSA. Two 16-ft wide by 12-ft high roll-up doors, with adjacent personnel doors, are located on the north and south ends of the High Bay area. These doors provide access to the north and south SWEPP loading/unloading areas. The south door is part of the storage boundary. This door has a raised threshold that is approximately 1/2-in. high by 36-in. wide, and is ramped on both sides to allow equipment access. The adjacent personnel door has a raised threshold of 1-3/8 in.

A bridge crane is located over the southwest portion of the SSA. The bridge portion is approximately 20-ft wide in the east-west direction, running north-south on parallel rails approximately 41-ft long. The crane rails are suspended from the building rigid frame, approximately 13 ft above the floor.

An L-shaped monorail crane rail runs north-south along the east wall, and east-west along the south end of the SSA. The monorail originates north of the SSA, runs parallel to the east wall, makes a 90 degree turn adjacent to the southwest wall of the SSA, and ends five ft from the west wall of the SSA.

HVAC System

The SWEPP is ventilated by a once-through air distribution system to control CO accumulation from equipment and vehicle operations. The ventilation system is only operated as required to maintain CO within acceptable levels. Ventilation air is drawn into the SWEPP High Bay through a louver on the west wall of Room 103 (HVAC equipment room). Air intake is controlled by a motor-operated damper. The air is distributed by air ducts throughout the High Bay area. A louver is located on the south wall of Room 103 to provide inside air return. Airflow through this louver is controlled by a motor-operated damper. The capacity of each of the louvers described above is approximately 7,500 cfm.

Air is exhausted from the High Bay area through three roof mounted power ventilators spaced equally along the length of the building. The ventilators provide a total exhaust rate of 8,500 cfm.

Heat is provided by a propane-fired furnace located in Room 103. The furnace heats the incoming ventilation air. Cooling is provided by circulation of incoming air. There is no provision for air conditioning.

Electrical Power

The electrical system for SWEPP complies with the standards listed in Attachment 1.A. The electrical one-line diagram is presented in Drawing 54-9759. The Site utilities are presented in Drawing 56-9500 in Appendix III.

Commercial electrical power is transmitted to the SWEPP building via a 12.5-kV, 3-phase power line that connects to a 500-kV, 12.5-kV-480-V/277-V pad-mounted transformer. The transformer is located 30 ft west of the building. The transformer supplies power to SWEPP via the electrical room (Room 104). The 480-V service connects to two main power panels and one standby power panel in the electrical room. Grounding is provided by a main conductor grounding grid beneath the building connecting to grounding wires within the building walls.

Lighting

All walkways, entrances, and exits provided with lighting. Interior building lighting is provided by overhead lighting fixtures. Exterior lighting is provided along the building and nearby roadways.

Operating Record

Typically, the AMWTP computerized system is used for overall data management, recordkeeping, and waste tracking. See Attachment 1.A for further information on the Operating Record requirements.

D-1 Containers

D-1a Containers with Free Liquids

See Attachment 1.A, Section D-1a for further information on containers with free liquids.

D-1a(1) Description of Containers [IDAPA 58.01.05.008; 40 CFR 264.171 and 264.172]

The containers used to store wastes in SWEPP are the same as those described in Attachment 1.A, Section D-1a(1). Container labels and markings are also described in Attachment 1.A, Section D-1a(1).

D-1a(2) Container Management Practices [IDAPA 58.01.05.008; 40 CFR 264.173]

Details on container management practices are described in Section D-1a(2) of Attachment 1.A. The following text addresses variations to those practices that are specific to SWEPP.

Containers of MW are processed through the SWEPP for characterization (e.g., RTR, assay). Characterization activities may take up to 30 calendar days. During this period, containers are staged in two areas within SWEPP, as described below.

Staging Areas 1 and 2 are designated for containers awaiting characterization. The containers are staged such that a row of containers is no more than three containers wide, six containers long, and one container high. Aisles are maintained with a minimum 3-ft aisle space (excluding support beams and portable equipment) between any other row of containers and between all interior and exterior walls for these staging areas. All containers located in Staging Areas 1 and 2 are stored on pallets or risers which are arranged into rows. Containers may be located on the floor while in transition (e.g., loading/unloading trailers or other equipment) for a period of time not to exceed the end of the work shift in which the container was placed onto the floor. Drawing 51-9906 shows the location of the areas used for staging containers pending characterization.

Staging Area 1 is located next to the north SWEPP loading/unloading area door and Staging Area 2 is located north of the access ramp. Container configurations which may be used in Staging Areas 1 and 2 are as follows:

- Eighteen (18) 30- or 55-gal drums three wide and six long, or
- Ten (10) 83/85-gal drums two wide and five long, or
- One (1) box.

Containers may be located in the north and/or south SWEPP loading/unloading areas on transport devices, pallets, or risers for up to 10 working days. The maximum storage capacity for the north and south loading/unloading areas is 10,056 gallons per loading/unloading area. Containers staged within the loading/unloading areas that are not located on a transport trailer are stored in the following manner:

- A row of containers is no more than two wide and two high, and
- Aisles (excluding support beams and portable equipment) are 3-ft wide, minimum, between rows of containers, and between rows of containers and the interior/exterior walls.

Containers located in Staging Areas 1 and 2 and the loading/unloading areas are inspected each working day for leakage and corrective action is initiated, as required.

Any combination of containers may be stored in the SSA at any given time. Containers in the SSA are stored in the following configuration:

- A row of containers is no more than four wide and two high, and
- Aisles (excluding support beams and portable equipment) are 3-ft wide, minimum, between rows of containers, and 2-ft wide, minimum, between rows of containers and the interior/exterior walls.

The storage configuration as described above is depicted in Drawing 51-9906 for 55-gal drums. All containers located within the SSA are stored on pallets or risers which are arranged into rows. Containers may be located on the floor while in transition (e.g., loading/unloading trailers or other equipment) for a period of time not to exceed the end of the work shift in which the container was placed onto the floor.

The maximum storage capacity for the SWEPP is approximately 28,380 gal, which is based on the assumption that only 55-gal drums are stored in the SWEPP area. See Appendix IX for specific calculations.

Incompatible wastes are managed in the SWEPP in accordance with Attachment 6.

D-1a(3) Secondary Containment System Design and Operation [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(a) and (d), and 270.15(a)(1)]

The secondary containment system for the SSA consists of a concrete floor, concrete sealer, and an epoxy type coating, or equivalent. Additional coating(s) may be placed onto the secondary containment system. This coating(s) is typically used to prevent degradation of or damage to the secondary containment system, by providing protective layers. The secondary containment system is maintained to provide containment that is sufficiently impervious to leaks, spills, and accumulated precipitation until the collected material is detected and removed.

The secondary containment system is designed to resist frost heave and the types of wastes stored. The secondary containment system provides sufficient capacity to hold, at a minimum, 10% of the maximum liquid volume stored or the volume of the largest container (whichever is greater) in the storage area(s) in accordance with HWMA/RCRA requirements. Container storage areas holding only wastes that do not contain free liquids do not require a containment system. See Section D-1b for additional information.

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids [IDAPA 58.01.05.008; 40 CFR 264.175(b)(1)]

A detailed description of the design and materials of construction of the base and containment curbs is provided in Section D. The concrete base is free of significant cracks and gaps.

The SSA secondary containment system is resistant to a wide range of acids, alkalis, solvents, oxidizers, oils, and greases, as well as radiation. The containment coating(s) is applied per manufacturer’s recommendations. The design of the floor and the application of the secondary containment system coating(s) (i.e., concrete sealer and an epoxy type coating, or equivalent), together, are more than sufficient to contain any leaks or spills of waste and prevent

migration of spilled contaminants into underlying concrete. As stated above, multiple coatings may be utilized for protective purposes, so long as liquid is contained without allowing contact to the concrete/concrete sealer.

D-1a(3)(b) Containment System Drainage [IDAPA 58.00.05.008 and 58.01.05.012; 40 CFR 264.175(b)(2) and 270.15(a)(2)]

The SSA containment system is designed to collect any liquid accumulation resulting from spills or leaks and all containers in storage are elevated.

Precipitation is not a factor regarding the secondary containment system for the SSA because the storage area is an enclosed structure. In addition, paving in the vicinity of SWEPP is sloped to direct run-off away from the building. The doors of the building are typically kept closed except when occupied for container handling operations, inspections, maintenance, etc. Run-on controls are discussed in Section D-1a(3)(d).

The containers located in the SSA are inspected weekly for leaks and spills. In the event that a leak or spill is detected, it is removed as described in Attachment 7.

D-1a(3)(c) Containment System Capacity [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(3) and 270.15(a)(3)]

The secondary containment system for the SSA is sized to contain, at a minimum, 10% of the maximum liquid volume or the volume of the largest container (whichever is greater) stored in the area at any given time, if secondary containment is required. Section D-1a(2) describes the storage configuration that is used in the SSA. Table D-1 summarizes the secondary containment capacity calculations for the SSA. Appendix IX presents the calculations and assumptions used in compiling Table D-1.

D-1a(3)(d) Control of Run-On [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(4) and 270.15(a)(4)]

The control of run-on requirements are the same as those described in Section D-1a(3)(d) of Attachment 1.A.

D-1a(3)(e) Removal of Liquids from Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(5) and 270.15(a)(5)]

The requirements for the removal of liquids from the containment system are described in Section D-1a(3)(e) in Attachment 1.A.

D-1b Containers Without Free Liquids [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(c) and 270.15(b)]

Containers without free liquids are managed as described in Section D-1b of Attachment 1.A.

Table D-1. SWEPP Storage Area Secondary Containment Capacity Estimate[a]

PARAMETER	CAPACITY
Maximum Waste Volume Stored	28,380 gal
10% of Maximum Liquid Volume[b]	2,838 gal
Secondary Containment Capacity	4,003 gal
Volume Displaced by Containers, Pallets, and Structural Features	709 gal
Available Secondary Containment[c]	3,294 gal

a. Calculations supporting these values are provided in Appendix IX. Volumes are for the maximum number of drums in the storage configuration in the SSA.

b. Minimum secondary containment capacity that must be made available.

c. Available secondary containment equals secondary containment capacity minus the volume displaced by containers, pallets, and structural features. Must equal or exceed the minimum capacity.

TABLE OF CONTENTS

ATTACHMENT 1.E

WMF-628 PROCESS INFORMATION

D. PROCESS INFORMATION 1

D WMF-628 Design 1

D-1 Containers 4

D-1a Containers with Free Liquids 4

D-1a(1) Description of Containers 4

D-1a(2) Container Management Practices 4

D-1a(3) Secondary Containment System Design and Operation 5

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids 5

D-1a(3)(b) Containment System Drainage 5

D-1a(3)(c) Containment System Capacity 6

D-1a(3)(d) Control of Run-On 6

D-1a(3)(e) Removal of Liquids from Containment System 6

D-1b Containers Without Free Liquids 6

LIST OF TABLES

Table D-1. WMF-628 Secondary Containment System Capacity Calculations 7

D. PROCESS INFORMATION

D WMF-628 Design

The Type II Module WMF-628 is used to characterize, store, and treat ROW and MW. A total of seven Type II Modules currently exist, and as many as ten modules may be constructed. This attachment covers the Type II Module with the building designation of WMF-628. The Type II Module designated as WMF-634 is described in Attachment 1.A and the Type II Modules designated as WMF-629 through WMF-633 are described in Attachment 1.B. Wastes currently in storage, as well as newly generated waste from on- and off-Site generators, may be moved and stored in WMF-628.

Unless otherwise noted, drawings for WMF-628 are located in Appendix VI. WMF-628 houses a number of activities, which include:

- Receiving and storing waste containers for characterization;
- Examining containers using RTR;
- Performing visual examination of waste in containers;
- Performing headspace gas sampling on drums, as required;
- Performing gas generation testing;
- Radiological surveying of containers;
- Performing treatment, via absorption, of liquids;
- Performing treatment, via decanting, of liquids from containers, as required;
- Performing treatment, via neutralization, of liquids in a container;
- Repackaging of waste;
- Sizing of waste;
- Performing treatment, via mechanical vibration of waste; and
- Performing treatment, via macroencapsulation of waste in stainless steel containers.

Waste treatment is conducted in a containment enclosure (absorption, decanting, neutralization, repackaging, sizing, and mechanical vibration) or outside a containment enclosure (mechanical vibration and macroencapsulation). See Attachment 1.A for additional information on the containment enclosure requirements and treatment operations.

The physical layout of the equipment in WMF-628 matches the sequence of operations in a west to east flow. Drawing 51-10009 presents a plan view layout of WMF-628. Typically, waste containers enter WMF-628 on the west side and exit on the east side, after characterization is complete. Containers are received into WMF-628, and are off-loaded and stored on the south side of the building. As each container is placed into its designated input storage area, the container's barcode label is scanned to update the container's location information maintained in the AMWTP Operating Record.

Typically, the first characterization operation performed on containers is RTR examination. RTR is used to determine the waste material parameters and detect prohibited items and special conditions. RTR examination is also used to validate existing waste characterization data, or in the case of unidentified waste containers, to correlate the contents of the container with known waste types from generator sites. The containers are assayed in order to determine the amount and isotopic composition of nuclear material, TRU isotope activity, and decay heat. The data are used to implement criticality control throughout the AMWTP waste management units. Up to six mobile characterization units (e.g., RTR, assay unit, etc.) may be located in WMF-628. Drums identified as requiring headspace gas analysis are usually then transferred to portable headspace gas sampling units. See Attachment 1.A for additional information on RTR, assay, and headspace gas sampling operations.

Fill and Grading

See Attachment 1.B for information on fill and grading requirements for WMF-628.

Foundations and Floors

See Attachment 1.B for information on foundation and floor requirements for WMF-628.

Structural Parameters

See Attachment 1.B for information on structural parameter requirements for WMF-628. See Drawing 51-10010 for additional information on WMF-628.

HVAC System

WMF-628 is heated and ventilated by a once-through air distribution system, which is used to control CO accumulation from equipment and vehicle operations. The ventilation system

is only operated as required to maintain CO within acceptable levels. Two propane fired makeup air heaters, located outside, preheat makeup air entering the building. The makeup air heaters are supplied with fans, inlet filters, and bird screens to direct the preheated makeup air into the module via wall penetrations.

Electrical Power

See Attachment 1.B for information on electrical power requirements for WMF-628. See Drawing 54-10442 for the WMF-628 electrical one-line diagram. See Drawings 56-1901 in Appendix II and 56-9500 in Appendix III for the information on the Site utilities for WMF-628.

Lighting

See Attachment 1.B for information on lighting requirements for WMF-628.

Operating Record

Typically, the AMWTP computerized system is used for overall data management, recordkeeping, and waste tracking. See Attachment 1.A for further information on the Operating Record requirements.

D-1 Containers

D-1a Containers with Free Liquids

See Attachment 1.A, Section D-1a for further information on containers with free liquids.

D-1a(1) Description of Containers [IDAPA 58.01.05.008; 40 CFR 264.171 and 264.172]

The containers used to store wastes in WMF-628 are the same as those described in Attachment 1.A, Section D-1a(1). Container labels and markings are also described in Attachment 1.A, Section D-1a(1).

D-1a(2) Container Management Practices [IDAPA 58.01.05.008; 40 CFR 264.173]

Details on container management practices are described in Section D-1a(2) of Attachment 1.A. The following text addresses variations to those practices that are specific to WMF-628.

Main access into WMF-628 is provided by a 20-ft wide center aisle (excluding support beams and portable equipment). Three-ft wide aisles (excluding support beams and portable equipment) are provided between the rows of containers and the interior/exterior walls to allow personnel access. All containers are stored on pallets or risers which are arranged into rows. Containers may be located on the floor while in transition (e.g., loading/unloading trailers or other equipment) for a period of time not to exceed the end of the work shift in which the container was placed onto the floor. In the event that emergency equipment is needed, access to the containers is provided through the center aisle of the building. Drawing 51-10009 presents a typical waste storage configuration within WMF-628.

Any combination of container types may be stored in WMF-628 at any given time. Boxes, calculated 4-ft by 4-ft by 8-ft, are used to determine the maximum potential waste volume that can be stored in WMF-628. See Appendix IX for specific calculations. Calculations for containers other than boxes and 55-gal drums are not provided because the potential maximum waste volumes for other containers are less than the corresponding values for boxes.

For maximum capacity, containers are stored in the following configuration. There are up to 42 rows of drums in WMF-628. A row is defined as up to four drums wide by up to five

drums high by up to 22 drums in length (i.e., depth). The drum storage capacity in WMF-628 is 18,160 55-gal drums. For boxes, the configuration of a row is up to four wide, up to four high, and up to 11 long. The maximum storage capacity in WMF-628 is 2,256 boxes. In the corners of the buildings, the length of a row is shorter to allow space for access ramps. TDOPs and TPAs may also be stored in WMF-628 as described in Section D-1a(2) of Attachment 1.A.

Incompatible wastes are managed in WMF-628 in accordance with Attachment 6.

D-1a(3) Secondary Containment System Design and Operation [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(a) and (d), and 270.15(a)(1)]

WMF-628 is an enclosed structure. The secondary containment system consists of a concrete floor, concrete sealer, and an epoxy type coating, or equivalent. Additional coating(s) may be placed onto the secondary containment system. This coating(s) is typically used to prevent degradation of or damage to the secondary containment system, by providing protective layers. The secondary containment system is maintained to provide containment that is sufficiently impervious to leaks, spills, and accumulated precipitation until the collected material is detected and removed.

The secondary containment system is designed to resist frost heave and the types of wastes stored. The secondary containment system provides sufficient capacity to hold, at a minimum, 10% of the maximum liquid volume stored or the volume of the largest container (whichever is greater) in the storage area(s) in accordance with HWMA/RCRA requirements. Container storage areas holding only wastes that do not contain free liquids do not require a containment system. See Section D-1b for additional information.

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids [IDAPA 58.01.05.008; 40 CFR 264.175(b)(1)]

The requirements for the base or liner to contain liquids are the same as those described in Section D-1a(3)(a) of Attachment 1.A. A detailed description of the design and materials of construction of the base and containment curbs is provided in Section D of this attachment.

D-1a(3)(b) Containment System Drainage [IDAPA 58.00.05.008 and 58.01.05.012; 40 CFR 264.175(b)(2) and 270.15(a)(2)]

The containment system drainage requirements are the same as those described in Section D-1a(3)(b) of Attachment 1.A.

D-1a(3)(c) Containment System Capacity [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(3) and 270.15(a)(3)]

The secondary containment system for WMF-628 is sized to contain, at a minimum, 10% of the maximum liquid volume or the volume of the largest container (whichever is greater) stored in the area at any given time, if secondary containment is required. Section D-1a(2) describes the storage configuration that is used in WMF-628. Table D-1 summarizes the secondary containment capacity calculations for WMF-628. Appendix IX presents the calculations and assumptions used in compiling Table D-1.

D-1a(3)(d) Control of Run-On [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(4) and 270.15(a)(4)]

The requirements for control of run-on are the same are those described in Section D-1a(3)(d) of Attachment 1.A.

D-1a(3)(e) Removal of Liquids from Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(5) and 270.15(a)(5)]

The requirements for the removal of liquids from the containment system are described in Section D-1a(3)(e) in Attachment 1.A.

D-1b Containers Without Free Liquids [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(c) and 270.15(b)]

Containers without free liquids are managed as described in Section D-1b of Attachment 1.A.

Table D-1. WMF-628 Secondary Containment System Capacity Calculations[a]

PARAMETER	CAPACITY
Maximum Waste Volume Stored	1,107,290 gal
Maximum Liquid Volume Stored	287,896 gal
10% of Maximum Liquid Volume[b]	28,790 gal
Secondary Containment Capacity	123,143 gal
Volume Displaced by Containers, Pallets, and Structural Features	45,937 gal
Available Secondary Containment[c]	77,206 gal

a. Calculations supporting these values are provided in Appendix IX. Volumes are for the maximum number of boxes in the typical storage configuration in the storage areas plus the approximate maximum number of containers in process in WMF-628.

b. Minimum secondary containment capacity that must be made available.

c. Available secondary containment equals secondary containment capacity minus the volume displaced by containers, pallets, and structural features. Must equal or exceed the 10% of maximum liquid volume.

TABLE OF CONTENTS

ATTACHMENT 1.F

WMF-676 PROCESS INFORMATION

D. PROCESS INFORMATION 1

D WMF-676 Design 1

D-1 Containers 11

D-1a Containers with Free Liquids 11

D-1a(1) Description of Containers 11

D-1a(2) Container Management Practices 11

D-1a(3) Secondary Containment System Design and Operation 12

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids 12

D-1a(3)(b) Containment System Drainage 13

D-1a(3)(c) Containment System Capacity 13

D-1a(3)(d) Control of Run-On 13

D-1a(3)(e) Removal of Liquids from Containment System 14

D-1b Containers Without Free Liquids 14

LIST OF TABLES

Table D-1. WMF-676 Exhaust Flues and Emission Areas Served 10

Table D-2. WMF-676 Secondary Containment Summary 15

Table D-3. Summary of WMF-676 Treatment/Storage Areas 18

LIST OF EXHIBITS

Exhibit D-1. Main Stack Exhaust Flue Arrangement 7

Exhibit D-2. Zone 3 Ventilation Extract System Simplified Schematic 8

Exhibit D-3. Simplified Schematic of the Glovebox Ventilation Extract System 9

D. PROCESS INFORMATION

D WMF-676 Design

WMF-676 is designed with many features that control MW on its path through the building. This section describes the systems that route and control emissions from WMF-676 activities, the general building structures that provide containment, the system that tracks and manages the flow of waste containers through designated treatment paths, and the areas designated to store containers while in transit through WMF-676.

Section D-8, which presents process information for the miscellaneous treatment units at WMF-676, is provided in Attachments 1.F.i, 1.F.ii, 1.F.iii, and 1.F.iv. Unless otherwise noted, drawings for WMF-676 are located in Appendix VII.

Emissions Control

Exhaust from process areas and ventilation zones is conveyed to the atmosphere in individual flues of varying sizes, surrounded structurally by an open, rectangular steel frame (the flues, along with the support frame, comprise the main WMF-676 stack). Table D-1 lists each of the extract flues along with the emissions area(s) each flue serves, and Exhibit D-1 illustrates the arrangement of the individual extract flues. Exhaust is transported to the main stack via horizontal ducts located in the upper level of WMF-676. The ducts extend horizontally from the penthouse before reaching the stack enclosure. Once the ducts transition to vertical flues, the diameter of each is reduced such that the design discharge velocity of each extract flue is approximately 4,000 ft/minute (fpm). The stack height (approximately 90 ft) is sufficient to ensure that the emissions do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures, or nearby terrain features and prevent exhaust air discharged from the stack from returning into the building via the HVAC air intakes.

Ventilation Systems

Engineered ventilation systems control gaseous emissions in WMF-676. WMF-676 is divided into clean areas and ventilation confinement zones. Areas of the process are re-designated between the ventilation confinement zones as operational needs and contamination levels dictate.

Clean Areas. Exhaust from clean areas, such as administrative and support areas, is primarily drawn through other clean areas or to areas with a higher potential for radiological contamination, although some will exhaust via a vent in the second floor roof.

Zone 1 and 2 Areas. The design of WMF-676 has a single-stage bank of HEPA filters that serves the Zone 1 area exhaust. Likewise, the design of WMF-676 has Zone 2 area extracts with two stages of HEPA filtration. Due to waste handling and operational activities, Zone 1 and Zone 2 areas may be re-designated between Zone 1 and Zone 2 areas, and potentially Zone 3 areas or clean areas, as necessary. If a Zone 1 or 2 area is designated as a Zone 3 area, then the newly designated Zone 3 area may not have three stages of HEPA filters, as stated below. However, all re-designations of contamination areas will be done such that particulate and radiological constituents are maintained within the limits specified in the "AMWTF Permit to Construct an Air Pollution Emitting Source at the Idaho National Engineering and Environmental Laboratory," Permit Number 023-000001, current version.

Zone 3 Areas. The design of WMF-676 has three stages of HEPA filters that serve a Zone 3 area extract. The first stage filter banks are positioned locally near the areas served, then the local ducts combine to form the Zone 3 extract system. The exhaust then passes through the second and third HEPA filter banks before being exhausted through the main stack. Exhibit D-2 is a simple schematic of the ventilation extract system for the Zone 3 areas. Areas typically operated as Zone 3 areas may be re-designated as lower zone areas based upon operational needs, such as during times of personnel entry into the areas. As previously described, areas re-designated as a Zone 3 area may not have three stages of HEPA filters.

Gloveboxes. The glovebox extract system serves gloveboxes, typically in Zone 3 environments, and is similar to the Zone 3 extract system, except that the flow rate requirements are much lower. This system also has first stage HEPA banks, followed by second and third stage HEPA filter banks. Exhibit D-3 shows a simple schematic of the glovebox ventilation extract system. The gloveboxes may be re-designated as lower zone areas based upon operational needs, such as during times of opening or personnel entry into the areas.

Other Emission Control Systems

Filter Systems. A local dust extraction unit is provided in the box opening area. The unit is designed to extract material (e.g., sawdust) from the box lid cutting tool(s) and discharge

it into a container. The extract unit is fitted with a fire detection/suppression system for the collection container. The box shredder may also have a fire detection/suppression system and/or a dust control system.

Monitoring

HEPA Filter Monitoring. The efficiency of each HEPA filter or HEPA filter bank, as applicable, is routinely tested according to the American Society of Mechanical Engineers (ASME) N510-1989, Section 10 standards. In addition, the differential pressure across each HEPA filter bank is monitored. Any significant loss of pressure differential across HEPA filters will be evaluated for filter failure.

Recordkeeping and Reporting. Measurements and data correspondence relating to sampling or monitoring systems, performance testing measurements, equipment calibration checks, and maintenance performed on the equipment are kept in accordance with the AMWTP quality assurance program and are part of the Operating Record. A remedy schedule is provided in Appendix X that describes the response and consequences of ventilation equipment failure.

Building Structure

Exterior Walls

The exterior walls of the building are clad with prefinished metal siding over steel girts mounted on steel columns. The interior face of the siding system includes a prefinished metal liner panel to minimize air transfer and afford a smooth finished surface. The exterior walls are insulated for thermal protection.

Floors

The ground floor of the process portion of WMF-676 is composed of an approximately 36-in. thick steel reinforced concrete mat, thickened at the edges to provide about 5 ft below grade for frost depth. Integral to the design of the floor slabs are spill containment systems, where required, composed of specially coated concrete slabs with perimeter walls coated to a height required by secondary containment system calculations. Elevated floors are cast-in-place reinforced concrete or concrete on steel decking/framing.

Interior Walls

Interior wall construction is primarily reinforced concrete block, cast-in-place concrete, or drywall. Primarily cast-in-place reinforced concrete walls are used around the waste management areas to isolate critical ventilation confinement areas. Concrete cast-in-place walls are designed with steel reinforcing to meet seismic design criteria. Concrete walls are finished to a smooth surface.

Reinforced concrete block walls are used elsewhere throughout the interior of the waste management areas where cast-in-place concrete is not required for structural support. Block walls are nominally 8-in. or 12-in. thick with vertical and horizontal steel reinforcing for structural integrity. Concrete block walls are primarily used to enclose the access corridors, various process areas, and AMWTP personnel corridors throughout WMF-676.

In areas requiring fire resistive construction, concrete block, drywall construction, and spray-on fire resistive material are utilized in accordance with approved UL listings, and UBC and NFPA requirements for fire-rated construction.

Ceilings

Typically, acoustic lay-in ceiling systems are used in the administrative office area, suspended gypsum board systems in change rooms/toilet areas, and cast-in-place reinforced concrete or concrete on steel decking in process areas. In non-critical process and utility areas of WMF-676, the ceiling may be left open to the exposed structure above.

In critical process areas, such as the CCS area, the conveyor/storage areas on the first floor, and the box line areas on the second floor, the ceilings are constructed of cast-in-place reinforced concrete or concrete on steel decking. These ceilings/floors are reinforced to meet equipment loading and seismic design requirements. Suspended gypsum board or similar ceiling systems may be utilized in the change rooms, subchange rooms, and toilet and shower areas.

Roof

The roof structure is framed with steel girders and beams, and supporting steel roof decking. An insulated membrane roof system is applied over the steel deck. The roof slopes to the east and west walls over the process portion of the building and to the south over the

administrative portion of the building. An enclosure may be constructed over the waste drum import/export area, which is located on the north end of WMF-676.

Specialty Coatings

Protective coatings are applied to surfaces throughout WMF-676 at varying levels and qualities depending upon exposure conditions and types of surfaces. The technical specifications for WMF-676 HWMA/RCRA secondary containment coating systems, included as Appendix XI, contain information identifying the coatings applied to the various process areas in WMF-676. These coating systems are specifically selected to maintain surfaces within WMF-676 at acceptable levels of serviceability and decontamination ease, and for floors, walls, and curbing in secondary containment areas are selected to provide chemical resistance, durability, and compatibility with substrate conditions.

For areas providing secondary containment of spills and leaks (except where steel is used), floors, walls, and curbing are sealed with a coating system that is applied in a seamless manner, or equivalent. See Appendix XI for additional information on coating systems used throughout WMF-676.

In the box line sorting cells, uncontainerized waste is sorted using manipulators; consequently, areas of the wall and floor surfaces are exposed to abrasion and highly contaminated conditions. Typically, where floor-mounted manipulators are positioned, steel guards (fastened to embedded steel plate) are provided to protect the portion of the walls that are reachable by the manipulator arm mechanism. The concrete floors, ceilings, and walls around the steel platforms and embedded plate are coated.

Operating Record

Typically, the AMWTP computerized system is used for overall data management, recordkeeping, and waste tracking. See Attachment 1.A for further information on the Operating Record requirements.

Treatment

Treatment by sorting and segregating is performed in the box line and drum repack system, and described in Attachments 1.F.i and 1.F.iv. Treatment in the SCW glovebox system

is described in Attachment 1.F.ii and treatment by supercompaction in the supercompactor is described in Attachment 1.F.iii.

Additional methods of treatment permitted in WMF-676 are: absorption, decanting, and neutralization of liquids. See Attachment 1.A for additional information. These methods are performed individually and in conjunction with each other to treat the waste in the most effective manner possible.

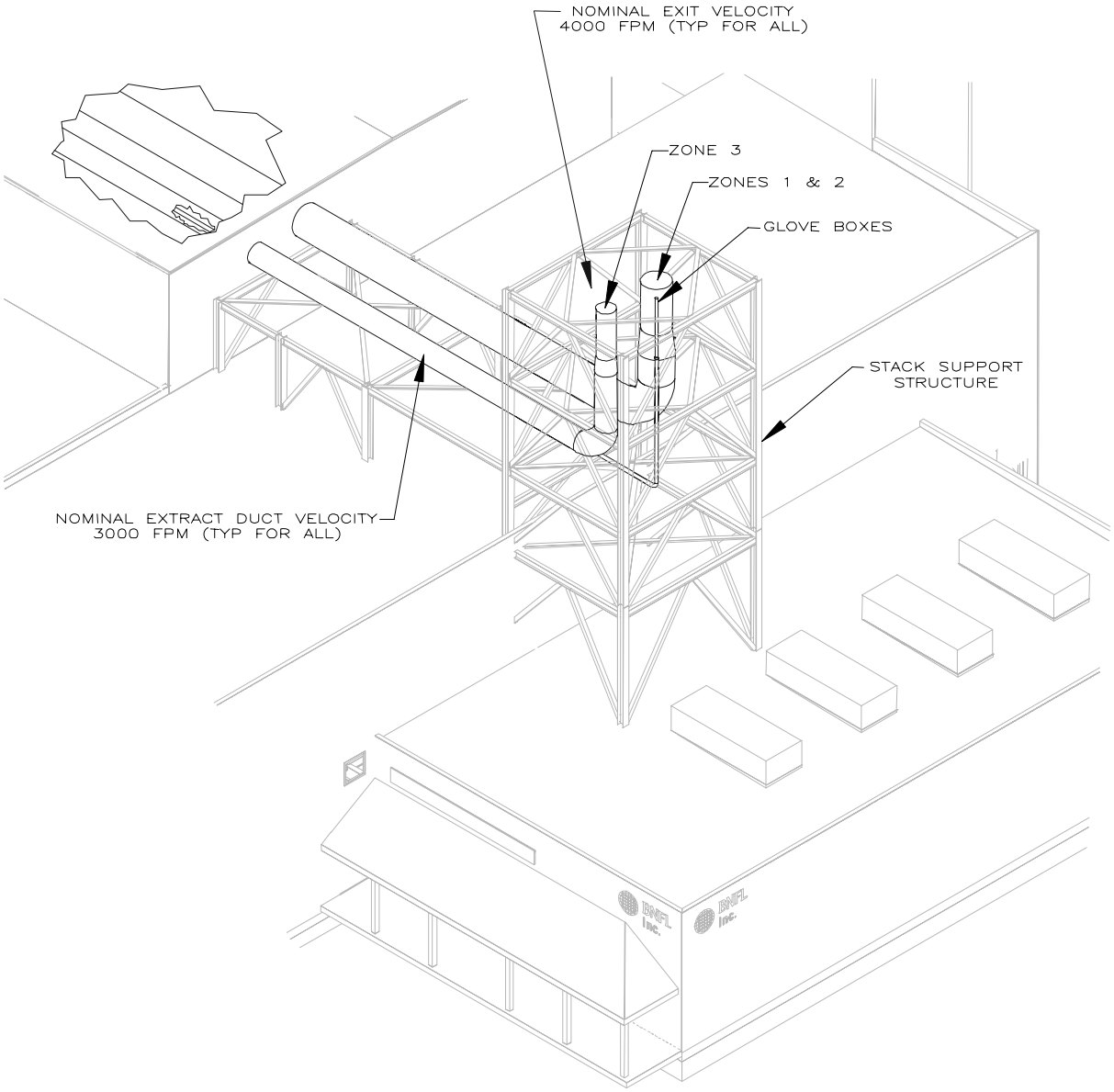


Exhibit D-1. Main Stack Exhaust Flue Arrangement

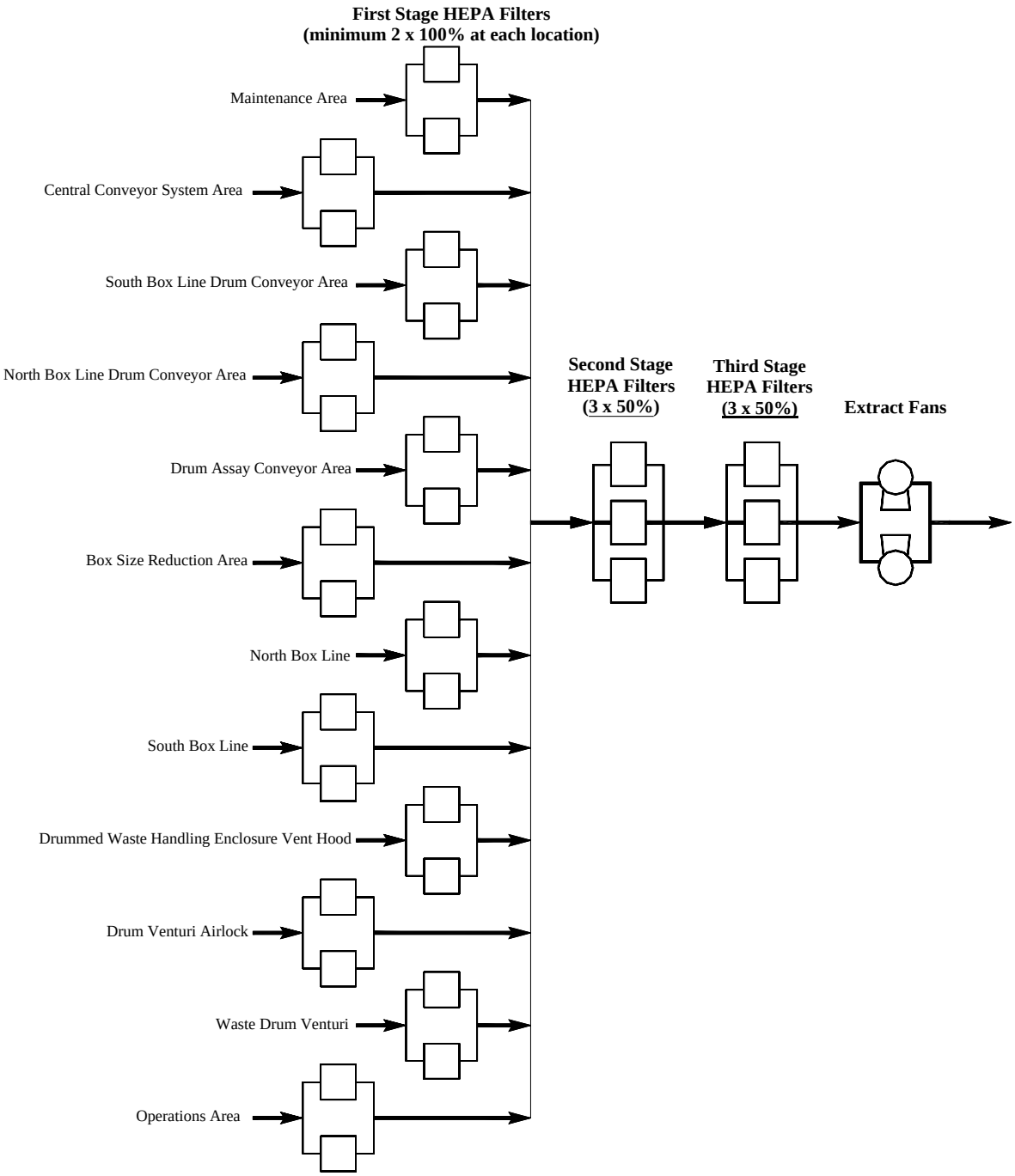


Exhibit D-2. Zone 3 Ventilation Extract System Simplified Schematic

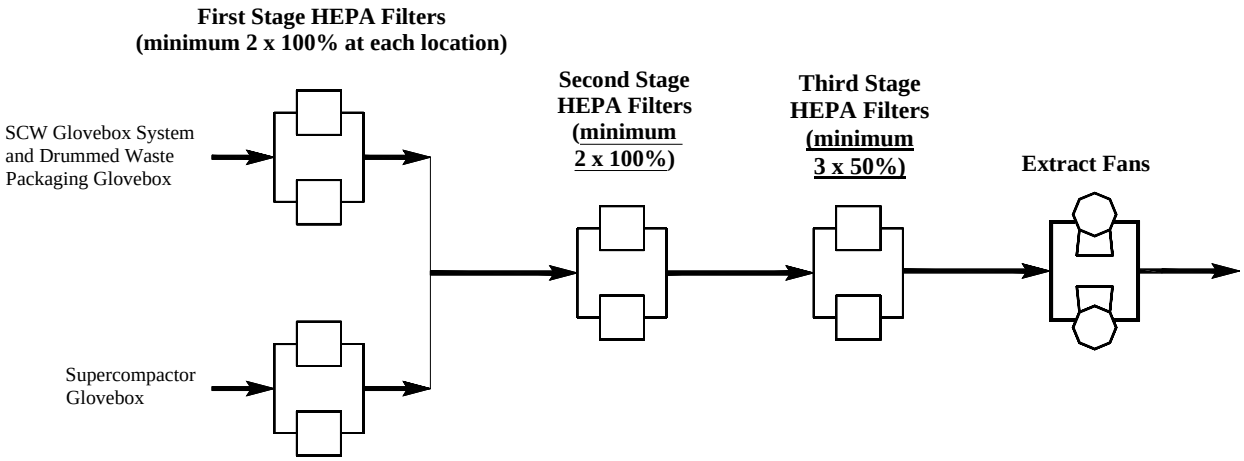


Exhibit D-3. Simplified Schematic of the Glovebox Ventilation Extract System

Table D-1. WMF-676 Exhaust Flues and Emission Areas Served

Exhaust Flue[a]	Areas and/or Systems Served
Process Area Zone 1/2 Extract	Areas designated Zone 1 or 2
Process Area Zone 3 Extract	Areas designated Zone 3 including emission sources: Box lines Room 147 DWHE ventilation hood Zone 3 drum storage areas
Process Area Glovebox Extract	Areas designated Zone 3 gloveboxes including emission sources: SCW glovebox system DWPG Supercompaction glovebox

a. The Zone designation may change (e.g., decontamination from a Zone 3 to Zone 2) to facilitate efficient operations.

D-1 Containers

Container Storage Areas

Portions of WMF-676 are permitted for HWMA/RCRA container storage. Table D-2 lists the storage areas, the number of containers stored, the maximum waste volume, the containment area net dimensions, the maximum secondary containment volume, and the minimum curb height for each area. The secondary containment information is described in Section D-1a(3).

D-1a Containers with Free Liquids

The containers stored at WMF-676 generally contain either (1) no free liquids or (2) free liquids at less than 1% of the total container volume. All containers are managed as if they contain free liquids, unless it can be documented, other than by historical record, that no free liquids are present. Containers with no free liquids are managed in accordance with Section D-1b. Typically, the determination of the presence of free liquids is performed at WMF-634, WMF-628, or WMF-610 through RTR and/or process knowledge, prior to receipt at WMF-676. Additionally, liquids may be identified through visual examination in the pretreatment areas of WMF-676, or through process knowledge for newly generated waste.

D-1a(1) Description of Containers [IDAPA 58.01.05.008; 40 CFR 264.171 and 264.172]

The containers used to store wastes in WMF-676 are the same as those described in Attachment 1.A, Section D-1a(1). Container labels and markings are also described in Attachment 1.A, Section D-1a(1). Labels may be placed on HWMA/RCRA empty containers in WMF-676 prior to waste being placed into the container.

D-1a(2) Container Management Practices [IDAPA 58.01.05.008; 40 CFR 264.173]

Details on container management practices are described in Section D-1a(2) of Attachment 1.A. The following addresses variations to those practices that are specific to WMF-676.

Typically, drums containing waste are received at the waste drum import and export area (located along the north wall of the first floor), while boxes containing waste and empty containers are received at the waste receiving and storage area (located along the east wall of the first floor). Containers will be stored on devices which are used to raise the container off of the

floor. Containers may be located on the floor while in transition (e.g., loading/unloading trailers or other equipment) for a period of time not to exceed the end of the work shift in which the container was placed onto the floor. The following storage configuration will be maintained for containers stored in WMF-676:

- Containers of MW shall not be stored in rows more than two containers wide by two containers high given that no container within the row resides against a wall of the building.
- Containers of MW shall not be stored in rows more than one container wide by two containers high given that one side of a container resides against a wall of the building.
- A minimum of two ft of aisle space (excluding support beams and portable equipment) shall be maintained between all rows of containers.

Incompatible wastes are managed in WMF-676 in accordance with Attachment 6.

D-1a(3) Secondary Containment System Design and Operation [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(a) and (d), and 270.15(a)(1)]

WMF-676 is an enclosed building. Secondary containment is provided by a curbed, sealed, concrete floor designed to resist frost heave and the types of wastes stored in WMF-676 or portable secondary containment devices that meet all HWMA/RCRA requirements. Container storage areas holding only wastes that do not contain free liquids do not require a containment system. See Section D-1b for additional information.

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids [IDAPA 58.01.05.008; 40 CFR 264.175(b)(1)]

Each of the storage areas listed in Table D-2 is provided with containment features or equipment (e.g., spill pans, pallets, etc.) to capture possible MW spills or leaks from containers, if secondary containment is required. Appendix IX contains a copy of the spill containment analysis developed to calculate minimum curb heights. A curb at WMF-676 is defined as the portion of a wall or barrier sealed with the appropriate coating from the floor up to the required containment height specified by the spill containment analysis (Appendix IX).

WMF-676 storage areas are constructed with sealed, reinforced concrete floors. The floor (base) of each storage area is free of significant cracks and gaps that may comprise the integrity of the containment, if secondary containment is required. A detailed description of the design and materials of construction of these areas is provided in Attachment 1.F.

The specialty coatings are applied per the manufacturer's recommendations to the area surface, curbs, ramps, floor and wall joints, and walls up to an elevation equal to or above the minimum calculated curb height, as required. The design of the floors, walls, and curbs and the application of the specialty coating, together, are such that the area is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the leak, spill, or accumulated precipitation is detected and removed. In some areas, equipment (e.g., spill pans, pallets, etc.) may be used in lieu of specialty coatings or curbs.

D-1a(3)(b) Containment System Drainage [IDAPA 58.00.05.008 and 58.01.05.012; 40 CFR 264.175(b)(2) and 270.15(a)(2)]

The storage areas within WMF-676 are not equipped with drainage capabilities. If a leak or spill is detected in one of the storage areas, corrective actions are initiated in a timely manner. The response time to mitigate a spill in a storage area is dependent upon the setup time for AMTWP spill response personnel. Response times vary depending on the ventilation confinement zone.

D-1a(3)(c) Containment System Capacity [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(3) and 270.15(a)(3)]

All storage areas utilize equipment (e.g., spill pans, pallets, etc.) or are bound by a curb of sufficient height to contain at least 10% of the maximum volume of containers, or the volume of the largest container (whichever is greater) stored in the area at any given time, if secondary containment is required. Conservatively, the assumption has been made that each waste container is filled with liquid for those areas where secondary containment is required. Table D-2 presents the maximum secondary containment volume for each storage area for those areas where secondary containment is required, as well as the minimum curb height, considering the maximum number of containers that may be stored in each area at any given time.

D-1a(3)(d) Control of Run-On [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(4) and 270.15(a)(4)]

The requirements for control of run-on are the same are those described in Section D-1a(3)(d) of Attachment 1.A.

D-1a(3)(e) Removal of Liquids from Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(b)(5) and 270.15(a)(5)]

WMF-676 is inspected for container condition, spills, leaks, and accumulated liquids as described in Attachment 4. Any spills, leaks, or accumulated liquids are cleaned up or otherwise mitigated in a timely manner upon discover within these areas. In the event of a leak/spill, AMWTP personnel may implement the Contingency Plan as described in Attachment 7. All equipment and any liquids generated during implementation of the Contingency Plan are placed in containers, labeled, and managed appropriately depending on the waste being cleaned up.

D-1b Containers Without Free Liquids [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.175(c) and 270.15(b)]

Containers without free liquids are managed as described in Section D-1b of Attachment 1.A.

Table D-2. WMF-676 Secondary Containment Summary[a]

Secondary Containment Area[b] (Room/Area No.)	Number of Containers of MW[c]	Maximum Waste Volume[d], gal	Containment Area Net Dimensions, ft^2	Secondary Containment Volume, gal	Maximum Waste Volume to Contain, gal	Min. Curb Height, in.
CCS Feed Area/Maintenance Area (147/147D)	150 drums (55-gal)	8,250	2,418	904	825	0.6
South Box Line/Drum Conveyor Area/North Box Line/Drum Conveyor Area/Drum Assay Conveyors (124B/125B/126C)	86 drums[e]	4,730	2,789	522	473	0.3
Waste Receiving and Storage (134)	4 boxes and 20 drums (55-gal)	6,616	1,023	1,403	1,379	2.2
Box Elevator (009)[f]	1 box	1,379	132	987	1,379	12
Supercompaction/Waste Drum Venturi/Filter/Drum Storage Area 'B'/Vestibule (141B/146A/146B/141)	71 drums[g]	5,795	2,510	626	580	0.4
Drum Storage Area ‘C’ (143)	35 drums[h]	3,200	1,301	324	320	0.4
Drum Storage Area 'A'/Corridor (146/145)	50 drums[i]	4,550	630	471	455	1.2
Drum Venturi Airlock (127A)	6 drums (55-gal)	330	313	59	55	0.3
Transfer Conveyor (131)	146 drums (55-gal)	8,030	962	840	803	1.4
Vestibule Airlock (127B)	4 drums (55-gal)	220	90.4	56	55	1
LLW Box Fill/Vestibule (128A/128)[j]	3 boxes and 8 drums (85-gal)	4,817	NA	NA	NA	NA
Secondary Waste Room (128B)[j]	3 boxes and 8 drums (85-gal)	4,817	NA	NA	NA	NA
Empty Container/LLW Export (128C)[j]	2 boxes and 8 drums (85-gal)	3,438	NA	NA	NA	NA

Table D-2. WMF-676 Secondary Containment Summary (continued)[a]

Secondary Containment Area[b] (Room/Area No.)	Number of Containers of MW[c]	Maximum Waste Volume[d], gal	Containment Area Net Dimensions, ft^2	Secondary Containment Volume, gal	Maximum Waste Volume to Contain, gal	Min. Curb Height, in.
Terminal Filter Room (122A)[j]	60 drums (55-gal)	3,300	NA	NA	NA	NA
Terminal Filter Room (142B)[j]	20 drums (55-gal)	1,100	NA	NA	NA	NA
SCW Treatment (236)	24 drums (85-gal)	2,040	2,556	319	204	0.2
Variable Geometry (VG) Door Airlock/Suitchange (217C/217B)	1 boxes	1,379	295	1,379	1,379	7.5
Box Conveyor Area (226)	2 boxes	2,758	370	1,384	1,379	6.0
North Box Line/VG Door Airlock/Suitchange (229B/220C/220B)	6 boxes[k]	8,274	1,643	1,434	1,379	1.4
South Box Line (228B)	4 boxes	5,516	908	1,415	1,379	2.5
Operations Area/Access Corridor (232B/232H)	60 drums (55-gal)	3,300	1003	375	330	0.6
Hot Maintenance/Box Size Reduction Area (224B/225A)	1 box and 48 drums (55-gal)	4,019	1,803	1,461	1,379	1.3
Area 300 HEPA Filter Room (214A)[j]	20 drums (55-gal)	1,100	NA	NA	NA	NA
Filter Maintenance Area (212C)[j]	8 drums (55-gal)	440	NA	NA	NA	NA
Filter Maintenance Area (212F)[j]	16 drums (55-gal)	880	NA	NA	NA	NA
Filter Maintenance Area (212H)[j]	8 drums (55-gal)	440	NA	NA	NA	NA
Hydraulic Room (224C)[j]	10 drums (55-gal)	550	NA	NA	NA	NA

a. See Table D-3 for additional information on storage and treatment area locations in WMF-676.

b. Maximum waste volume and secondary containment capacity values for elevators are included in the calculations for those areas where elevators are located.

c. The types of containers indicated are for calculation purposes only. Any type and size of container may be managed with the specified areas as long as the maximum volume is not exceeded.

d. The maximum waste volume is based on the conservative assumption that the maximum number of containers with potential liquids are stored in the area and that each container is full of liquid. The volume for each drum is either 55-gal or 85-gal, as noted. A volume of 1,379-gal was used for each box. The containment system must contain 10% of the total volume of the containers or the volume of the largest container, whichever is greater [IDAPA 58.01.05.008 (40 CFR 264.175)].

e. The 86 drums in this area are made up of the following:

South Box Line/Drum Conveyor Area – 28 drums (55-gal)
North Box Line/Drum Conveyor Area – 28 drums (55-gal)
Drum Assay Conveyor – 30 drums (55-gal)

f. Boxes located in this area are considered to be "in-process." All in-process boxes will be removed from the elevator prior to the end of the shift in which the box was placed into the elevator. If a box is not removed from the elevator prior to the end of the work shift, then the box shall be considered to be in storage and must meet the secondary containment requirements (i.e., the largest box which may be stored in the elevator is 987 gals).

g. The 71 drums in this area are made up of the following:

   Supercompaction – 11 drums (55-gal) and 20 drums (100-gal)
   Waste Venturi/Filter – 6 drums (85-gal), 16 drums (55-gal), and 6 drums (100-gal)
   Drum Storage Area 'B' – 12 drums (100-gal)

h. The 35 drums in this area are made up of the following: 20 drums (85-gal) and 15 drums (100-gal).

i. The 50 drums in this area are made up of the following: 30 drums (85-gal) and 20 drums (100-gal).

j. Typically, no wastes containing free liquids are managed in this area per administrative controls; therefore, no secondary containment system is provided in this area. If liquids are managed in the area, then secondary containment will be provided by portable spill containment equipment (e.g., spill pans, pallets, etc.).

k. The 6 boxes in this area are made up of the following:

   North Box Line – 5 boxes
   VG Door Airlock – 1 box

Table D-3. Summary of WMF-676 Treatment/Storage Areas

Area (Room/Area No.)	Comments
Drum Storage Area 'A'/Corridor (146/145)	Storage
Drum Storage Area 'B'/Vestibule (146B/141)	Storage
Drum Storage Area 'C' (143)	Storage
Supercompaction (141B)	All containers located outside of the supercompactor glovebox system are considered to be in storage. Containers and uncontainerized waste are considered to be in treatment from the time a container is placed into the supercompactor glovebox system, until the waste is removed from the supercompactor glovebox system. Containers and sumps are considered to be in treatment during absorption, decanting, and neutralization.
Waste Drum Venturi/Filter (146A)	All containers outside of the venturi are considered to be in storage. Containers inside the venturi are considered to be in treatment.
Terminal Filter Room (142B)	Storage
Waste Receiving and Storage (134)	Storage
Box Elevator (009)	Storage
Transfer Conveyor (131)	Storage
Vestibule Airlock (127B)	Storage
Drum Venturi Airlock (127A)	Storage
CCS Feed Area/Maintenance Area (147/147D)	Storage. Five types of containers may be located in rooms 147 and 147D at any given time. These containers are: 1) containers with lids, 2) empty containers with or without lids, 3) unlidded SCW transfer containers containing containerized waste, 4) unlidded SCW transfer containers containing uncontainerized waste, and 5) containers with poor integrity originating from the box lines. Unlidded SCW transfer containers, which contain uncontainerized waste, may be located in the CCS Feed Area/Maintenance Area for up to 24 hours. For example, the 24 hour time period would start from the time the unlidded transfer container, with uncontainerized waste, is removed from room 125B or 124B of WMF-676 until the unlidded transfer container is received at the SCW glovebox system, other treatment area within WMF-676, or the container is lidded with either a temporary or permanent lid. Containers with poor integrity originating from the box lines may be located in the CCS Feed Area/Maintenance Area for up to 7 calendar days.
LLW Box Fill Station/Vestibule (128A/128)	Storage
Secondary Waste Room (128B)	Storage
Empty Container/LLW Export (128C)	Storage

Table D-3. Summary of WMF-676 Treatment/Storage Areas (continued)

Area (Room/Area No.)	Comments
Terminal Filter Room (122A)	Storage
Drum Assay Conveyors (126C)	Storage. Five types of containers may be located in room 126C at any given time. These containers are: 1) containers with lids, 2) empty containers with or without lids, 3) unlidded SCW transfer containers containing containerized waste, 4) unlidded SCW transfer containers containing uncontainerized waste, and 5) containers with poor integrity originating from the box lines. Unlidded SCW transfer containers, which contain uncontainerized waste, may be located in the Drum Assay Conveyor area for up to 24 hours. For example, the 24 hour time period would start from the time the unlidded transfer container, with uncontainerized waste, is removed from room 125B or 124B of WMF-676 until the unlidded transfer container is received at the SCW glovebox system, other treatment area within WMF-676, or the container is lidded with either a temporary or permanent lid. Containers with poor integrity originating from the box lines may be located in the Drum Assay Conveyor area for up to 7 calendar days.
North Box Line/Drum Conveyor Area (125B)	Treatment
South Box Line/Drum Conveyor Area (124B)	Treatment
Filter Maintenance Area (212C)	Storage
Filter Maintenance Area (212F)	Storage
Filter Maintenance Area (212H)	Storage
Hydraulic Room (224C)	Storage
SCW Treatment (236)	All containers located outside of the DWHE, DWPG, and the SCW glovebox system are considered to be in storage. Containers and uncontainerized waste are considered to be in treatment at all times in the DWHE, DWPG, or the SCW glovebox system. Containers and sumps, in all locations in this area, are considered to be in treatment during absorption, decanting, and neutralization.
Box Conveyor Area (226)	Storage
Variable Geometry Door Airlock (217C)	Treatment
Suitchange (217B)	Storage
Access Corridor (232H)	Storage
Operations Area (232B)	Storage
Variable Geometry Door Airlock (220C)	Treatment
Suitchange (220B)	Storage

Table D-3. Summary of WMF-676 Treatment/Storage Areas (continued)

Area (Room/Area No.)	Comments
North Box Line (229B)	Treatment
South Box Line (228B)	Treatment
Hot Maintenance (224B)	Treatment
Box Size Reduction Area (225A)	Storage
Area 300 HEPA Filter Room (214A)	Storage

TABLE OF CONTENTS

ATTACHMENT 1.F.i

WMF-676 BOX LINE PROCESS INFORMATION

D. PROCESS INFORMATION 1

D-8 Miscellaneous Units 1

D-8a Description of Miscellaneous Units 4

D-8a(1) WMF-676 Treatment Operations 5

D-8a(1)(a) Box Lines 6

D-8a(2) Physical Characteristics 15

D-8a(2)(a) Box Lines 16

D-8a(3) Maintenance 17

D-8a(4) Monitoring 18

D-8a(5) Inspection 18

D-8a(6) Closure 18

D-8a(7) Mitigative Design and Operating Standards 18

D-8b Environmental Performance Standards for Miscellaneous Units 20

D-8b(1) Miscellaneous Unit Wastes 20

D-8b(2) Containment System 21

D-8b(3) Site Air Conditions 22

D-8b(4) Prevention of Air Emissions 22

D-8b(5) Operating Standards 23

D-8b(11) Migration of Waste Constituents 23

D-8b(12) Evaluation of Risk to Human Health and the Environment 23

LIST OF TABLES

Table D-1. Secondary MW Generation 24

D. PROCESS INFORMATION

D-8 Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23]

The box lines do not meet the definition of container, tank, surface impoundment, waste pile, land treatment, incinerator, boiler, industrial furnace, or underground injection well. Therefore, the unit is categorized as a miscellaneous treatment unit under HWMA/RCRA. These box lines are used to open, sort, separate/segregate, size-reduce, sample, and repackage waste prior to downstream treatment, as required. Additionally, liquids may be treated via decanting, absorption, or neutralization in the box lines as described in Attachment 1.A, and further defined in section D-8a(1)(a) of this Attachment. Drawings 53-0208 and 53-0209 in Appendix XII are general arrangement drawings of the box lines. A brief discussion of the MTS, which is not a miscellaneous treatment unit, is provided below as further information, since the system is important to operations, as well as to the treatment processes at WMF-676. Drawings for the box lines are located in Appendix XII, and box line MDSs can be found in Appendix XIII.

MTS

The MTS, including the CCS (in Room 147), is used to convey containers around WMF-676 in a safe and efficient manner. This overall system consists of the following systems:

- Waste box receiving and processing system: Consists of waste box import conveyor (northeast first floor), the box elevator, and the box conveyor on the second floor.
- LLW box import/export: Consists of the LLW container import/export conveyor (southeast first floor), and the LLW elevator.
- Waste drum receiving and storage system: Consists of dual, waste drum entry conveyors on the northwest end of the building, airlocks, the waste drum entry venturi, and the drum elevator to the second floor DWHE.
- CCS: Consists of a drum-handling robot, drum conveyors, and drum storage areas on the west side of the building in Room 147 and, at the north end, a drum elevator to the second floor SCW glovebox system.
- Waste drum assay system: Consists of the drum assay conveyors and a drum-handling robot (on the west central first floor).

- Waste drum fill system: Consists of drum elevators, drum-handling robots, and conveyors on the first floor underneath the box lines (placing lids onto drums containing waste, and sealing lids on drums containing waste).
- Empty drum receiving and storage system: Consists of empty-drum import conveyors (on the northeast) that feed into Room 147 via airlocks and a venturi glovebox.
- Puck drum import and export system: Consists of two sets of dual, puck drum import/export conveyors in the clean areas on the northwest end of the building (drum storage area C), a single set of dual conveyors in drum storage areas A and B, and lifts associated with the puck drum transfer ports in the post-compaction glovebox.

Generally, all container movements are controlled by software sequences initiated from the CCR. Container movements are tracked in the Operating Record through barcode readers strategically located throughout WMF-676. Software and mechanical interlocks ensure that containers are correctly routed throughout WMF-676. Container routing (waste drum receiving and storage, direct-feed drums for supercompaction, drums requiring treatment, empty containers for waste filling, and drum storage areas) prior to treatment is described below. Box routing is discussed in Section D-8a(1)(a).

Waste Drum Receiving and Storage. Drums containing waste are normally delivered through an isolation door to the parallel conveyors of the waste drum receiving and storage system at the north end of the building. At this position, a barcode reader is used to automatically record the drum identification, enabling the drum to be tracked in the Operating Record. Then, automatic control sequences initiated from the CCR begin to import the drums, which pass through another isolation door and then through an airlock. At this point, drums identified for the drum repack system and SCW, and drums for direct supercompaction are transported to their next destination via separate routes.

Direct-feed drums for supercompaction. Direct-feed drums are suitable for supercompaction without additional treatment. Direct-feed drums on the drum entry conveyor are transferred into a ventilation confinement area via the waste drum entry venturi glovebox (DZ310200 located in Appendix XIV). The outer vertical seal door of the venturi glovebox is opened, and a lidded drum is moved into the venturi airlock glovebox. The venturi airlock glovebox will hold a maximum of four drums. When the venturi airlock glovebox has four drums present, one is driven out by opening the inner seal door and conveying it into the north end

of the supercompactor infeed glovebox. From the infeed glovebox, the drum is conveyed into the suite of supercompactor gloveboxes for treatment. After compaction, pucks are loaded into puck drums at the export end of the post compaction glovebox and exported via the puck drum export conveyor. See Attachment 1.F.iii for further information on the supercompactor process.

Waste drums requiring pretreatment. Drums requiring treatment in the drum repack system or visual examination are transferred to an elevator, which lifts the drum up through an airlock to the drum repack system for processing. See Attachment 1.F.iv for a discussion of drum repack system operations. Lidded containers containing waste are transported from the drum repack system back to the first floor via an elevator. These containers are then typically directed into Room 147 (via the venturi airlock glovebox and supercompactor infeed glovebox) for transfer to the drum assay system, and subsequent transfer to the supercompactor for treatment. Non-reusable waste drums and overpack drums may be crushed in the drum repack system and exported from WMF-676.

Empty containers for waste filling. Empty containers are typically delivered to the empty drum receiving and storage system through an isolation door on the east side of the building. The drums are placed onto the empty drum receiving and storage system parallel conveyors, where a barcode reader is used to automatically record the drum identification, enabling the drum to be tracked in the Operating Record. Then, automatic control sequences initiated from the CCR begin to import the drums through another isolation door. The parallel conveyor system merges into a single conveyor line. This single conveyor transports containers through a vestibule airlock and then through the empty drum venturi airlock glovebox to Room 147. When needed, the drum is conveyed to one of two lid pick-and-place stations beneath the box lines. Here, a lid pick-and-place actuator removes the lid and sets it down onto the lid placement station. The lids are interchangeable so there is no need to track the lids or reunite them with the originating drum. When the lid is removed, a waste handling robot transfers the drum to an elevator that raises the drum to one of the import/export ports where it can be filled (DZ340299 located in Appendix XIV and DZ340324).

CCS. The CCS uses a drum handling robot (DW370006 located in Appendix XIV) to transfer containers, as follows:

- Empty containers from the empty container receiving and storage system to the waste container fill and transfer area,
- SCW transfer containers from the waste container fill area to an elevator for transfer to the second floor SCW glovebox system, and
- Assayed containers of waste to the supercompactor.

Four types of containers may be transported by the MTS. These containers are: 1) containers with lids, 2) empty containers with or without lids, 3) unlidded SCW transfer containers containing containerized waste, and 4) unlidded SCW transfer containers containing uncontainerized waste. As described in greater detail in Section D-1a(3) of Attachment 1.F, waste management areas are provided with specialty-coated curbs and floors, or equipment (e.g., spill pans, pallets, etc.) designed for secondary containment.

D-8a Description of Miscellaneous Units [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1) and 270.23(a)(2)]

Two box lines are provided to meet the process limit of 10,475 gallons per day. Boxes are the primary container type processed in the box lines; however, drums may also be processed within the box lines. Drums processed through the box lines are configured such that the material handling equipment within the box lines can handle the drums. For example, drums may be loaded into a box or drums may be banded/strapped to a pallet for processing in the box lines. All containers entering WMF-676 have barcode labels to facilitate tracking in the Operating Record. Information (coded to the labels) required for identifying, tracking, and processing the waste is recorded in the Operating Record. The information typically recorded in the Operating Record includes: IDC/waste group (WG), EPA hazardous waste numbers (HWNs), characterization information, storage and retrieval records, targeted processes, and SCW items and prohibited items (as defined in this section), if present.

Waste containers enter the box lines via a variable geometry door and airlock system. Containers are opened in the box opening area; and the contents sorted, separated/segregated, and/or size-reduced in the north or south box line using manipulators with various tools. The box lines are equipped with sampling capabilities for the rare occasions when sampling is required.

In the course of processing containers of waste, small quantities of SCW may be encountered. SCW items are placed into barcode labeled transfer containers and removed from the box lines, typically in baskets within the transfer containers. Small quantities of SCW can also exit the box line via the bagging transfer port for manual transfer to the SCW glovebox system. Only known compatible wastes (from existing characterization information) are placed together into a transfer container for delivery to the SCW glovebox system or to the DWPG. Whatever information is recorded in the Operating Record for the waste container(s) from which the SCW is extracted is applied to the SCW (i.e., the SCW is always linked to the original waste container, including its associated HWNs). Once the SCW information is entered into the Operating Record, the SCW is transferred to the appropriate SCW glovebox or to the DWPG. Free liquids, such as those encountered in the box line troughs, may be absorbed in place.

After waste management in the box lines, the waste is placed into containers and transferred to the lidding process area, and eventually to the assay cell prior to transfer to the supercompactor. Containers may be managed at any of the drum storage areas before or after assay to optimize process flow. Containers are tracked to the original containers using barcode labels and the information in the Operating Record. The required information recorded in the Operating Record for containers includes, but is not limited to: the identification of the original container(s) and related characterization information, quantity of waste removed from each waste container, applicable HWNs, analytical results and any additional waste characterization information obtained prior to treatment, and targeted treatment processes. Generally, containers are compacted along with the waste they contain and are not reused. The following section presents typical WMF-676 operations, including box line pretreatment operations, in greater detail.

D-8a(1) WMF-676 Treatment Operations [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1)]

Waste in WMF-676 is typically managed remotely within cells or gloveboxes to minimize exposure of AMWTP personnel to waste constituents. Containers within WMF-676 are managed in a manner to prevent container rupture or leakage (except during the supercompaction process, see Attachment 1.F.iii) and to minimize exposure of AMWTP personnel. The following provides a summary of the operating standards used in conducting waste activities in WMF-676:

- Wastes are identified by IDCs/WG, generator-supplied information, and RTR examination. Wastes are reviewed for IDCs/WG and hazardous constituents prior to processing at WMF-676 and at individual units within WMF-676 to ensure incompatible wastes are not co-mingled.
- All waste processing activities are performed by AMWTP personnel trained to safely conduct these activities and to respond to emergency situations.
- All waste processing activities are conducted under supervisory control and according to specific procedures.
- The containers enter WMF-676 units through a combination of elevators, conveyors, and airlocks. Containers typically remain closed until they enter the process areas. Containers for supercompaction and filled puck drums are lidded before further processing.
- No reactive (HWN D003) wastes are received at WMF-676. Waste streams potentially containing ignitable (HWN D001) wastes are processed in a manner to minimize the potential of ignition.
- The ventilation air is ultimately fed to banks of HEPA filters prior to exhausting through the main stack.
- Typically, secondary waste streams generated in WMF-676 process areas are treated within WMF-676.

These operating standards are used to prevent releases of waste constituents, which may have adverse effects on human health or the environment. An overview of typical box line operations is provided below.

D-8a(1)(a) Box Lines

Waste containers are delivered to the box lines on the second floor via the box elevator. The design of the box lines, including the box entry airlocks and the empty box size-reduction area, is provided in Drawings 53-0208 and 53-0209. Containers located within the elevator are considered to be in-process. All in-process containers will be removed from the elevator prior to the end of the shift in which the containers were placed into the elevator. If a container is not removed from the elevator prior to the end of the work shift, then the container shall be considered to be in storage. On the second floor, containers are transferred directly from the box elevator onto the box transfer conveyor where a barcode reader verifies the identity of the

container(s). The box transfer conveyor then transfers the containers up to the first box entry airlock.

Automatic control sequences from the CCR initiate the movement of containers into the box line cells using barcode confirmation that the containers are the ones expected. To import a waste container, the first set of variable geometry doors (DZ320227) at the entry of the first airlock is opened to a size just greater than the waste container, which is transferred via the box entry conveyor into the first box entry airlock. The first set of doors is closed and the second set of variable geometry doors is opened, allowing transfer of the box into the second box entry airlock via the box entry conveyor. Within the first airlock room (Room 217C), bolts, rings, or clips are removed from certain container types, as required.

Within the second box entry airlock, the lids of boxes are cut open, as required, using cutting tools deployed from an overhead gantry system (DM-320-200). The cutting tool deployment system provides the versatility to make different cutting patterns (depending on the needs for a particular box) that result in the formation of a removable lid, which is retained in position on the box. Alternatively, the lid of a box may be cut with the overhead power manipulator (DQ340201), which is located in the box lines, using various tools. The tools utilized for cutting the lid of a box are chosen depending upon the particular needs of a given box. Tools utilized with the overhead power manipulator (DQ340201) may be equipped with a fire detection/suppression system as required by NFPA standards.

With the second set of doors closed and the third set of variable geometry doors opened, the container (with retained lid) is conveyed from the second box entry airlock to the lid removal area, and then to either the south or the north box line. A sufficient air velocity is maintained between the variable geometry doors and the waste container to control back diffusion. The three sets of doors are interlocked to maintain ventilation containment. Depending on characterization data (e.g., RTR), the container is transferred to either the north box line (typically, for routine management) or the south box line (for routine or specialized management).

The lid is removed at the lid removal station located within the north box line area. Alternatively, the lid can be removed within the north or south box line using a manipulator.

The lid is lowered onto the conveyor for transfer to the box size-reduction area, or it is temporarily placed within the north or south box lines (e.g., park position, trough, etc.) for later transfer to the box size-reduction area. Any box lid that is placed within the north or south box lines must undergo a hazardous waste determination before being sent to the box shredder. A conveyor transfer device conveys the de-lidded container off the box transfer conveyor onto a tipping carriage, parked in a box clamping frame (DQ340240). With the de-lidded container in position within the tipping carriage, actuators power the clamping frame mechanism, securing the container within the carriage. The waste handling crane (DQ340206), complete with a modified ramshorn hook and carriage lifting fixture, lifts the tipping carriage/de-lidded container, and transfers it to the designated tipping station. Two tipping stations are located in each box line. Trunnions, cylindrical projections for pivot points, located on each side of the tipping frame, engage the rotation drive shafts that are located on hydraulically powered tipping yokes (stands). Powered actuators tip the container toward the waste sort trough, allowing the contents to fall into the waste sort trough. The clamping frame/tipping carriage is remotely operated from control stations outside the box lines by AMWTP personnel viewing directly through windows or via the closed circuit television (CCTV) system.

AMWTP personnel can observe the inside of the container(s) from an elevated local control station above the manipulator tool change station or by the CCTV system. When empty, the container(s) in the carriage is raised clear of the tipping yokes and returned to the clamping station. The two actuators then reverse the clamp beam, freeing the “HWMA/RCRA-empty container(s)” [per IDAPA 58.01.05.005 (40 CFR 261.7)] for return to the box entry conveyor via the box conveyor transfer device. Here, a container may be reunited with its lid and then transferred via the entry conveyor to the box size-reduction area for breakdown and export as LLW (Drawing 53-0209). The box shredder may also have a fire detection/suppression system and/or a dust control system.

In the box lines, waste sorting, separating/segregating, and size-reduction activities are achieved remotely using various manipulators [i.e., overhead power manipulator (DQ340201), master slave manipulator (DQ340202), floor mounted hydraulic manipulator (DQ340225)] and various tools. Typically, the floor mounted manipulator is used to sort and size waste and to load waste into containers docked at the waste export port doors that are set into the floor of the

trough (i.e., waste export stations). The edges of the port doors are beveled, allowing waste to be loaded into docked drums while serving to contain at least 55 gal of liquid in the trough. The south box line is equipped with a guillotine (DQ340220) for special size-reduction tasks. A filter crushing machine (DQ330221) is an optional tool that may be installed for size-reduction.

The waste export stations are used for filling containers. Empty containers are routed to drum elevators on the first floor directly below the waste export stations. Elevators lift the containers to the underside of the waste export stations. At the sort tables and off-line waste processing station, size-reduced/sorted waste items are transferred from the waste container/tables into the containers using manipulators. Filled drums cannot be removed unless the port door is closed. The port door control system prevents the transfer of an overfilled container; thus, preventing uncontainerized items from entering the drum transfer areas below the box lines. See the MDSs for an enlarged view of transfer drum location. When filled, the containers are lowered and routed by the MTS to downstream treatment processes, including a lidding station.

Free liquids are not expected to be present in waste containers. However, if RTR indicates free liquid (or inner containers of liquid) is present in a waste container, the container is typically processed at the off-line box processing station, which is discussed below in the Specialty Items section. In the case where free liquid is present in a sort trough, it is collected using a portable sump pump (DP340201) or cleaned up using other means, such as the addition of an absorbent. Liquid collected by the sump pump is transferred into an appropriately labeled container and deposited into a SCW transfer container at an export station or is bagged-out at the bag-out port. Information relating containers of liquid (i.e., SCW) to the original waste container(s) is entered into the Operating Record.

Liquid remaining in the sump may be absorbed and/or neutralized. Liquids decanted from containers, collected using sump pumps or other means, and containerized free liquids are transferred to the SCW glovebox system or to the DWPG for further treatment, as required. Liquids in the containers or troughs may be absorbed.

AMWTP personnel control the primary size-reduction tool, the floor mounted hydraulic manipulator, from an elevated local control station above the manipulator tool change station.

From this location the manipulator operator has maximum visibility of the process areas through observation windows and the CCTV system.

Direct visual observation and/or a CCTV camera positioned above the waste sort trough are used to view the contents of the trough and to identify items with special removal and/or management requirements (sheet materials, heavy items, glass bottles with liquids, etc.). Depending on the type and size of waste in the trough, the following operations are performed in the box lines. See Drawings 53-0208 and 53-0209 for additional views of the box lines.

Suitable size/weight items. Waste items with a suitable size and weight to fit into containers are transferred by manipulators directly into a container via a waste export station port [DZ340299 (located in Appendix XIV) and DZ340322]. A waste precompaction mechanism (DZ340335), in addition to manipulators with various tools, may be one of the items used to increase the waste packing efficiency of sorted waste inside containers destined for supercompaction. Baskets of SCW are either placed directly into a docked transfer container, or are located in the sort trough and later placed into a transfer container at an available export station port. The baskets can also be left in the transfer container, and the SCW placed into the basket while it is in the transfer container.

Waste drums. Drums in a box, undergoing processing in a box line, may be tipped out into the sort trough and opened using manipulators and tools, and the waste sorted and separated as described above. Drums may also be clamped/strapped in an appropriate transfer device (e.g., pallet, box) such that the waste is transferred to the waste sort troughs and the drum remains attached to the transfer device. The “HWMA/RCRA-empty drums” can then be transferred to the box-size reduction area for breakdown and export as LLW. If a drum enters a waste sort trough, then the drum shall be processed as MW. Drums can also be transferred via the south box line through the drum import/export port door (DZ340299 located in Appendix XIV) to be assayed or processed in the drum repack system, followed by either supercompaction or export from WMF-676.

Bulky waste items. Bulky items, such as sheet materials, piping, or filters are size-reduced. Depending on their size and shape, waste items are either size-reduced, using a manipulator and tools, a filter crushing machine (DQ330221), which may be located in the north

box line, or other appropriate size reducing equipment. Heavy-gauge, long, items may be size-reduced using a guillotine (DQ340220) located in the south box line. The guillotine is located next to the south box line waste sort trough, which receives the size-reduced items and is within reach of various manipulators. Size-reduced waste is then transferred into an appropriate waste export port/container using a manipulator.

Heavy waste items. Heavy items too large to fit into a container are size-reduced and placed into containers docked at one of the waste export station ports. The exceptionally heavy items may be size reduced remotely using various types of equipment or manually, as determined on a case-by-case basis.

Sorted waste in containers. Sorted waste within containers is visually checked to monitor the container fill level. When a container is determined to be adequately filled, the cover is put in place. If the drum is overfilled, excess waste may be removed by a manipulator, or the precompaction mechanism (DZ340335) or a manipulator with various tools may be used to reduce the waste volume enough to allow the cover to be put in place. When filled with the desired amount of waste, the container is lowered to the first floor to receive a lid. The drum/lid is then conveyed to the drum lidding station where the lid is sealed onto the drum (W-345-011). From there, the drum is routed by the MTS to the drum assay cell or to a storage area.

Specialty items. If RTR or other information indicates a container contains waste requiring special handling, the container is typically processed at the off-line box processing station in the west part of the south box line. Examples of waste requiring special handling include some SCW, prohibited waste, waste deemed unsuitable for tipping into the sort troughs, or waste deemed unsuitable for handling by the floor mounted hydraulic manipulator (e.g., containerized liquids, fragile items which may be damaged by tipping, etc.). At the off-line station, the box tipping carriage is positioned in yokes and inclined towards the operating window, in view of AMWTP personnel. With the assistance of manipulators and appropriate tools, AMWTP personnel process the waste as needed and transfer it to a drum docked at one of the two export ports at the waste export table. After removal of the specialty waste, the container and carriage can be repositioned at the waste sort trough and tipped for normal processing.

Dissimilar Items. In the course of processing containers of waste, waste items may be encountered that are operationally desirable to separate from the waste being placed into the drums located under the box lines. These dissimilar items may be set aside in the troughs or in containers until AMWTP personnel determine that the item(s) may re-enter processing. These items will be removed from the box line, at a minimum of every 30 calendar days, typically when a criticality clean out occurs. If the dissimilar item can not be processed within the 30 calendar days, the continued treatment is handled on a case-by-case basis in consultation with the DEQ. In general, the items would be from a WG other than the primary WG being retrieved from a container. For example, if a piece of metal is found while processing PPE, the metal may be set aside until additional waste is found which can be processed along with the metal. Waste items are not mixed unless compatibility determinations or process knowledge indicate that the items are compatible.

Oversized Items. In the course of processing containers of waste, waste items may be encountered that can not be easily treated with the existing box line equipment without undue potential of damage to the equipment. Oversized items may either be items that are physically too large to be treated with the existing equipment located in the box lines, or have physical characteristics (e.g., density, hardness, etc.) that are outside of the design specifications for the existing equipment located within the box lines. Examples of oversized items include hardened metals, milling tables, large diameter solid bars, etc. In order to efficiently manage these types of waste, the waste may either be transferred to the Hot Maintenance area for physical sizing, as discussed later, or the waste may be exported out of WMF-676. One way that oversized items may be exported from WMF-676 is through the box shredder export port.

Once an oversized item is designated for export through the box shredder export port, a visual examination is performed to ensure that no free liquids are present on or within the oversized item. Previous RTR data may be reviewed to verify that free liquids are not contained within an oversized item. AMWTP personnel then place the oversized item into a transfer bag (e.g., polyethylene bag, tightly woven bag, etc.) in preparation for exporting. The oversized item may be placed into the transfer bag either within the box lines or within the box size reduction area. The transfer bag is secured such that any loose contamination is contained within the transfer bag during the exporting process. Prior to placing the oversized item into a transfer bag,

the oversized item may be staged in the box lines for a maximum of 30 calendar days. If the oversized item can not be processed within the 30 calendar days, then each oversized item is managed on a case-by-case basis in consultation with the DEQ.

Once the oversized item has been secured within a transfer bag, the oversized item is moved to the box shredder export port, where sacrificial slings/rigging materials are attached to the oversized item. AMWTP personnel perform a visual examination to ensure that there are no breaches/tears in the transfer bag, and that there is no visual evidence (e.g., staining) of MW contamination on the outside of the transfer bag. The box shredder export port cover is then removed, and a the oversized item is lowered through the export port via a crane into a LLW export box located in the LLW container import/export area below the box size reduction area. The box shredder export port cover is then replaced onto the export port.

Prior to loading the oversized item into a LLW export box, an empty container is typically shredded and placed into the LLW export box. Prior to disengaging a LLW export box with an oversized item from the box shredder export port, additional empty containers may be shredded and added to the LLW export box to fill the void space of the LLW export box. Once a LLW export box with an oversized item is adequately filled with shredded material, the LLW export box is disengaged from the box shredder export box and a lid is secured to the LLW export box. All LLW export boxes with oversized items are managed as MW, and are labeled with a hazardous waste label.

Prohibited Waste. Prohibited waste (e.g., DOT Class 1 Explosives, see WMF-676 and Box Line WAC in Attachment 2) is identified either in the waste characterization records or through prior RTR analysis and is not knowingly accepted into WMF-676. Any prohibited items that are unknowingly received in WMF-676 are segregated, packaged for removal, and returned to the generator, DOE, or other MWMU as appropriate.

Items Requiring Attention. Waste containers containing unknown waste items (compressed gas cylinders, small inner containers, etc.) that can potentially be treated within WMF-676 are handled on a case-by-case basis. Waste items that cannot be treated in WMF-676, but are acceptable for receipt and sorting are retrieved from waste containers and transferred to

containers/baskets pre-labeled with barcodes. Further information regarding the disposition of the prohibited waste is provided in Attachment 1.F.ii.

Empty Containers. Visual observation via windows and/or a CCTV system is used to determine if a container meets the requirements of a "HWMA/RCRA empty container" as stipulated in IDAPA 58.01.05.005 (40 CFR 261.7). Containers which have been determined to be "HWMA/RCRA empty" are transferred to the box size reduction area for export from WMF-676. Containers which do not meet the HWMA/RCRA-empty container requirements will be managed as MW.

If a container contains an acute HWN, then the container will be processed as MW, unless the container has a liner which can be removed. If a container does contain a liner, then the liner may be removed and processed as MW such that the container meets the definition of a "HWMA/RCRA empty" container as defined by IDAPA 58.01.05.005 (40 CFR 261.7).

When visual observation through windows and/or the CCTV system shows that all wastes that can be reasonably removed have been removed, the container is classified as an "empty container" in accordance with HWMA/RCRA (IDAPA 58.01.05.005, 40 CFR 261.7) and is transferred to the box size-reduction area for export from WMF-676.

Waste Sort Trough Decontamination. Between waste campaigns, it may be desirable to decontaminate a waste sort trough and its associated equipment, such that EPA HWNs are not carried over from one waste stream to the next. In order to achieve decontamination of a waste sort trough and any associated equipment, AMWTP personnel shall clean the waste sort trough and the appropriate equipment to meet the clean debris surface standard specified at IDAPA 58.01.05.011 (40 CFR 268.45). A clean debris surface means that the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area. Typical methods used to clean a waste sort trough and its associated equipment includes washing, rinsing, and spraying technologies. Inspections to

determine if the surfaces of the waste sort trough and the associated equipment meet the clean debris surface standard will not be performed remotely or by video camera.

Physical Sizing in Hot Maintenance. In the course of processing various waste streams in the box lines, various waste items may be encountered that are operationally undesirable to process with the box line equipment. Examples of such waste items include hardened metals, waste items that are physically too large for the box line equipment, and waste items that cause excessive wear and tear on the box line equipment during treatment. In order to treat these waste items, the waste may be transferred to Hot Maintenance (room 224B) for physical sizing. The Hot Maintenance area contains portable equipment to physically size waste items such that the waste may be processed in the supercompactor or exported from WMF-676. Waste items may be uncontainerized in the Hot Maintenance area for a total of 45 calendar days. If physical sizing of waste within the Hot Maintenance area can not be accomplished within the 45 calendar days, the continued treatment is handled on a case-by-case basis in consultation with the DEQ.

D-8a(2) Physical Characteristics [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1)]

Location of Box Lines

Handling of boxed waste within WMF-676 occurs in the box lines. The box line areas are located centrally on the second floor of the building; above the drum transfer areas on the first floor (Appendix VII, Drawing 53-0201). Each box line occupies an area of about 70-ft by 20-ft.

Description of Construction Materials

In areas such as the material transfer areas on the first floor and the box line areas on the second floor, the floors, ceilings, and walls are typically constructed of cast-in-place steel-reinforced concrete to meet equipment loading and seismic design requirements. The walls and floors are typically finished to a smooth surface with specialty coatings applied to prevent the migration of contaminants and facilitate decontamination.

D-8a(2)(a) Box Lines

The box opening area has specialty-coated curbs and floors to provide secondary containment. The concrete floors, ceilings, and walls are coated with the specialty coatings described in Appendix XI. On the first floor, the box line areas include the import conveyor and box elevator. On the second floor, box line areas include the box entry airlock, the box opening area airlock, box line cells, manipulator operations corridors, and the empty box size-reduction area. Drawing 53-0209 provides a detailed view of the second floor areas of both box lines. Major items are described below, with the dimensions and materials of construction provided for primary components.

Box tipping carriage with integral clamping frame (DQ340240). The box tipping carriage with integral frame supports and transfers waste boxes during box emptying activities. The tipping carriage and clamping frame units are constructed of primarily stainless steel with some painted carbon steel and neoprene rubber. Its overall dimensions are approximately 12-ft long by 6-ft wide.

Waste size-reduction area (DZ340322). In the waste sort troughs, waste items are size-reduced and transferred into containers docked at one of the waste export station ports. The area is capable of withstanding impact loading, and the export ports in the waste troughs are beveled, allowing waste to be loaded into docked drums while serving to contain at least 55 gal of liquid in the trough. The waste sort troughs are constructed of heavy gauge stainless steel plate. Roughly L-shaped (from the top), the largest horizontal and vertical dimensions of the sort troughs are approximately 17-ft 10-in. long by 17-ft 5-in. wide. The troughs are about 2-ft 6 -in. deep to limit migration of debris into the rest of the cell. Each trough contains two export ports.

Waste export stations (DZ340203, DZ340324). There are five waste export stations, with a total of 12 waste export ports. Three of the stations are associated with the waste sort troughs (six ports); two stations in the south box line are associated with waste export tables (four ports); a single-port station is located in the north box line west, and another single port is sited at the drum import/export station in the south box line. These two single port stations are generally used to export SCW.

The other waste export stations can accept either SCW (typically in baskets) or waste destined for supercompaction. The stations are fabricated from stainless steel and painted carbon steel. The approximate dimensions for the waste export tables, including the waste export stations, are approximately 11-ft long by 4-ft wide (east waste export table) and approximately 12-ft long by 4-ft wide (west waste export table). In addition, the drum import/export port door (DZ340299 located in Appendix XIV) in the south box line allows 55-gal drums to be lowered through the port for delivery by the MTS below.

Tool Change Stations. Tool change stations are provided to allow cutting tools to be changed and maintained via gloveports. Each station also includes a bagging port, which allows new tools to be imported into each box line cell and various tools to be exported for maintenance in the hot maintenance area (Appendix VII, Drawing 53-0207). Waste tools and bagging material are fed into the appropriate waste stream.

D-8a(3) Maintenance

Standardized maintenance procedures are utilized for WMF-676 equipment, cells, and gloveboxes. Modular units (such as manipulators) are typically maintained/repaired in designated areas near where they are used, or they can be removed from the area on failure and taken to the contaminated maintenance cell for repair. Any failed or uneconomical-to-repair components originating from within the higher contamination areas (e.g., waste tools used in box lines or gloveboxes) are exported from WMF-676 by addition to the appropriate waste stream. Replacement tools are imported through bagging ports or directly in a container. Mounted gloves are checked for wear and tear and replaced as necessary. Gloveports are generally fabricated from stainless steel; but, where used, plastic gloveports are examined for integrity regularly and repaired or replaced as needed. Maintenance and testing is performed on all equipment in accordance with Attachment 4. All WMF-676 process areas are maintained in a manner to minimize the accumulation of waste. For example, process areas are visually inspected and routinely cleaned using the manipulators and cleaning tools/wipes, at a minimum, between incompatible waste treatment sequences. If compatibility assessments show incompatibilities exist between IDCs from consecutive waste sequences, the process areas are visually inspected and cleaned before introducing the incompatible waste stream. All cleaning activities, including any clean up/removal of liquid spills, are recorded in the operating log.

Routine decontamination requiring AMWTP personnel to enter cells is kept to a minimum (for example, most areas within cells are accessible by the manipulators).

D-8a(4) Monitoring

Radiological monitoring is conducted at WMF-676 using both radiological monitoring equipment with alarms and routine radiological surveys.

AMWTP personnel visually monitor waste management operations continually through observation windows or the CCTV system. In addition, AMWTP personnel are required to record, in logbooks, unusual events that occur during their shift in accordance with operational procedures.

The differential pressure across the HEPA filters is monitored as an indication of HEPA filter integrity and particulate loading. See Section D of Attachment 1.F for a discussion of the WMF-676 ventilation system.

D-8a(5) Inspection

Attachment 4 contains the inspection requirements and schedules for the box lines.

D-8a(6) Closure

Closure of the pretreatment lines is addressed in Attachment 8.E.

D-8a(7) Mitigative Design and Operating Standards

The waste management areas and associated equipment are designed and operated in a manner to reduce the risk of releasing waste to the environment. Penetrations to cells and gloveboxes are maintained by engineered controls, such as airlocks, bagless transfer mechanisms, and bag ports. Specific design features that reduce the risk of exposure to AMWTP personnel and the environment are explained below.

Containers provide primary containment until opened in WMF-676. Within WMF-676, the cell structures (including the waste sort troughs, opened box/box transfer carriage, and secondary containment system) provide various levels of containment for uncontainerized waste.

Typically, these items are fabricated from stainless steel and/or painted carbon steel and also include liquid containment considerations (e.g., beveled edges on export ports), as discussed previously.

The cells surrounding WMF-676 equipment provide additional containment for waste handling activities. See Section D-8b(2) for details on containment systems. As discussed in Attachment 1.F, various process areas are operated at lower pressures than surrounding areas to prevent the spread of airborne contamination between zones.

Venturi Airlock Glovebox

A venturi airlock system is used for drum feed into the supercompaction process area and Room 147 on the first floor. A second venturi system, provided mainly for empty drum entry, feeds drums to Room 147. Air velocities and extract air volumes are maintained to minimize air movement (contamination) across the venturi airlock/drum transfer cell boundary.

MTS

The MTS is used to deliver containers to various locations within WMF-676. Typically, containers containing waste are unlidded only while en route to the lidding area. Liquids collected in various areas of WMF-676 are placed into containers. The containers are then lidded and placed into transfer containers before they are delivered to the SCW glovebox system or DWPG by the MTS. These transfer containers are typically not lidded, as they function as secondary containment, during transport, while the lidded waste container, within the transfer container, is the primary containment (see Table D-3 Room 126C in Attachment 1.F for additional information). The MTS cells provide spill containment via specialty-coated walls and flooring. See Section D-8b(2) for details on containment systems.

Box Line Specific Mitigative Design and Operating Standards

The box line airlock system consists of two sections (Drawing 53-0208). This system controls air movement between the ventilation confinement areas. Variable geometry doors (DZ320227) minimize air movements during box entry by opening just enough to allow a waste

container to pass through into a box pretreatment cell. Sufficient air velocity is maintained between the variable geometry doors and the waste container to control back diffusion.

The waste filling ports at the waste export stations in the box lines provide ventilation restrictions between the box line cells above and the drum transfer cells below. Open containers are lifted by elevators in the drum transfer cell on the first floor and dock against the underside of the waste export stations of the box lines on the second floor. [MDS DQ340202 shows the Master Slave Manipulator. MDSs DZ340203 and DZ340324 show the waste export tables. MDS DZ340299 (located in Appendix XIV) shows the drum import/export port door.] Since both areas are "in-process" areas, the drums are left open until appropriately filled and lidded. Although sorted waste without liquids is the only waste (except for small quantities of SCW) typically transferred via this route, the specialty-coated walls and floors of the drum transfer cells below (on the first floor) provide spill containment.

The bag transfer port at the tool change station is used for transferring tools into, and may be used for exporting small prohibited waste items out of the box line, via a sealed container (bag), while maintaining contamination control.

D-8b Environmental Performance Standards for Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23(c)]

The WMF-676 miscellaneous units are located, designed, and operated in a manner to preclude the release of waste constituents that may have adverse effects on human health or the environment. The following sections describe the potential pathways for release of waste; the potential impact of such releases; the design features that minimize potential risks; and the design and operating procedures at the miscellaneous units that minimize the potential for a release of wastes during pretreatment.

D-8b(1) Miscellaneous Unit Wastes [IDAPA 58.01.05.008; 40 CFR 264.601(a)(1), (b)(1), (c)(1), and 264 Subpart I through O and AA]

The wastes that are handled inside the miscellaneous units of WMF-676 are addressed in Attachment 2.

This section identifies the secondary MWs that are generated during WMF-676 operations and outlines the strategy for managing liquid and solid MW generated at WMF-676.

Waste Minimization

The design and operational intent of WMF-676 is to minimize waste generation, consistent with safe and effective operations. This operation is achieved primarily by maximizing the modular design of equipment to aid the reuse of items, as appropriate, and minimizing the use of swabs and rags for clean up operations to avoid generating wastes.

Secondary Waste Categories from Pretreatment and Treatment Areas

Secondary MWs are generated during the normal operation of the pretreatment and treatment areas, and include:

- Contaminated sampling equipment,
- HEPA filters and local (box opening area) air extraction system filter bags/dust,
- Rags and swabs used to clean and decontaminate equipment that directly contact waste,
- Contaminated PPE, and
- Waste tools and failed equipment that directly contact waste.

A description of the secondary MW generated from waste management activities has been developed, and is provided in Table D-1.

D-8b(2) Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(b)(2) and 270.23(a)(2)]

WMF-676 is a completely enclosed waste treatment and storage plant designed for radiological and hazardous constituent containment. Only containment systems for hazardous constituents are addressed in this section. WMF-676 waste management areas are located inside designated ventilation confinement areas, which preclude the introduction of precipitation and any resultant run-on or run-off. See Section D of Attachment 1.F and Appendices IX and XI for a description of building structures, including walls, floors, specialty coatings, and secondary

containment analysis and drawings. See Section D-1a(3) of Attachment 1.F for further information on the secondary containment system.

Box Line Specific Containment System

The box lines contain special features to provide MW containment. The waste sort troughs, constructed of heavy gauge stainless steel plate, are about 2.5-ft deep to limit migration of debris into the rest of the cell. Liquid collection devices [such as sloped curbed areas, portable sump pumps (DP340201), and beveled port openings] are provided at the waste sort troughs and the waste export tables (DZ340203, DZ340322, and DZ340324).

Filter Systems. A local dust extraction unit is provided in the box opening area. The unit is designed to extract material (e.g., sawdust) from the box lid cutting tool(s) and discharge it into a container. The extract unit is fitted with a fire detection/suppression system for the collection container.

D-8b(3) Site Air Conditions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(4) and (5) and 270.23(a)(2)]

Topographic, meteorological, and atmospheric conditions around WMF-676 and the impact of WMF-676 emissions on the environment are addressed in the "AMWTF Permit to Construct an Air Pollution Emitting Source at the Idaho National Engineering and Environmental Laboratory," Permit Number 023-000001, current version.

D-8b(4) Prevention of Air Emissions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(2) and 270.23(a)(2)]

When waste containers are pretreated (opened, sorted, separated/segregated, and size-reduced), stored, transported, and treated in the WMF-676 miscellaneous units, there is a potential for the release of particulate matter and organic chemical or mercury vapors into the cell. Particulate, gaseous, or aerosol emissions to the atmosphere are mitigated by the ventilation control system. Emissions from the waste management areas flow through HEPA filtration prior to being released to the atmosphere via the main stack, as discussed in Attachment 1.F.

D-8b(5) Operating Standards [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(3) and 270.23(a)(2)]

Air emissions from the WMF-676 waste management units occur as part of normal operations. These emissions are controlled by the ventilation control system described in Section D of Attachment 1.F. Section D-8a(4) discusses the monitoring that is performed. Section D-8a(7) describes the procedures and design features that are used to reduce the potential of a spill or other problems.

D-8b(11) Migration of Waste Constituents [IDAPA 58.01.05.008; 40 CFR 264.601(a)(7)]

The release of MW from the WMF-676 waste management units into subsurface physical structures, the environment, or the root zone of food chain crops is not expected to occur. Should a leak or spill occur, the released waste would be contained inside the containment cells and WMF-676. The released waste would be prevented from coming in contact with soil, thus precluding migration of wastes into the subsurface or groundwater.

D-8b(12) Evaluation of Risk to Human Health and the Environment [IDAPA 58.01.05.008; 40 CFR 264.601(a)(8) and (9), 264.601(b)(10) and (11), and 264.601(c)(6) and (7)]

The waste management units are located within WMF-676, a fully enclosed building. There are no discharges or releases of MW to the soil, surface water, or groundwater. The building is constructed to ensure containment of any solid or liquid waste spills. Any leaks that might occur are contained within the containment cells and WMF-676. Furthermore, MW in the pretreatment lines is transferred to other areas for treatment, and the resultant final waste forms are ultimately transported out of WMF-676.

In summary, the WMF-676 waste management processes have been designed to ensure compliance with the requirements of HWMA/RCRA regulations. No adverse impacts to human health or the environment are projected to be associated with the release of waste to the atmosphere from WMF-676. Additional evaluations of risk to humans and the environment are provided in the “AMWTF Permit to Construct an Air Pollution Emitting Source at the Idaho National Engineering and Environmental Laboratory,” Permit Number 023-000001, current version.

Table D-1. Secondary MW Generation

Waste Description	Source
Rags and swabs	Used to decontaminate the equipment that contacts waste
Waste tools, failed items, used gloves, sampling equipment, PPE	Failed cutting tools, failed equipment, glovebox gloves, and sampling equipment that contacts waste
HEPA filters	Zone 3 air extraction system
Liquids	From supercompaction
Local extraction unit dust	Local dust extraction unit in the box opening area

DRS = drum repack system

SC = supercompaction

SCW = Special Case Waste

TABLE OF CONTENTS

ATTACHMENT 1.F.ii

WMF-676 SPECIAL CASE WASTE PROCESS INFORMATION

D. PROCESS INFORMATION 1
D-8 Miscellaneous Units 1
D-8a Description of Miscellaneous Units 1
D-8a(1) Treatment Operations 1
D-8a(1)(a) SCW Glovebox System Process Description 1
D-8a(2) Physical Characteristics 8
D-8a(2)(a) SCW Glovebox System Physical Characteristics 8
D-8a(3) Maintenance 9
D-8a(4) Monitoring 10
D-8a(5) Inspection 10
D-8a(6) Closure 10
D-8a(7) Mitigative Design and Operating Standards 10
D-8b Environmental Performance Standards for Miscellaneous Units 10
D-8b(1) Miscellaneous Unit Wastes 10
D-8b(2) Containment System 10
D-8b(3) Site Air Conditions 11
D-8b(4) Prevention of Air Emissions 11
D-8b(5) Operating Standards 11
D-8b(11) Migration of Waste Constituents 11
D-8b(12) Evaluation of Risk to Human Health and the Environment 11

D. PROCESS INFORMATION

D-8 Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23]

The SCW glovebox system (i.e., transfer glovebox, treatment glovebox, sampling glovebox, and container-in-container glovebox) does not meet the definition of container, tank, surface impoundment, waste pile, land treatment, incinerator, boiler, industrial furnace, or underground injection well. Therefore, this unit is categorized as a miscellaneous treatment unit under HWMA/RCRA. See Appendix VII, Drawings 53-0201 and 53-0207 for the general arrangements of the first and second floors of WMF-676. Drawings/Exhibits for the SCW glovebox system are located in Appendix XV and SCW glovebox system MDSs can be found in Appendix XVI.

D-8a Description of Miscellaneous Units [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1) and 270.23(a)(2)]

This section describes the SCW glovebox system located at WMF-676.

SCW Glovebox System

The SCW glovebox system provides the capabilities to treat SCW items, on a case-by-case basis.

D-8a(1) Treatment Operations [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1)]

See Section D-8a(1) of Attachment 1.F.i for a discussion of operating standards used in conducting treatment activities at WMF-676.

D-8a(1)(a) SCW Glovebox System Process Description

The SCW glovebox system is located in Room 236 of WMF-676 (Drawing 53-9744) in close proximity to the drum repack system. See Attachment 1.F.iv for further information on the drum repack system. The SCW glovebox system is composed of four gloveboxes: the transfer glovebox, treatment glovebox, sampling glovebox, and the container-in-container glovebox. See

Appendix XV drawings/exhibits for more information on the location and design of the SCW glovebox system. See Drawing 53-0207 in Appendix VII for a general arrangement of the SCW/drum repack system area.

SCW. The SCW glovebox system is designed for the sampling and treating of SCW from waste containers and residual liquids recovered from the box lines, drum repack system, and the supercompactor. The gloveboxes are also designed for sampling container-in-container (i.e., small container originating from a larger container) waste. Waste streams that may require processing in the SCW gloveboxes on an irregular basis may include pressurized containers requiring venting, elemental mercury, and miscellaneous items (e.g., wet cell batteries, valves, pumps, and similar fluid-containing devices). Additionally, some waste may be delivered to the SCW glovebox system that does not meet the WAC for the SCW glovebox system. These prohibited items are identified as such and returned to the appropriate authority, typically DOE-ID, and are documented in the Operating Record. Unknown waste may also be received at the SCW glovebox system. Unknown waste will be managed as described in Attachment 6.

SCW Receipt/Transfer. Waste enters the SCW glovebox system from three primary locations: the box line area, the supercompactor (recovered liquids), and the drum repack system. SCW items removed from waste containers in the box lines are either labeled with barcodes or placed into barcode-labeled containers. Whatever information is recorded in the Operating Record for the waste container(s) present during the extraction of SCW items is applied to the SCW items. The type of information entered into the Operating Record includes: the identification of the original waste container(s) and waste characterization information, IDCs/WGs, approximate quantity of SCW removed from each waste container, applicable HWNs, additional characterization or process knowledge obtained prior to treatment, and targeted treatment processes. SCW items are typically transferred into the SCW glovebox system in transfer baskets (placed inside transfer containers) via the MTS/Room 147 and elevator, which interfaces with the SCW transfer glovebox. From the elevator enclosure, containers are moved into the transfer glovebox through an airlock. At this point, a hoist is used to retrieve the transfer basket from the transfer container and move it to a set down area, where individual SCW items can be removed and identified.

Liquid from the supercompactor, box lines, and drum repack system may be absorbed in the process areas or may be transferred to the SCW glovebox system by first placing the liquid into a labeled container and then manually transferring the container to the appropriate glovebox (e.g., treatment glovebox, sampling glovebox) and importing it via a bag port. SCW items from the box lines may be manually transferred to the SCW glovebox system via bag ports (depending on size and quantities); however, the typical route is via transfer containers and the MTS/CCS. SCW items removed from the drum repack system are manually transferred to the SCW glovebox system and imported via a bag port. During the transfer, a barcode label is attached to the item, if required.

Once inside the glovebox, SCW items are first identified using the barcode label. Barcode identities are assigned to SCW items not previously labeled in the box lines, if necessary. For example, barcode-labeled transfer containers from the box lines may contain unlabeled SCW items from a single IDC/WG or container. The barcoded transfer container is used for tracking the SCW items only until received at the SCW glovebox system. At the SCW glovebox system, the individual items are unloaded from the transfer container and placed (as is) into individual, barcoded trays. These trays are used for tracking within the SCW glovebox system. After all containers/items have been identified and assigned a barcode (if required), the exterior of the items are visually examined for clues verifying or identifying their contents. This is especially critical for containers containing unknown wastes. SCW items (in their trays) are then transferred to the various gloveboxes that constitute the SCW glovebox system where further characterization, sampling, and treatment activities may be performed. A description of each type of waste, its sampling/treatment schedule, and the general waste flow is described below.

Liquids. Typically, containerized liquids are sampled and treated within the SCW glovebox system. These liquids normally come from the box line waste sorting areas, supercompactor, and the drum repack system, but may also be WMF-676 generated secondary waste (e.g., cleaning liquids, supercompactor hydraulic fluids, etc.). Wastes with liquids are initially moved to the sampling glovebox for appropriate sampling and determination of appropriate treatment techniques. The treatment available for liquids includes decanting, neutralization, or absorption as described in Section D of Attachment 1.A. In addition to the

decanting process described in Section D of Attachment 1.A, pouring of liquids in the SCW gloveboxes may occur. Pouring of liquids may occur to separate multiple-phase waste or transfer waste into a different container.

Additionally, treatment of SCW containers of elemental mercury or sludges [i.e., SI/SO/salt waste (SW)] is available. In these cases, the liquids are separated from the mercury or sludge by decanting. The separated components are then treated according to the waste type. See Appendix XV for process flow diagrams for liquids.

Liquids are tested or sampled in the sampling glovebox, using simple sampling tools. The sample is placed into a barcoded sample container, and the waste container is stored within the SCW glovebox system while awaiting sample analysis results. The sample containers are removed from the sampling glovebox via the bag port.

Once removed from the sampling glovebox, sample containers are sent to an on- or off-Site laboratory for analysis. Samples may be analyzed for corrosivity, VOCs, semi-volatile organic compounds (SVOCs), metals, PCBs, waste characterization for IDC/WG verification, and treatment method, as required. Based upon process knowledge and/or the sampling results, an appropriate treatment plan is selected. The following presents specific information on the treatment processes for liquids conducted in the SCW treatment glovebox.

Mercury. Containers of mercury that show evidence of a second phase are first decanted in order to separate the liquid from the mercury. The mercury portion is then treated by absorption, and the non-mercury phase liquid is sampled, if necessary, and treated as described previously. Containers of mercury that show no evidence of a second phase, either initially or after decanting, are mixed with the appropriate absorbent in accordance with approved procedures. Examples of absorbent include zinc or sulfur with a small amount of surfactant. The general steps that are used in the mercury absorption/treatment process are:

- The volume of waste to be treated is measured.
- The amount of appropriate absorbent is measured.
- The absorbent is added to the elemental mercury.
- The absorbent and elemental mercury are mixed.

- Treated elemental mercury is visually inspected for signs of free liquid. If no free liquid is present, the treatment is considered successful.
- If the absorption is not effective, an evaluation is conducted. If insufficient absorbent was used, the process may be repeated with additional absorbent.

The steps outlined in the treatment procedures listed above are repeated no more than three consecutive times for any given batch of elemental mercury. If a treatment is unsuccessful after three attempts, the adequacy of the procedure is analyzed and continued treatment is handled on a case-by-case basis in consultation with the State of Idaho DEQ.

Once treated, containers of mercury are transferred through the glovebox bag port to the SCW collection area. The SCW collection area is located at the end of the SCW glovebox system and used for the collection of SCW items. See Drawing 53-9744 for the location of the SCW collection area.

Pressurized Containers. Pressurized containers recovered from the drum repack system and the box line may be transferred to the SCW glovebox system for venting. Typically, pressurized containers that may enter the SCW glovebox system are aerosol canisters or gas cylinders, which may have an attached valve to facilitate venting. After receipt, a pressurized container is visually inspected for identification of container contents and to assess the physical integrity of the container, and a determination is made as to whether or not the container may be vented. Aerosol canisters are typically depressurized in an aerosol can puncturing device (M-440-803) or by depressing the manual release. Only pressurized containers with known constituents that upon venting will not cause the limits specified in the “AMWTF Permit to Construct an Air Pollution Emitting Source at the Idaho National Engineering and Environmental Laboratory,” Permit Number 023-000001, current version, to be exceeded may be vented in the SCW glovebox system. If the contents are unidentifiable or do not meet the WMF-676 WAC, the pressurized container is identified as “prohibited” and returned to DOE-ID or transferred to an appropriate MWMU. If a “prohibited” pressurized container is to be stored in a MWMU, then the “prohibited” pressurized container shall be placed into a container listed in Section D-1a(1) of Attachment 1.A.

Examples of prohibited pressurized containers include those with unidentifiable contents, WMF-676 untreatable contents, or unsafe containers; for example, high pressure containers >2,500 psi. The treatment/venting procedures for the two types of pressurized containers are described below. See Appendix XV for the process flow diagrams.

Small pressurized containers identified as treatable are evacuated by an engineered venting device (M-440-803), which is used to puncture the container, bleed off gaseous propellant, and collect the liquid contents. Liquids are drained into a collection container and treated as appropriate. Small pressurized containers identified as treatable may also be evacuated by depressing the manual relief, if present.

If a pressurized container is too large to be vented via the engineered venting device located in the SCW glovebox system or if it cannot be vented manually, then it is removed from WMF-676 in a timely manner and placed in storage in another waste management unit, typically the WSF.

Container-in-Containers. A portion of the waste received in the SCW glovebox system consists of small containers retrieved from a larger container. It is expected that the small containers are typically sludges or containers with excess liquid from debris drums. Typically, these smaller containers range in size from 1 liter (L) to 5 gal and are expected to be metal canisters, cardboard cartons, or polyethylene jars. Container-in-container waste is received in the sampling glovebox from the box lines and the drum repack system through the MTS/CCS and/or bag ports. Once in the sampling glovebox, samples are taken using various tools and methods in accordance with the methods specified in the EPA manual for “Test Methods for Evaluating Solid Waste: Physical/Chemical Methods,” current edition (SW-846), as appropriate for the physical nature of the waste.

A limited number of the containers may have contents that are monolithic. In order to obtain a representative sample of such waste, containers with monolithic waste are typically transferred to the container-in-container glovebox, where the sample is obtained using appropriate hand tools and SW-846 methods, as appropriate for the physical nature of the waste.

Miscellaneous Items. On occasion, there may be a small number of items (e.g., wet cell batteries, valves, pumps, and similar fluid-containing items) that require inspection to determine the presence of liquid. To accomplish this task, miscellaneous waste items are moved into the treatment glovebox and examined for liquid content. If no liquid is found, then the items are transferred to the SCW collection area. If liquid is found, it is drained for sampling and treatment, as required. The amount of liquid present varies on a case-by-case basis. Additionally, the item may require disassembly for removal of the liquid. Hand tools and a vise to secure the item are provided in the treatment glovebox to facilitate liquid removal. After miscellaneous items have been drained, the item is removed to the SCW collection area.

Unit Specific WAC Prohibited Waste. Waste that does not meet a WMF-676 MWMU WAC may be transferred to the SCW glovebox system. These items are treated and/or stored in the SCW area until transferred to downstream treatment or to another waste management unit.

WMF-676 WAC Prohibited Waste. Waste that does not meet the WMF-676 WAC may be inadvertently received in WMF-676. This waste may then be transferred to the SCW glovebox system. Storage of prohibited waste may occur in the SCW glovebox system, drum repack system, or Room 236 (SCW collection area) until transferred out of WMF-676. Storage of the prohibited items occurs until prohibited items are accumulated (in the event that additional containers may contain similar prohibited items) and arrangements are made to transfer the waste out of WMF-676. In the event that prohibited items present a significant safety hazard, the items are removed from WMF-676 as soon as possible after AMWTP safety personnel identify the appropriate safety precautions. Additionally, the State of Idaho DEQ will be informed within 24 hrs upon the discovery of such items presenting significant safety hazards. Some examples of prohibited wastes are:

- Reactive metals,
- Wastes exhibiting the characteristics of HWN D003,
- Explosives, and/or
- Pressurized containers with unknown contents.

Waste Collection and Disposal. All processed SCW and secondary wastes are bagged out of the SCW glovebox system and collected in containers located in the SCW collection area.

These wastes are tracked by barcode as they are collected. When a drum contains the appropriate amount of waste, based on volume or radiological criteria, or between incompatible waste types, the lidded waste containers are typically removed from WMF-676 or transferred to downstream treatment processes.

D-8a(2) Physical Characteristics [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1)]

Location of SCW Unit

The SCW glovebox system is located at the north end of the second floor of WMF-676, next to the drum repack system. See Appendix VII, Drawings 53-0201 and 53-0207 for general arrangement drawings of WMF-676. Collectively, the SCW glovebox system and the drum repack system make up Room 236 of WMF-676. The SCW glovebox system is approximately 40-ft long by 4-ft wide. The SCW transfer glovebox interfaces with Room 147 on the first floor of WMF-676 via an elevator.

Description of Construction Materials

Details of the construction materials for Room 236, which contains the SCW glovebox system and drum repack system, are provided in Attachment 1.F.

SCW treatment is performed within the gloveboxes. The SCW gloveboxes are manufactured primarily from stainless steel to resist corrosion and facilitate routine decontamination. Glovebox components have surface finishes that can be readily decontaminated. Internal corners are rounded and welds are smoothed and polished, as required, to achieve the desired surface finish. Gloveboxes include appropriately designed and conveniently located gloveports and observation windows, and strategically located CCTV system components. Glovebox floors are designed to provide containment and collection of liquids, should liquids be released in the glovebox interior. See Section D-1a(3) of Attachment 1.F for a more detailed discussion of WMF-676 containment systems.

D-8a(2)(a) SCW Glovebox System Physical Characteristics

The SCW glovebox system consists of four separate gloveboxes: the transfer glovebox, treatment glovebox, sampling glovebox, and container-in-container glovebox. See

Drawing 53-9744 for the general arrangement of the SCW glovebox system. A brief description of each separate SCW glovebox is provided below, including glovebox dimensions and materials of construction.

SCW Transfer Glovebox (Z-440-800). This glovebox is a high integrity glovebox designed to import/export SCW items into the SCW glovebox system. The glovebox is manufactured primarily from stainless steel and is approximately 11-ft long by 4-ft wide by 10-ft 10-in. high. It consists of receipt, sorting, and exporting areas. Additionally, the transfer glovebox contains conveyor, airlock doors, a bag port, a barcode reader, and a hoist that is used for transferring SCW transfer baskets.

SCW Treatment Glovebox (Z-440-803). The treatment glovebox is similar in design and construction to the transfer glovebox. The treatment glovebox is approximately 8-ft long by 3-ft 7-in. wide by 6-ft 9-in. high. The glovebox is used for venting gases and draining/collecting liquids from pressurized containers and miscellaneous items, treating and absorbing liquids, and absorbing mercury. The glovebox equipment consists of a jar mill, scale, vise, pressurized container gas venting/liquid collecting devices, various hand tools, stir plate, barcode reader, pH meter, and a bag port.

SCW Sampling Glovebox (Z-440-806). The sampling glovebox portion of the SCW glovebox system is constructed primarily of stainless steel and is approximately 8-ft long by 3-ft 7-in. wide by 6-ft 9-in. high. This glovebox is used for sampling liquids and solids. Equipment located in the sampling glovebox typically consists of a barcode reader, tray, pipette, scale, hand press, hand tools, and a bag port.

SCW Container-in-Container Glovebox (Z-440-848). The container-in-container glovebox is similar in construction to the other portions of the SCW glovebox system and is approximately 8-ft long by 3-ft 7-in. wide by 6-ft 9-in. high. The glovebox is used for sampling monolithic wastes. Equipment consists of various hand tools (such as, sampling scoops or augers) and a bag port.

D-8a(3) Maintenance

For the information pertaining to maintenance, see Section D-8a(3) of Attachment 1.F.i.

D-8a(4) Monitoring

For the information pertaining to monitoring, see Section D-8a(4) of Attachment 1.F.i.

D-8a(5) Inspection

Attachment 4 contains the inspection requirements and schedules for the SCW glovebox system.

D-8a(6) Closure

Closure of the SCW glovebox system and all associated equipment is addressed in Attachment 8.E.

D-8a(7) Mitigative Design and Operating Standards

For the information pertaining to mitigative design and operating standards, see Section D-8a(7) of Attachment 1.F.i.

D-8b Environmental Performance Standards for Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23(c)]

For the information pertaining to environmental performance standards, see Section D-8b of Attachment 1.F.i.

D-8b(1) Miscellaneous Unit Wastes [IDAPA 58.01.05.008; 40 CFR 264.601(a)(1), 264.601(b)(1), and 264.601(c)(1)]

The wastes that are treated inside the SCW unit are addressed in Attachment 2. For the information pertaining to miscellaneous unit wastes, see Section D-8b(1) of Attachment 1.F.i.

D-8b(2) Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(b)(2) and 270.23(a)(2)]

For the information pertaining to containment systems, see Section D-1a(3) of Attachment 1.F.

D-8b(3) Site Air Conditions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(4) and (5), and 270.23(a)(2)]

For the information pertaining to site air conditions, see Section D-8b(3) of Attachment 1.F.i.

D-8b(4) Prevention of Air Emissions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(2) and 270.23(a)(2)]

For the information pertaining to the prevention of air emissions, see Section D-8b(4) of Attachment 1.F.i.

D-8b(5) Operating Standards [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(3) and 270.23(a)(2)]

Air emissions from the WMF-676 SCW glovebox system occur as part of normal operations. These emissions are controlled by the WMF-676 ventilation control system described in Attachment 1.F.

D-8b(11) Migration of Waste Constituents [IDAPA 58.01.05.008; 40 CFR 264.601(a)(7)]

For the information pertaining to the migration of waste constituents, see Section D-8b(11) of Attachment 1.F.i.

D-8b(12) Evaluation of Risk to Human Health and the Environment [IDAPA 58.01.05.008; 40 CFR 264.601(a)(8) and (9), 264.601(b)(10) and (11), and 264.601(c)(6) and (7)]

For the information pertaining to the evaluation of risk to human health and the environment, see Section D-8b(12) of Attachment 1.F.i.

TABLE OF CONTENTS

ATTACHMENT 1.F.iii

WMF-676 SUPERCOMPACTOR PROCESS INFORMATION

D. PROCESS INFORMATION 1
D-8 Miscellaneous Units 1
D-8a Description of Miscellaneous Units 1
D-8a(1) Treatment Operations 2
D-8a(1)(a) Supercompactor 2
D-8a(1)(b) Puck Drum Loading 5
D-8a(2) Physical Characteristics 5
D-8a(2)(a) Supercompactor 6
D-8a(3) Maintenance 8
D-8a(4) Monitoring 8
D-8a(5) Inspection 8
D-8a(6) Closure 8
D-8a(7) Mitigative Design and Operating Standards 8
D-8b Environmental Performance Standards for Miscellaneous Units 9
D-8b(1) Miscellaneous Unit Wastes 9
D-8b(2) Containment System 9
D-8b(3) Site Air Conditions 9
D-8b(4) Prevention of Air Emissions 9
D-8b(5) Operating Standards 10
D-8b(11) Migration of Waste Constituents 10
D-8b(12) Evaluation of Risk to Human Health and the Environment 10

D. PROCESS INFORMATION

D-8 Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23]

The supercompactor does not meet the definition of container, tank, surface impoundment, waste pile, land treatment, incinerator, boiler, industrial furnace, or underground injection well. Therefore, this unit is categorized as a miscellaneous treatment unit under HWMA/RCRA. See Appendix VII, Drawings 53-0201 and 53-0207 for the general arrangements of the first and second floors of WMF-676. Drawings/Exhibits for the supercompaction system are located in Appendix XVII, and supercompaction system MDSs can be found in Appendix XVIII.

D-8a Description of Miscellaneous Units [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1) and 270.23(a)(2)]

This section describes the supercompactor unit located at WMF-676.

Supercompactor

The supercompactor is used to efficiently size-reduce nominal 55-gal drums or drums approximately the same dimensions as a 55-gal drum (e.g., “slim” 55-gal drum overpack) containing debris MW. It is sufficiently sized to process a throughput of 10,312 gals per day. Drums are delivered to the supercompactor from three primary sources: the direct-feed line, the box lines, or the drum repack system. Direct-feed drums (assessed through characterization and RTR examination as not requiring pretreatment, as described in Attachments 1 and 2) are transferred directly to the supercompaction area via the MTS. Containerized waste requiring pretreatment is processed through the box lines or the drum repack system prior to supercompaction. When appropriately repackaged into containers, these wastes are transferred via the MTS to the supercompaction area. During the supercompaction process, drums are managed and compacted within gloveboxes. Pucks resulting from the supercompaction of waste drums are loaded directly into a puck drum or are held in the puck storage area, commonly known as the puck staging area, of the postcompaction glovebox awaiting loading into puck drums. See Drawing 53-0201 in Appendix VII for an overhead view and general arrangement of the supercompaction area. A more detailed description of the supercompactor follows in Sections D-8a(1) and D-8a(2).

D-8a(1) Treatment Operations [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1)]

See Section D-8a(1) of Attachment 1.F.i for a discussion of operating standards used in conducting treatment activities at WMF-676.

D-8a(1)(a) Supercompactor

The direct-feed waste drums or containers from the box line and drum repack system areas are routed to the supercompactor via the MTS. Only drums containing compatible wastes are compacted in series without an intervening clean-out of the supercompactor gloveboxes. Barcode readers and the Operating Record are used to identify and control drums of incompatible waste from entering the compaction gloveboxes until the gloveboxes have been emptied, visually inspected, and cleaned (if required). To maximize the size-reduction process, the DMS incorporates an optimization algorithm that automates the waste drum selection for puck drum filling to achieve maximum packing densities. The DMS is used to optimize puck drum filling based on fissile content, weight, and/or puck height. Automatic control sequences to retrieve, deliver, compact, and deposit the waste drum/puck into the puck drum are initiated from the CCR.

Just prior to the piercing station, a barcode reader identifies the waste drums before they are transferred, via conveyor, through an airlock and into the supercompactor infeed glovebox (DZ410211).

There are four stations within the infeed glovebox: a turntable station that can receive drums from the north end of the infeed glovebox via the venturi glovebox and direct them to either the supercompactor or to Room 147; a drum piercing station; a drum handling station; and a supercompaction trolley load station. Drums for compaction are conveyed from the turntable station to the drum piercing station (DZ410213), where the drum is pierced. When pierced, the drum is conveyed onto the drum handling station. The drum handler (DQ410201) lifts the drum, transports it to the supercompactor trolley loading station, and lowers the drum onto the compaction trolley. The trolley moves the drum into the supercompactor glovebox (DZ410283) to a position beneath the supercompactor (DZ410200).

With the drum and trolley in position, the mold is lowered around the drum and engaged onto the trolley. The lower press plate of the supercompactor is mounted on the top of the trolley and acts

as a guide for the mold, which controls the puck diameter during the compaction cycle. The compaction process proceeds in two phases. First, the main ram is lowered, initially powered by a low-force ram, which forces the air out of the top section of the drum. After the first compaction phase, high-pressure fluid is supplied to the main high-force compaction ram and is maintained at a higher pressure until the final pressure or maximum travel distance is attained. Both rams are fed from a hydraulic power pack situated outside the glovebox. The resultant force reduces the puck height (on average) to one-fifth of the original drum height. On completion of the compaction cycle the mold and ram are raised and the compaction trolley transfers the puck to the puck recovery glovebox (DZ410284).

Prior to supercompaction, those drums requiring treatment are transferred to the drum repack system. When liquids are released during compaction, they are handled on a case-by-case basis. Sloped glovebox floors and a sump are provided to collect any liquids produced during the compaction process. The leak-tight base of the glovebox containment has sufficient capacity to hold a worst-case leak of 55-gal. The sump has a capacity of approximately 2.5-gal and is equipped with a sensor to detect liquid level. The sensor alarms when the sump is 90% full.

Liquids in the supercompactor may be treated via absorption, decanting, or neutralization, as described in Section D of Attachment 1.A. Liquid in the sump is removed in a timely manner using a pump, or other decanting means, located in the puck recovery glovebox (DZ410284) or absorbent may be added. The liquid is pumped into a container located inside the puck recovery glovebox, or the liquid may be pumped into a collection container located outside of the supercompactor gloveboxes. Liquids are visually inspected, and a sample may be collected in a barcode-labeled container and transferred to the SCW glovebox system, DWPG, or to an analytical laboratory for characterization, as required. Containerized liquid may be stored in the puck recovery glovebox (DZ410284) until transferred to another MWMU. Small containers with absorbed liquid may be stored in larger containers until transfer out of WMF-676. Only known compatible wastes are placed together into a container. The characterization information for wastes placed in the collection containers is, in part, derived from the characterization information assigned to the original waste containers prior to supercompaction.

In the event large amounts of liquid are released during the compaction cycle and the sump capacity (2.5 gal) is filled, the compaction cycle is completed per normal procedures. After the ram is disengaged, the liquid in the sump is managed as described above. If the next drum contains incompatible waste, the glovebox surfaces are visually inspected and any liquids remaining are removed and the area cleaned, as required.

If after compaction the puck is unsuitable for direct deposit into a puck drum, it is diverted to the puck storage area and a more suitable puck is retrieved. The puck storage area, which stores up to six (6) pucks, allows for the pucks to be temporarily stored in the post compaction glovebox, if required. Only pucks from a compatible waste treatment sequence are stored in this area at any one time. All surfaces of the puck storage area are visually inspected and cleaned, if required, between incompatible waste sequences. If residual liquids leak from the pucks, the sloped floor of the puck storage area directs the liquid into the puck recovery glovebox sump where the liquids are removed and containerized as previously discussed. The puck handler transfers the pucks from the puck recovery glovebox into the postcompaction glovebox where the pucks are subsequently transferred into puck drums.

From the CCR, AMWTP personnel continue to feed waste drums to the supercompactor until the puck drum is full. CCR-initiated control sequences also allow the importing of empty puck drums into the area as required. Barcode readers are employed at appropriate locations in the supercompaction area for waste tracking purposes. Software based interlocks stop the process if an out-of-sequence drum is detected. Extensive use of a CCTV system is employed to allow the CCR-based AMWTP personnel to complete their tasks.

Prior to compaction of a drum containing waste incompatible with previous drums (when changing incompatible waste treatment sequences), all drums in the compaction gloveboxes are compacted, and all pucks are loaded into puck drums. When the compaction gloveboxes are empty, all potentially-contaminated surfaces are visually inspected through observation windows and CCTV system, the sump is emptied (if needed), and surfaces are cleaned (as needed) before accepting drums containing waste incompatible with the previous sequence.

D-8a(1)(b) Puck Drum Loading

Prior to puck drum loading, empty puck drums with the outer lid and bolt ring removed are fed into the supercompaction cell from the empty drum feed route by a conveyor. The drum is identified by a barcode reader and conveyed under the post compaction glovebox. A bagless transfer system (DM420207) is used to allow drum inner lid removal while maintaining glovebox containment. The puck drum is then positioned centrally onto a drum positioning machine and raised into position at one of the two bagless transfer mechanisms. The bagless transfer port is opened with the inner drum lid attached (held in position by a vacuum pump).

Information contained in the Operating Record is used to decide if a puck can be loaded directly into the puck drum or if it requires storage in one of the six positions at the puck storage area. Pucks are loaded automatically into the puck drum using the puck handler. Recovery equipment is available within the puck recovery glovebox (DZ410284), along with various tools, to deal with abnormal pucks that do not fit into the puck drum. Waste that escapes from pucks is manually collected through gloveports and placed into a suitable container.

When puck loading is complete, the bagless transfer port is closed, refitting the puck drum inner lid and hydraulically swaging it in place. The filled puck drum is then lowered from the postcompaction glovebox. The puck drum is transferred from the bagless transfer area to the swabbing area by a conveyor. The puck drum is monitored to check that the exterior of the drum is free from radiological contamination and suitable for export. Puck drums are then identified by a barcode and conveyed to the puck drum lidding area, where the outer lid and bolt ring are manually fitted onto the puck drum. The puck drum is then transferred by conveyor through an airlock into the puck drum export area.

D-8a(2) Physical Characteristics [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1)]

Location of Supercompaction Unit

The supercompaction treatment area is located at the north end of the first floor of WMF-676 and occupies an area of approximately 30 ft by 65 ft. See Appendix VII, Drawings 53-0201 and 53-0207 for additional information. The supercompaction process equipment is mostly contained in three connected gloveboxes within the supercompaction cell: the infeed glovebox (DZ410211), the

supercompactor glovebox (DZ410283), and the postcompaction glovebox (DZ420215). Puck drums containing waste are transferred from the puck drum filling station in the postcompaction glovebox to the adjacent drum export area, which occupies approximately 55 ft by 25 ft on the first floor directly beneath the SCW treatment area.

Description of Construction Materials

Details of the construction materials for the supercompactor cell are provided in Section D of Attachment 1.F.

The supercompactor gloveboxes are manufactured primarily from stainless steel to eliminate corrosion and facilitate routine decontamination. Glovebox components typically have surface finishes that can be readily decontaminated. Internal corners are rounded and all welds are smoothed and polished, as required, to achieve the desired surface finish. Gloveboxes include appropriately designed and conveniently located gloveports and observation windows, and strategically located CCTV cameras. Glovebox floors are inclined to allow liquid to flow to a sump. The sump is sufficiently sized and has appropriate provisions for allowing liquid removal.

D-8a(2)(a) Supercompactor

Major components of the supercompactor system are described below, with the dimensions and materials of construction provided for critical components. All drum handling equipment bearing the full weight of the waste containers have a load bearing capacity of approximately 1,000 lb.

Supercompactor Infeed Glovebox (DZ410211). The infeed glovebox is a high-integrity sealed glovebox (as described above) that contains outer and inner airlock doors, the infeed conveyor, drum turntable, drum handling station (DQ410201), drum piercing machine (DZ410213), and supercompaction trolley (DW410204). It is constructed primarily of stainless steel and has approximate dimensions of 18-ft long by 4-ft wide by 13-ft high. The glovebox interfaces with the MTS and the supercompactor glovebox. For more details, including locations of gloveports and observation windows, see Exhibit XVII-1A, –1B, and –1C.

Supercompactor (DZ410200). The supercompactor is a four-column press with a base connected to an upper frame by the four columns. The main high-force compaction ram and cylinder are contained within the upper frame. In addition, a low-force cylinder is mounted on top of the press connected to the main ram. A mold slides up and down the four columns to surround drums during compaction. The supercompactor is constructed primarily of carbon steel. The rams, mold, and columns are located within the supercompactor glovebox (DZ410283), which has dimensions of approximately 10-ft long by 8-ft wide by 23-ft high. The cylinder bodies and the hydraulic power pack pump are located outside the supercompactor glovebox, but within the supercompaction area. The floor of the supercompactor glovebox is sloped and allows liquid waste, generated during compaction, to flow to the sump located in the puck recovery glovebox, which is described below. The supercompactor interfaces with the supercompaction trolley (DW410204), infeed glovebox (DZ410211), puck recovery glovebox (DZ410284), and the hydraulic power pack pump.

Puck recovery glovebox (DZ410284). The puck recovery glovebox is a high-integrity sealed glovebox that contains a puck transfer plate, a safety screen, a recovery/maintenance hoist, a liquid collection sump, equipment used for containerizing liquids, and various tools to aid reworking of pucks, if required. The glovebox is constructed primarily of stainless steel and has approximate dimensions of 4-ft 6-in. long by 3-ft 4-in. wide by 7-ft high. The glovebox interfaces with the supercompactor glovebox (DZ410283) and the postcompaction glovebox (DZ420215).

Postcompaction glovebox (DZ420215). The postcompaction glovebox includes a maintenance access port, puck handler and gripper (DQ420200), puck staging area (DZ420200), puck drum bagless transfer mechanism (DM420207), and a recovery/maintenance hoist and block. It is made primarily from stainless steel and has approximate dimensions of 28-ft long by 5-ft wide by 29-ft high. The glovebox interfaces with the supercompactor glovebox and the puck recovery glovebox.

Puck drum filling station. The puck drum filling station is located within the postcompaction glovebox and consists of two puck drum bagless transfer systems (DM420207) (i.e., two drum-filling ports) that interface with two drum positioning machines located outside of the glovebox. The materials of construction and dimensions of the postcompaction glovebox were

described previously. The drum positioning machines each have a table with roller conveyor, elevator, rotational frame, and centering arms. A positioning machine/elevator is used to lower and raise puck drums to the bagless transfer systems/postcompaction glovebox (DZ420215).

Drum export area. The drum export area is where puck drums loaded with pucks are placed on conveyors for export. Before puck drums enter the drum export area, they are transferred to the swab and monitor station. The materials of construction for the area are described in Attachment 1.F. The conveying equipment is constructed primarily of carbon steel with stainless steel rollers.

D-8a(3) Maintenance

For the information pertaining to maintenance, see Section D-8a(3) of Attachment 1.F.i.

D-8a(4) Monitoring

For the information pertaining to monitoring, see Section D-8a(4) of Attachment 1.F.i.

D-8a(5) Inspection

Attachment 4 contains the inspection requirements and schedules for the supercompactor unit.

D-8a(6) Closure

Closure of the supercompactor and associated equipment is addressed in Attachment 8.E.

D-8a(7) Mitigative Design and Operating Standards

For the information pertaining to mitigative design and operating standards, see Section D-8a(7) of Attachment 1.F.i.

Supercompactor-Specific Mitigative Design and Operating Standards

In the postcompaction glovebox (DZ420215), a bagless transfer system (DM420207) is used as the system interface for puck drum access. An empty puck drum is placed onto the drum positioning machine/elevator. The drum is raised using the elevator and a seal is provided between

the top of the drum and the bagless transfer system. The inner lid is sealed to the bottom of the transfer system door and is removed simultaneously with the opening of the port. Once open, the inside of the drum becomes part of the postcompaction glovebox. When the puck drum is full the inner lid is hydraulically swaged onto the drum, the door is closed, and the seal between the bagless transfer door and the puck drum is released. The drum is lowered, and AMWTP personnel check the outside of the container for contamination (and provide decontamination if needed) prior to fitting the outer drum lid and bolt ring onto the drum.

D-8b Environmental Performance Standards for Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23(c)]

For the information pertaining to environmental performance standards, see Section D-8b of Attachment 1.F.i.

D-8b(1) Miscellaneous Unit Wastes [IDAPA 58.01.05.008; 40 CFR 264.601(a)(1), 264.601(b)(1), and 264.601(c)(1)]

The wastes that are treated by the supercompactor are addressed in Attachment 2. For the secondary waste information pertaining to miscellaneous unit waste, see Section D-8b(1) of Attachment 1.F.i.

D-8b(2) Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(b)(2) and 270.23(a)(2)]

For the information pertaining to containment system, see Section D-1a(3) of Attachment 1.F.

D-8b(3) Site Air Conditions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(4) and (5), and 270.23(a)(2)]

For the information pertaining to site air conditions, see Section D-8b(3) of Attachment 1.F.i.

D-8b(4) Prevention of Air Emissions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(2) and 270.23(a)(2)]

For the information pertaining to the prevention of air emissions, see Section D-8b(4) of Attachment 1.F.i.

D-8b(5) Operating Standards [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(3) and 270.23(a)(2)]

Air emissions from the supercompactor unit occur as part of normal operations. These emissions are controlled by the ventilation control system as described in Attachment 1.F.

D-8b(11) Migration of Waste Constituents [IDAPA 58.01.05.008; 40 CFR 264.601(a)(7)]

For the information pertaining to the migration of waste constituents, see Section D-8b(11) of Attachment 1.F.i.

D-8b(12) Evaluation of Risk to Human Health and the Environment [IDAPA 58.01.05.008; 40 CFR 264.601(a)(8) and (9), 264.601(b)(10) and (11), and 264.601(c)(6) and (7)]

For the information pertaining to the evaluation of risk to human health and the environment, see Section D-8b(12) of Attachment 1.F.i.

TABLE OF CONTENTS

ATTACHMENT 1.F.iv

WMF-676 DRUM REPACK SYSTEM PROCESS INFORMATION

D. PROCESS INFORMATION 1
D-8 Miscellaneous Units 1
D-8a Description of Miscellaneous Units 1
D-8a(1) Waste Management Operations 2
D-8a(1)(a) DWHE 2
D-8a(1)(b) DWPG 4
D-8a(2) Physical Characteristics 5
D-8a(2)(a) Drum Repack System 5
D-8a(3) Maintenance 6
D-8a(4) Monitoring 6
D-8a(5) Inspection 6
D-8a(6) Closure 6
D-8a(7) Mitigative Design and Operating Standards 7
D-8b Environmental Performance Standards for Miscellaneous Units 7
D-8b(1) Miscellaneous Unit Wastes 7
D-8b(2) Containment System 7
D-8b(3) Site Air Conditions 7
D-8b(4) Prevention of Air Emissions 7
D-8b(5) Operating Standards 8
D-8b(11) Migration of Waste Constituents 8
D-8b(12) Evaluation of Risk to Human Health and the Environment 8

D. PROCESS INFORMATION

D-8 Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23]

The drum repack system (i.e., DWHE/DWPG) does not meet the definition of a container, tank, surface impoundment, waste pile, land treatment, incinerator, boiler, industrial furnace, or underground injection well. Therefore, this unit is categorized as a miscellaneous treatment unit under HWMA/RCRA. The drum repack system is used to open, visually inspect, sort, segregate or separate, repackage waste, decant liquids, absorb liquids, and neutralize liquids prior to transfer to downstream treatment processes. Drawings and exhibits for the drum repack system are located in Appendix XV, and drum repack system MDSs can be found in Appendix XIX.

D-8a Description of Miscellaneous Units [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1) and 270.23(a)(2)]

This section describes the DWHE and DWPG units. The DWHE and DWPG are designed to process up to 2,956 gals per day.

DWHE

The DWHE is used for drum operations including: drum opening, waste sorting, visual examination, retrieval of waste packages, repackaging of waste into containers etc., and provides a containment area for repackaging of waste containers with minimal radiological contamination. The DOHE is within the DWHE, and provides additional contamination control. The enclosure is equipped for the receiving, storing, movement, and processing of drums. Processing can include drum opening, waste sorting, and visual examination. Equipment located within the DWHE is listed in Section D-8a(2)(a). Drawing 53-9744 shows the general arrangement of the drum repack system and SCW glovebox system.

DWPG

The DWPG is designed to provide containment for repackaging operations for drums/waste that are not acceptable for processing in the DWHE/DOHE. The DWPG is also used for absorbing, decanting, and neutralizing liquid. The glovebox incorporates a receipt, sorting, preparation and exporting area within the glovebox, and has a platform around the perimeter of the glovebox for AMWTP personnel access. Equipment associated with the DWPG is listed in Section D-8a(2)(a). See Drawing 53-9744 for further information.

D-8a(1) Waste Management Operations

See Section D-8a(1) of Attachment 1.F.i for a discussion of operating standards used in conducting waste management activities at WMF-676, including activities in the drum repack system.

Treatment via decanting, neutralization, and absorption is performed, as described in Section D of Attachment 1.A.

D-8a(1)(a) DWHE

Containers enter the DWHE via an elevator, which receives containers via the MTS. Once on the elevator, drums are raised and transferred through an airlock (via a conveyor) into the storage area. See SCW and drum repack system general arrangement Drawing 53-9744 for drum storage area locations. The drum storage area is enclosed on all sides by walls and doors. From the storage area, drums are manually transferred to the drum opening hood located within the handling enclosure. The drum opening hood is designed to provide air flow conditions away from AMWTP personnel and over/around the containers during opening and repackaging operations. This ventilation is accomplished by a dedicated exhaust provided by the drum opening hood. The DWHE and fume hood are routed to dedicated filter banks. Containers within the drum opening hood are opened and repacked as discussed below. See Exhibit XV-10 for a block flow diagram of the drum repack system.

Debris Drum Containers. Debris drum containers are received at the drum opening station for opening, visual examination, and removal of SCW items. After the drum is opened, the inner waste packages/items are removed from the drum and visually examined, as required.

SCW and prohibited items are transferred out of the DWHE/DOHE for further management. After the contents of the drum have been removed, visually examined, sorted, and the relevant information has been entered into the Operating Record, the drum is repacked with the appropriate waste (i.e., not SCW and prohibited waste). Once repackaged, the drum lid, clamp band, and bolt/nut are replaced onto the drum. The drum is then removed from the drum opening hood and placed into a storage area for transfer to downstream processes.

All drum and waste components are checked for radiological contamination at each step in the operation. If unacceptable levels of loose radiological contamination are found at any point, then the drum and the drum contents are bagged and transferred to the DWPG.

Debris Drum Containers In Overpacks. Drum containers in overpacks are delivered to the DWHE and handled within the enclosure in the same manner as drums without overpacks (see description above), except that after the overpacked drum is placed at the drum opening station, a drum lifting hoist is attached to the drum, and the drum is lifted from the overpack. The empty overpack may be moved to the drum crusher, where it is crushed, bagged, and loaded onto a pallet for transfer to the LLW export station. Similar to the process for non-overpacked debris drums, all container (overpack, drum, liner, lid, and lid fastening hardware) and waste components are checked for radiological contamination at each step in the operation. If high levels of radiological contamination are found at any point, the container and waste items are bagged and transferred to the DWPG.

Container-In-Container Drums. A portion of the drums received in the DWHE contain smaller waste containers. It is expected that these smaller containers are packaged in soft metal cans or polyethylene jars, ranging in size from 1 L to 5 gal. The opening and unloading of container-in-container drums is handled in the same manner as debris drums, as described earlier. Overpacked container-in-containers are also expected, and are handled in the same manner as described for overpacked debris containers. After the small, inner containers are removed from the container, they are transferred to the SCW glovebox system for visual examination, inspection, and/or sampling, as required. Alternatively, inner containers identified only for inspection may be transferred to the DWPG, where the container is opened and examined to verify that the contents match the container IDC/WG.

Prohibited Waste. Any prohibited wastes retrieved in the DWHE/DOHE are transferred to the SCW glovebox system or exported out of WMF-676. See Section D-8a(1)(a) in Attachment 1.F.ii. See Attachment 2 for further information on prohibited waste.

D-8a(1)(b) DWPG

Drums that are found to be significantly contaminated during processing at the DWHE are transferred to the DWPG using the drum lifting/tipping equipment. The drum lifting/tipping device is used to present the drum in a horizontal position to the glovebox drum port, where the bag is mated to the glovebox, providing containment during import of the drum contents into the glovebox. At this point, the drum lift/tipper is secured to prevent movement of the drum.

Once the contents of the drum are exposed to the inside of the glovebox, items can be removed using a variety of tools, or with a chain hoist provided in the glovebox for moving heavy items. Each item is placed onto a transport tray, located on the floor of the glovebox, as it is removed from the drum. The transport tray is used for moving items to different work stations in the DWPG. Spills occurring during unloading of the drum are absorbed using various materials. After the contents of a drum have been removed and it is deemed HWMA/RCRA empty, the drum is removed from the DWPG and reused, if appropriate. If a container contains an acute HWN, then the container will be processed as MW, unless the container has a liner which can be removed. If a container does contain a liner, then the liner may be removed and processed as MW such that the container meets the definition of “HWMA/RCRA empty” as defined by IDAPA 58.01.05.005 (40 CFR 261.7). If the drum is not reusable, it may be transferred to the drum crusher in the DWHE, where it is crushed, bagged, and placed on a pallet.

Packages of waste unloaded onto the transport tray are subject to viewing by the CCTV system and visual examination by AMWTP personnel. After examination, debris waste is loaded into drum containers using two load-out ports on the floor of the glovebox (Z-440-871). Repackaged drums are bagged and lowered from the DWPG, moved to the material transfer airlock (i.e., door to DWHE), and stored prior to transfer to downstream processes. SCW items are bagged out, transferred to local assay, and relocated to the SCW glovebox system. See Drawing 53-9744 for further information. Container-in-container items removed from drums are

opened and examined to verify that the waste inside the container matches the IDC/WG on the drum. The containers are either transferred to a repackaging drum or to the SCW glovebox system.

D-8a(2) Physical Characteristics [IDAPA 58.01.05.012; 40 CFR 270.23(a)(1)]

Location of Drum Repack System

Pretreatment and visual examination of drums within WMF-676 occur in the drum repack system. The drum repack system is located in the north central area of the second floor of WMF-676. It is located above an elevator, which connects to the first floor MTS. See Appendix VII, Drawings 53-0201 and 53-0207 for further information on the general arrangement of equipment in WMF-676. The DWHE occupies an area in the north end of Room 236, while the DWPG is directly east of the DWHE.

Description of Construction Materials

Details of the construction materials for the drum repack system containment area (Room 236) are provided in Section D of Attachment 1.F. The curbs and floor of Room 236 (i.e., SCW/drum repack system area) are typically finished to a smooth surface with specialty coatings to prevent the migration of contaminants and to facilitate decontamination. The containment area is constructed to minimize air in-leakage and ensure adequate ventilation cascade flow rates through engineered inlets and openings.

D-8a(2)(a) Drum Repack System

Spill containment for the drum repack system, along with the SCW glovebox system, is provided by Room 236. Drawing 53-9744 illustrates the general arrangement of the drum repack system. A brief description of the materials of construction for the DWHE and DWPG is presented below.

DWHE (Z-440-868). The enclosure is primarily constructed of steel clad walls and is approximately 45-ft long by 22-ft wide. Equipment within the DWHE includes a drum opening exhaust hood (Z-440-870), hoists, barcode readers, DMS workstations, CCTV system, various tools, drum storage area, glovebox loading/bagging platform, drum conveyor, elevator enclosure,

drum crusher, drum lift/tipper (Q-440-805), and breathing air supplies. The DOHE is constructed of prefabricated stainless steel with carbon steel support steelwork. The DOHE is located against the North and East walls of the DWHE area as shown on Drawing 53-9744.

DWPG (Z-440-871). The DWPG is a high-integrity glovebox designed to receive, process, and export waste that cannot be processed in the DWHE. The DWPG is also used for treating and absorbing liquids. The glovebox is primarily manufactured from stainless steel to minimize corrosion and facilitate routine decontamination and is approximately 15-ft long by 3-ft 6-in. wide by 11-ft 6-in. high. It consists of a receipt/sort and preparation/export area and incorporates a platform around the perimeter for AMWTP personnel access. Equipment associated with the DWPG includes a chain hoist for handling heavy items, barcode readers, mobile drum lifts and turntables, CCTV system, scale, various hand tools, pH meter, and a fire suppression system.

Glovebox components typically have surface finishes that are readily decontaminated. Internal corners are rounded and welds are smoothed and polished, as required, to achieve the desired surface finish. The DWPG includes appropriately designed and conveniently located gloveports, observation windows, and CCTV system.

D-8a(3) Maintenance

For the information pertaining to maintenance, see Section D-8a(3) of Attachment 1.F.i.

D-8a(4) Monitoring

For the information pertaining to monitoring, see Section D-8a(4) of Attachment 1.F.i.

D-8a(5) Inspection

Attachment 4 contains the inspection requirements and schedules for the drum repack system units.

D-8a(6) Closure

Closure of the drum repack system and all associated equipment is addressed in Attachment 8.E.

D-8a(7) Mitigative Design and Operating Standards

For the information pertaining to mitigative design and operating standards, see Section D-8a(7) of Attachment 1.F.i.

D-8b Environmental Performance Standards for Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601 and 270.23(c)]

For the information pertaining to environmental performance standards, see Section D-8b of Attachment 1.F.i.

D-8b(1) Miscellaneous Unit Wastes [IDAPA 58.01.05.008; 40 CFR 264.601(a)(1), 264.601(b)(1), and 264.601(c)(1)]

The wastes that are treated inside the drum repack system are identified in Attachment 2. For the secondary waste information pertaining to miscellaneous unit waste see Section D-8b(1) of Attachment 1.F.i.

D-8b(2) Containment System [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(b)(2) and 270.23(a)(2)]

For the information pertaining to drum repack system containment system, see Section D-1a(3) of Attachment 1.F.

D-8b(3) Site Air Conditions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(4) and (5), 270.23(a)(2)]

For the information pertaining to site air conditions, see Section D-8b(3) of Attachment 1.F.i.

D-8b(4) Prevention of Air Emissions [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(2) and 270.23(a)(2)]

For the information pertaining to the prevention of air emissions, see Section D-8b(4) of Attachment 1.F.i.

D-8b(5) Operating Standards [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.601(c)(3) and 270.23(a)(2)]

Air emissions from the drum repack system occur as part of normal operations. These emissions are controlled by the ventilation control system described in Attachment 1.F.

D-8b(11) Migration of Waste Constituents [IDAPA 58.01.05.008; 40 CFR 264.601(a)(7)]

For the information pertaining to the migration of waste constituents, see Section D-8b(11) of Attachment 1.F.i.

D-8b(12) Evaluation of Risk to Human Health and the Environment [IDAPA 58.01.05.008; 40 CFR 264.601(a)(8) and (9), 264.601(b)(10) and (11), and 264.601(c)(6) and (7)]

For the information pertaining to the evaluation of risk to human health and the environment, see Section D-8b(12) of Attachment 1.F.i.

TABLE OF CONTENTS

ATTACHMENT 2

WASTE CHARACTERISTICS

C. WASTE CHARACTERISTICS....1

C-1 Chemical and Physical Analyses....16

C-1a Containerized Wastes....17

C-1g Wastes in Miscellaneous Units....19

C-2 Waste Analysis Plan....27

C-2a Parameters and Rationale....27

C-2b Test Methods....28

C-2c Sampling Methods....31

C-2d Frequency of Analysis....33

C-2e Additional Requirements for Waste Generated Off-Site....33

C-2f Additional Requirements for Ignitable, Reactive, or Incompatible Wastes....38

C-3 Waste Analysis Requirements Pertaining to Land Disposal Restrictions....45

C-3a Waste Characterization....46

C-3b Sampling and Analytical Procedures....46

C-3c Frequency of Analysis....46

C-3d Additional Requirements for Treatment Facilities....47

C-4 Waste Analysis Requirements Pertaining to the WIPP....51

C-4a Waste Characterization....51

C-4b Sampling and Analytical Procedures....51

C-4c Frequency of Analysis....53

LIST OF TABLES

Table C-1. Waste Stored at the TSA 8

Table C-2. Summary of General Parameters for Wastes and the Rationale for Selection 40

Table C-3. Minimum Characterization Parameters for Wastes.....41

Table C-4. Potential Waste Characterization Methods 43

Table C-5. Methods and Strategies for Sampling Debris/Secondary Waste.....44

Table C-6. LDR Sampling and Analysis of Final Waste Forms 50

LIST OF EXHIBITS

Exhibit C-1. Charaterization of Waste with Known IDCs/HWNs.....24

Exhibit C-2. Characterization of Waste with Known IDC/Unknown HWNs.....25

Exhibit C-3. Characterization of Waste with Unknown IDCs/HWNs.....26

C. WASTE CHARACTERISTICS

This section describes the overall waste characteristics of the MW stored or treated at the MWMUs. The bulk of the waste that is stored at, and forms the feed to, the MWMUs is MW. The MWMUs are located at the TSA, which was originally established at the RWMC to provide storage of TRU wastes. Most of the MW managed at the MWMUs is either TRU or αLLW MW. Table C-1 lists the waste streams and estimates of the volumes of waste that are stored within the TSA and their associated EPA HWNs, where known. HWNs have been based on "Advanced Mixed Waste Treatment Project Waste Stream Designations," AMWTP-5232-RPT-TRUW-12, (RPT-TRUW-12). The individual waste streams have been grouped into seven debris WGs and four non-debris WGs. The debris WGs are lead/cadmium metal (LCM), uncategorized metal (UM), inorganic nonmetal (INM), graphite (G), filters (F), combustible waste (CW), and heterogeneous debris (HD). The non-debris WGs are SI, SO, SW, and soils.

Waste Acceptance Criteria for Existing and Newly-generated Wastes

Only MW with HWNs listed in the Part A Permit Application is accepted for storage or treatment at the MWMUs. Waste containers may be transferred to a WMF-610 and WMF-628 through WMF-635 even if all WAC for that MWMU are not met, upon concurrence of the Environmental Manager. If it is determined that a waste container will be returned to DOE, further characterization is not required.

Type II Module, Type I Module, and SWEPP WAC for Existing and AMWTP Newly-Generated Waste

Requirements for the receipt of existing and AMWTP newly-generated waste at the Type II Modules, the Type I Module, and SWEPP from the TSA include the following:

- Containers must be numbered or coded for tracking purposes with a unique barcode identifier linked to the appropriate waste stream information (e.g., IDC) and container-specific information maintained within the Operating Record. Containers that are retrieved unlabeled are accepted after a unique barcode has been applied.
- Waste must not contain known:
    - Explosive or pyrophoric material, except for pyrophoric forms of radionuclides,

  - DOT Class 1 explosives, or
  - Reactive metals or forbidden materials per 49 CFR 173.21.
- Waste containers must have a hazardous waste label (if required), container number, and other appropriate markings and labels. Containers with known TSCA-regulated waste (regulated under 40 CFR 761) are identified and marked appropriately.
- The process knowledge, to the extent known, regarding the waste stream is documented in the Operating Record.

For each container received at a MWMU, the following information is included in the Operating Record:

- Waste stream information (e.g., IDC),
- Known HWNs (may be designated as undetermined), and
- Known retrieval and storage history.

Type II Module, Type I Module, and SWEPP WAC for Non-AMWTP Newly-Generated Waste

The following WAC apply to non-AMWTP newly-generated waste received at the Type II Modules, the Type I Module, or SWEPP:

- Waste meets the "Type II Module, Type I Module, and SWEPP WAC for Existing and AMWTP Newly-Generated Waste" listed above.
- The source of the waste is DOE.
- Waste has an identified disposal route. Waste may be accepted if treatment by the AMWTP makes the waste acceptable for disposal.
- Waste containers must have a hazardous waste label (if required), container number, and other appropriate markings and labels. The barcode label is used to access information in the Operating Record regarding the waste container.

WMF-676 WAC for Existing and AMWTP Newly-Generated Waste

The WMF-676 requirements for the receipt of waste include the following:

- Waste must be received from another AMWTP waste management unit.
- Waste must be characterized for identity and quantity of organic and inorganic constituents, and metals. Unknown waste (i.e., waste with unknown IDCs or WGs following RTR examination or waste with known IDCs but unknown HWNs) from

the inventory of waste is accepted only if RTR and headspace gas analysis (for drummed waste) have been performed and the waste meets all other applicable WAC.

- Radioassay, weight, and RTR/visual examination results must be completed and entered into the Operating Record prior to receipt at WMF-676. RTR/visual examination results must provide a listing of items that require special handling/removal. These items may include non-vented gas containers, containerized free liquids, etc.
- The source of the waste must be DOE.
- Waste is typically packaged in a container no larger than 58.5-in. wide by 76.4-in. high by 96-in. long, with a tolerance of 2 in. in all dimensions to allow for protrusions. Smaller containers and other containers listed in Attachment 1.A may be accepted if all other general and unit-specific container criteria are satisfied, such as good condition, weight, labeling, clean exterior, etc.
- Containers must be numbered or coded for tracking purposes with a unique barcode identifier linked to the appropriate information (e.g., IDC, WG, HWNs) and container-specific information maintained within the Operating Record.
- Presence of free liquids must be identified in the characterization information.
- Waste must not contain known:
  - Explosive or pyrophoric material, except for pyrophoric forms of radionuclides,
  - DOT Class 1 explosives, or
  - Reactive metals or forbidden materials per 49 CFR 173.21.
- Shielded containers are typically not accepted since shielding inhibits RTR from being used for waste verification. Shielded containers may be accepted if visual examination has been performed on the container.
- Ignitability, reactivity, and compatibility evaluations based on existing information (including process knowledge, analytical results, or testing) must be completed prior to acceptance. If compatibility information is incomplete, additional compatibility evaluations may be performed, as necessary.
- Waste may be either debris or non-debris.
- Wastes shall not be readily capable of detonation or explosive decomposition or reaction at normal pressures and temperatures, or explosive reaction with water.
- Waste must be evaluated for the presence of oxidizers and pyrophoric radionuclides prior to any treatment. Evaluation results shall be documented as part of the Operating Record.

- Containers must have adequate integrity to be able to safely handle the container. Containers must be able to support the weight of the contents when lifted.

For each container received at WMF-676, the following information may be included in the Operating Record:

- An IDC (which may be 000 for unknown wastes, 00A for unknown sludge or other non-debris waste, and 00B for unknown debris waste) and WG, if known;
- Known HWNs (may be designated as undetermined);
- Characterization results (RTR, assay, weight, headspace gas analysis, if applicable);
- Known retrieval and storage history; and
- Targeted pretreatment/treatment process or processes.

WMF-676 Unit Specific WAC

The unit-specific WAC for WMF-676 pretreatment/treatment units are provided in the following sections. These unit-specific WAC are in addition to the general WMF-676 WAC listed above.

Box Line WAC

The WMF-676 box line WAC requirements for receiving waste include the following:

- All external features that protrude more than 2 in. from the sides/top of the box that could potentially affect the performance of the variable geometry doors must be removed or modified to allow minimal impact to variable door operations.
- All containers should be: (a) in good condition with no significant visible signs of corrosion or rotting of the metal, fiberglass-reinforced plastic, or wood, (b) intact with no holes or splits, (c) externally clean and free of significant loose dust and soil, (d) presented in the correct orientation with the lid on top, and (e) free from all sharp, significantly protruding objects, such as nails, screws, etc.
- If a container is not in good condition (e.g., severe rusting, apparent structural defects, etc.) that will impact the ability to safely handle and process the container, then the container must be repaired, repacked, or overpacked prior to acceptance at WMF-676.
- Containers may have bolts or clamps loosened or removed outside of WMF-676 to assist in opening the containers. The lids are not loosened to the extent that containment could be compromised.

Drum Repack System WAC

The WMF-676 drum repack system WAC requirements for receiving waste include the following:

- All waste drums must be lidded (lids may be filter vented).
- Prior to receipt at WMF-676, results of headspace gas sampling (if performed) must be recorded in the Operating Record for unknown drums that cannot be assigned IDCs/WGs based on RTR or have known IDCs but unknown HWNs.
- SCW items that are removed in the drum repack system must be entered into the Operating Record for the particular IDC so that future containers with the same IDC are screened for similar SCW items.
- Unknown wastes must be identified as such.
- All drums shall be free of loose significant amounts of soil.
- The base of the drum must not be distorted to such an extent that it rocks significantly when the drum is upright.

Supercompactor WAC

The WMF-676 supercompactor WAC requirements for receiving waste include the following:

- Drums must be 55 gal (or have equivalent dimensions to a 55-gal drum) with a maximum outer diameter of 24.5 $\pm$ 1 in. and a maximum height of 35 $\pm$ 1 in. All drums protrusions, clamp bands, clamping screws, rolling rings, and deformities must lie within the specified dimensions when the drum is in an upright position. Note: The physical size limitation of downstream process equipment (e.g., gloveboxes, waste handling equipment, etc.) prevents containers with sizes above the mentioned limits from entering the supercompactor.
- Waste must be characterized with respect to IDC/WG and/or HWNs. Drums of ROW are the only containers that do not require assigned HWNs prior to supercompaction.
- The base of a drum must not be distorted to such an extent that it significantly rocks when the drum is upright.
- Drums must not contain any of the following additional prohibited materials: free liquids, as determined by RTR to be in excess of 5% of the waste volume and non-vented gas containers. RTR results and/or visual examination results for drums must be recorded in the Operating Record.

SCW Glovebox System WAC

The WMF-676 SCW glovebox system WAC requirements for receiving waste include the following:

- Waste must be received in SCW transfer containers from the pretreatment areas, or be transferred into the glovebox through a bag transfer port.
- Smaller containers of waste within the transfer container must be labeled with unique barcode identifiers, unless the entire contents (multiple items and/or smaller containers) of the transfer container are from a single container.
- Individual items of SCW that are removed in the pretreatment areas must be traceable back to the original container so that the appropriate listed HWNs associated with the original waste can be assigned to the SCW items.
- Wastes that are not characterized with respect to HWNs must be managed as unknown wastes while stored inside the SCW glovebox system (i.e., separated from other wastes) until characterization information is obtained. Characterization information must be entered into the Operating Record and the assigned HWNs updated before wastes are transported to downstream treatment.
- Ignitability, reactivity, and compatibility evaluations based on data obtained from SCW glovebox system operations must be completed prior to downstream treatment, as required.

WAC for Off-Site Wastes

The following WAC apply to off-Site wastes received at the AMWTP:

- Waste meets the "Type II Module, Type I Module, and SWEPP WAC for Existing and AMWTP Newly-Generated Waste," listed above.
- Generators submit a waste profile. An example waste profile form is included in Appendix XX.
- Generators receive approval from AMWTP personnel prior to shipping waste to the MWMU(s).
- Waste is defined by a data package. The following information is required in a data package:
    - Hazardous waste manifest;
    - Container identification number;

- Container assembly identification number (if applicable);
- Waste generation site, date of packaging (closure date), weight, container type, shipment number, date of shipment, and vehicle type;
- Process knowledge; and
- Name of the certifying official.

Table C-1. Waste Stored at the TSA [a,b,c,d,e,f,g,h]

Generator	IDC	Description	Hazardous Waste Numbers	55-gal Drums		83-gal Drums		Boxes		Bins		Total Volume (m^3)	WG[c]
				WSF	TSA IS	WSF	TSA IS	WSF	TSA IS	WSF	TSA IS		
ANL-E	100	General Plant Waste	D001, F003	2		1		3		73	312	1318.5	HD
ANL-E	101	Cut Up Gloveboxes	D008							11	56	227.7	HD
ANL-E	102	Absorbed Liquids	D001, F003	24		2				1	11	46.4	SI
ANL-E	104	Alpha Hot Cell Waste	ROW	3							1	4.0	HD
ANL-E	105	Empty Bottles and Absorbent	D001, F003	2								0.4	HD
ANL-E	107	Remote-Handled Waste	ROW									0.0	RH
ANL-E	111	Solidified Wet Sludge	D004- D009			1						0.3	SI
Babcock	515	Plastics, Paper, Cloth, etc.	ROW	15								3.1	CW
Babcock	516	Steel, Al, Electrical Devices - Handheld	ROW	2								0.4	UM
Babcock	517	Heavy Metals, Steel, Al, Brass	ROW	2								0.4	UM
Battelle	201	Noncombustible Solids	D005-D009, D011,F001, F002, F005		42	1				26	1	100.8	HD
Battelle	202	Combustible Solids, Paper, Cloth	D005-D009, D011, F001, F002, F005								2	6.8	HD
Battelle	203	Paper, Cloth, Metals, Glass	D005-D009, D011, F001, F002, F005		26	1				3		15.9	HD
Battelle	204	Solidified Solutions	D005-D009, D011, F001, F002, F005		5					1		4.4	SI
Bendix	111	Miscellaneous Source Material	ROW	1								0.2	HD
Bettis	010	Combustibles (Rags, Gloves, Poly)	F002		763		52	2				181.4	CW
Bettis	012	Miscellaneous Sources	ROW	1		1						0.5	RH
Bettis	015	Neutron Sources	ROW	4								0.8	RH
Bettis	020	Noncompressible, Noncombustible[f]	D002, F002	340	794							235.9	HD
Bettis	030	Solidified Grinding Sludge, etc.	F002	7	38							9.4	SI
Bettis	040	Solid Binary Scrap Powder, etc.	ROW (lead for shielding only)	82	23	24		11				64.3	UNK
Bettis	050	Solidified Solutions	ROW	1								0.2	SI
Bettis	081	Metal-Metal Samples Fissile	ROW	17								3.5	SI
Bettis	338	RWMC Lead Shielded Overpack: Empty	None Identified					1				3.2	LCM
IN-ANLW	150	Laboratory Waste[f]	D002, D008	115		1						24.2	HD
IN-ANLW	154	Sample Fuel	ROW (lead for shielding only)	7		2						2.1	INM

Table C-1. Waste Stored at the TSA [a,b,c,d,e,f,g,h] (continued)

Generator	IDC	Description	Hazardous Waste Numbers	55-gal Drums		83-gal Drums		Boxes		Bins		Total Volume (m^3)	WG[c]
				WSF	TSA IS	WSF	TSA IS	WSF	TSA IS	WSF	TSA IS		
IN-ANLW	160	ANL-W HFEF Analytical Chemistry and Metallographic Combustibles	ROW	25								5.2	HD
IN-ANLW	161	ALC Glassware, Paper, Poly, and Miscellaneous Hardware	ROW	4								0.8	HD
IN-ANLW	162	FMF EFL Zirconium-Uranium-Plutonium Fuel Casting Alloy Residues	ROW	49								10.2	HD
IN-ANLW	163	ACL Cold-Line Absorbed Liquid, Misc. Hardware, Polyethylene	ROW	2								0.4	HD
IN-ANLW	164	WETP Process Waste	D005-D009, D011, D022, D028, D029, F001-F005	242		4		3				61.1	HD
INL	021	Radioactive Mixed Lead Waste	D008									0.0	LCM
INL	150	Laboratory Waste [f]	D002, D008	115		1						24.2	HD
INL	152	Plutonium Neutron Sources	ROW	6								1.2	RH
INL	153	Combustible Lab Waste	ROW (lead for shielding only)	2								0.4	HD
INL	154	Sample Fuel	ROW (lead for shielding only)	1		2						0.8	INM
INL	155	TRU Scrap	ROW (lead for shielding only)	6	5	2			1			6.1	HD
INL	156	Chem Cell Rip-Out	None Identified						9			28.5	HD
INL	157	Miscellaneous Sources	D008	5		1						1.4	RH
INL	601	Alpha Low Level Lav. WIPP Analytical Waste	D004-D011, F001-F003, F005-F007, F009	43								8.9	HD
J. Haynes	826	Combustible Equipment Boxes and Floor Sweepings	ROW					1				3.2	HD
J. Haynes	827	Solid Trash and Dry Laboratory Material	ROW					1				3.2	HD
Mexico	142	Scrap Processing Equipment	ROW			4		4				13.9	HD
Monsanto	530	Compacted Waste	ROW	5								1.0	HD
Monsanto	535	Compacted Waste/Lead	ROW	15		1						3.4	LCM
Monsanto	540	Non-Compacted Waste	ROW					4				12.7	HD
Monsanto	545	WEP Shielded Waste	ROW	5								1.0	HD
Monsanto	550	Solidified Oil	ROW	1								0.2	SO
Mound	801	Rags, Paper, Wood, etc.	ROW	2								0.4	HD
Mound	802	Dry-Box Gloves and O-Rings	D004-D009, D022, F001, F002, F005, F009	15								3.1	HD
Mound	803	Metal, Equip., Pipes, Valves, etc.	D004-D007, D009, D022, F001, F002, F005, F009	40								8.3	HD

Table C-1. Waste Stored at the TSA [a,b,c,d,e,f,g,h] (continued)

Generator	IDC	Description	Hazardous Waste Numbers	55-gal Drums		83-gal Drums		Boxes		Bins		Total Volume (m^3)	WG[c]
				WSF	TSA IS	WSF	TSA IS	WSF	TSA IS	WSF	TSA IS		
Mound	804	Plastic, Tygon, Mani-Boots, etc.	D009	20		2						4.8	HD
Mound	805	Asbestos Filters [f]	D001, D002, D009	10								2.1	HD
Mound	810	Glass, Flasks, Sample Vials, etc.	D009	4		1						1.1	HD
Mound	811	Evaporator and Dissolver Sludge	D001, D009	6								1.2	SI
Mound	813	Glass Filters and Fiberglass [f]	D001, D002, D009	1								0.2	HD
Mound	814	Waste Graphite	D009									0.0	HD
Mound	815	Classified Parts	D009									0.0	UNK
Mound	824	Equipment Boxes, Noncombustible	D005-D011					39	259			945.3	HD
Mound	825	Equipment Drums, Noncombustible	D005-D011	60		2						13.1	HD
Mound	826	Equipment Boxes, Combustible	D009	1								0.2	HD
Mound	827	Equipment Drums, Combustible	D008, D009	2								0.4	HD
Mound	834	High Level Acid [f]	D001, D002, D007-D009, F001, F002	82		5						18.6	SI
Mound	835	High Level Caustic [f]	D002, D007-D009, F001, F002	189		19						45.3	SI
Mound	836	High Level Sludge/Cement [f]	D002, D006-D011, F001-F003	1451		93						331.0	SI
Mound	838	<10 nCi/g Noncombustible	None Identified		1							0.2	HD
Mound	842	Contaminated Soil	D002, D006-D011						35			111.0	S
Mound	847	LSA <100 nCi/g Combustible	D008, D009	454		4						95.7	HD
Mound	848	LSA <100 nCi/g Noncombustible	D001, D002, D005-D011	17	29	6						11.5	HD
RFETS	001	First Stage Sludge	D004-D011, D022, F001-F003, F005-F007, F009	1067		479		2				378.7	SI
RFETS	002	Second Stage Sludge	D004-D011, D022, F001-F003, F005-F007, F009	1371		244	1					362.1	SI
RFETS	003	Organic Setups, Oil Solids	D022, D026-D030, D032, D034, D036, D037, D043, F001-F003, F005,	4512	3231	809		15				1912.2	SO
RFETS	004	Special Setups (Cement)	D001, D006-D008, D011, D022, F001, F002, F005-F007, F009	534		93		5	1			159.3	SI
RFETS	005	Evaporated Salts	D001	1	23	2						5.6	SW
RFETS	007	Bldg. 374 Dry Sludge	D006-D011, D032, F001, F002, F005-F007, F009	758		93		77				431.1	SI
RFETS	090	Dirt	F001-F004		305							63.4	S
RFETS	095	Sludge	None Identified		42		2					9.4	SI
RFETS	241	Americium Process Residue [f]	D001, D002, D008, F002, F003	1								0.2	HD

Table C-1. Waste Stored at the TSA [a,b,c,d,e,f,g,h] (continued)

Generator	IDC	Description	Hazardous Waste Numbers	55-gal Drums		83-gal Drums		Boxes		Bins		Total Volume (m^3)	WG[c]
				WSF	TSA IS	WSF	TSA IS	WSF	TSA IS	WSF	TSA IS		
RFETS	290	Sludge, Filter [f]	D002, D006, D008, F001-F003		5							1.0	SI
RFETS	292	Cemented Sludge [f]	D002, D004-D011, D022, F001-F003, F005- F007, F009	387		7						82.7	SI
RFETS	300	Graphite Molds	D008, D029, D040, F001, F002, F005	351	66	29	41					108.7	G
RFETS	301	Graphite Cores	D008, D029, D040, F001, F002, F005	17	18							7.3	G
RFETS	302	Benelex and Plexiglas	D005, D008, F001	15				6	9			50.7	CW
RFETS	303	Scarfed Graphite Chunks	D008, D029, D040, F001, F002, F005			2						0.6	G
RFETS	310	Graphite Scarfings	ROW	1	30							6.4	G
RFETS	311	Graphite Heels	None Identified	3								0.6	SI
RFETS	312	Graphite, Coarse	D008, D029, D040, F001, F002, F005	1								0.2	G
RFETS	320	Heavy Nonspecial Source Metal	D008, F001, F002, F005	91		10						22.1	LCM
RFETS	321	Lead	D008									0.0	LCM
RFETS	328	Filters, Ful-Flo Incinerator [f]	D002, D004-D011, F001-F003, F005	2		1						0.7	F
RFETS	330	Paper and Rags-Dry	D006-D009, D011, D022, F001-F003, F005-F007, F009	996	4228	76	157	94	1220			5327.8	CW
RFETS	335	Filters, Absolute 8 x 8	D005, D007-D009, D011, D022, F001, F002, F005-F007, F009	62		1						13.2	F
RFETS	336	Paper and Rags-Moist [f]	D002, D006-D009, D011, D022, F001-F003, F005-F007, F009	1450	7437	140	209	78				2205.5	CW
RFETS	337	Plastic, Teflon, Wash, PVC	D006-D009, D011, D022, F001-F003, F005-F007, F009	508	898	56	59	2				334.9	CW
RFETS	338	Insulation and CWS Filter Media	D001, D005, D007D009, D011, F001, F002	61		8		10	59			234.1	F
RFETS	339	Leaded Rubber Gloves and Aprons	D008, D022, F001-F003, F005-F007, F009	265		11						58.6	CW
RFETS	33A	A Mixture of Waste Characterized with IDC codes 335, 336, 337, and 339 (Filters, Absolute 8 x 8, Paper and Rags-Moist, Plastic, Teflon, Wash, PVC, Leaded Rubber Gloves and Aprons)	D004-D011, D022, F001-F003, F005-F007, F009					1				3.2	CW

Table C-1. Waste Stored at the TSA [a,b,c,d,e,f,g,h] (continued)

Generator	IDC	Description	Hazardous Waste Numbers	55-gal Drums		83-gal Drums		Boxes		Bins		Total Volume (m^3)	WG[c]
				WSF	TSA IS	WSF	TSA IS	WSF	TSA IS	WSF	TSA IS		
RFETS	33B	A Mixture of Waste Characterized with IDC codes 330, 337, and 339 (Filters, Absolute 8 x 8, Paper and Rags-Moist, Plastic, Teflon, Wash, PVC, Leaded Rubber Gloves and Aprons)	D006-D008, D011, D022, F001-F003, F005-F007, F009					1				3.2	CW
RFETS	360	Insulation	D005, D007D009, D011, F001, F002		474		11		1			105.2	F
RFETS	361	Insulation Heel	ROW									0.0	SI
RFETS	368	Magnesium Oxide Crucibles	ROW	1								0.2	INM
RFETS	370	Crucible, LECO	ROW	1	131							27.5	INM
RFETS	371	Brick, Fire	D004-D011, D022, D028, D029, F001-F003, F005	65	1451	12	10	9	28			439.6	INM
RFETS	372	Grit	D007	18								3.7	INM
RFETS	374	Blacktop, Concrete, Dirt, & Sand	D004-D011, D018, F001-F003, F005-F007, F009	861		42		33	24			373.1	S & HD[i]
RFETS	375	Oil-Dri Residues from Incinerator	D004-D011, D022, F001-F003, F005	20		1						4.5	SI
RFETS	376	Cemented Insulation and Filter Media	D005, D007-D009, D011, D022, F001, F002, F005-F007, F009	255		27		2	1			71.0	F
RFETS	377	Firebrick, Coarse	D004-D011, D022, D029, F001-F003, F005									0.0	INM
RFETS	391	Crucible and Sand	ROW	21		1						4.7	INM
RFETS	392	Sand, Slag, and Crucibles	ROW	1	11		4					3.8	INM
RFETS	393	Sand, Slag, and Crucible Heels	D007	48								10.0	SI
RFETS	409	Molten Salts, 30% Unpulverized	ROW	28		3						6.8	SW
RFETS	410	Molten Salts, 30% Pulverized	ROW	22								4.6	SW
RFETS	411	Electrorefining Salt	ROW	20		1						4.5	SW
RFETS	412	Gibson Salts	ROW	1								0.2	SW
RFETS	414	Direct Oxide Reduction Salt	ROW	5								1.0	SW
RFETS	416	Zinc Magnesium Alloy Metal	ROW	1								0.2	UM
RFETS	420	Ash, Incinerator (Virgin)	D004-D011, D029, F001-F003, F005	4	4							1.7	SI
RFETS	421	Heels, Ash (>2% G/G)	D004-D011, D029, F001-F003, F005	97		2						20.8	SI
RFETS	422	Soot	D004-D011, D029, F001-F003, F005	19		2						4.6	SI

Table C-1. Waste Stored at the TSA [a,b,c,d,e,f,g,h] (continued)

Generator	IDC	Description	Hazardous Waste Numbers	55-gal Drums		83-gal Drums		Boxes		Bins		Total Volume (m^3)	WG[c]
				WSF	TSA IS	WSF	TSA IS	WSF	TSA IS	WSF	TSA IS		
RFETS	425	Fluid Bed Ash	D007, F003, F005	11								2.3	SI
RFETS	430	Resin, Ion Column - Unleached	D001, D022, D028, D029		43		12					12.7	CW
RFETS	431	Resin, Leached	ROW		12							2.5	CW
RFETS	432	Resin, Leached and Cemented	D007, D008, D022, D028, D029, F001, F002, F005	225		26						55.0	SO
RFETS	440	Glass [f]	D002, D005, D008, D009, D022, F001, F002, F005	204		15	18	15				100.4	INM
RFETS	441	Raschig Rings, Unleached [f]	D002, D008, F001, F002	333		26						77.4	INM
RFETS	442	Raschig Rings, Leached	D008, F001, F002	72		15		9				48.2	INM
RFETS	44A	A Mixture of Waste Characterized with IDC codes 440 and 442 (Glass/Raschig Rings, Leached)	D005, D008, D009, F001, F002, F005					2				6.3	INM
RFETS	460	Washables, Rubber, Plastics	F001, F002									0.0	CW
RFETS	463	Leaded Rubber Gloves and Aprons	D008, F001, F002				45					14.1	CW
RFETS	464	Benelex and Plexiglas	D005, D008, F001	8								1.7	CW
RFETS	480	Metal, Scrap (Nonspecial Source)	D001, D006-D009, D011, D028, F001-F003, F005-F007, F009	584		37	123	1083	2856			12666.2	LCM
RFETS	481	Metal, Leached (Nonspecial Source)	D006-D009, D011, D028, F001-F003, F005-F007, F009	272		10		1	20			126.3	LCM
RFETS	48A	A Mixture of Waste Characterized with IDC codes 480 and 481 (Metal, Scrap [Nonspecial Source] / Metal, Leached [Nonspecial Source])	D004-D011, D028, F001-F003, F005-F007, F009	1								0.2	LCM
RFETS	488	Glovebox Parts with Lead	D008	5								1.0	LCM
RFETS	490	Filters, CWS	D001, D005, D007-D009, D011, D022, F001, F002, F005-F007, F009	6		1	7	77	441			1646.9	F
RFETS	491	Plenum Prefilters	F001, F002									0.0	F
RFETS	700	Organic and Sludge Immobilization System (OASIS) Waste	D022, D027-D030, D034, D036, D043, F001, F002, F005	28		3						6.8	SO
RFETS	800	Solidified Sludge, Bldg. 774	D004-D011, D022, F001-F003, F005-F007, F009	2		10						3.6	SI
RFETS	801	Solidified Organics	D022, F001-F003	287		20						66.0	SO
RFETS	802	Solidified Lab Waste	D001, D006, D008, D011, F001-F003, F005, F009	3								0.6	SI

Table C-1. Waste Stored at the TSA [a,b,c,d,e,f,g,h] (continued)

Generator	IDC	Description	Hazardous Waste Numbers	55-gal Drums		83-gal Drums		Boxes		Bins		Total Volume (m^3)	WG[c]
				WSF	TSA IS	WSF	TSA IS	WSF	TSA IS	WSF	TSA IS		
RFETS	803	Solidified DCP Sludge	D006-D011, D032, F001, F002, F005-F007, F009	21								4.4	SI
RFETS	806	Solidified Process Solids	D004-D011, F001-F003, F005	41								8.5	SI
RFETS	807a	Cemented Incinerator Sludge (After 3/21/87)	D006-D011, D032, F001, F002, F005-F007, F009	235		36		3				69.7	SI
RFETS	807b	Cemented Incinerator Sludge (Before 3/21/87)	D004-D011, D022, F001-F003, F005-F007, F009	115		13		2				34.3	SI
RFETS	817	Cemented Sand, Slag, & Crucible Heels	D007, D008, F001-F003	27								5.6	SI
RFETS	818	Cemented Incinerator Ash	D004-D011, F001-F003, F005	8								1.7	SI
RFETS	820	Cemented Soot	D004-D011, F001-F003, F005	28								5.8	SI
RFETS	822	Cemented Resin	D022, D028, D029	29		1						6.3	SO
RFETS	823	Cemented Miscellaneous Sludge	D004-D011, F001-F003, F005	13		4		1				7.1	SI
RFETS	831	Dry Combustibles TRU Mixed	F001, F002					1				3.2	CW
RFETS	832	Wet Combustibles TRU Mixed	F001, F002					2				6.3	CW
RFETS	833	Plastics TRU Mixed	F001, F002					2				6.3	CW
RFETS	900	LSA Paper, Plastic, etc.	D004-D011, D029, F001-F003, F005	78	746	8			6			192.9	CW
RFETS	950	LSA Metal, Glass, etc.	D004-D011, F001, F002, F005	4	390	1		32	40			310.7	LCM
RFETS	960	Concrete, Asphalt, etc.	D004-D011, F001, F002, F005	59	1097	1	24	10	191			885.9	HD
RFETS	970	Wood	D008, F001-F003, F005	6		2		9	70			252.5	CW
RFETS	976	Bldg. 776 Process Sludge	D006-D009, D022, F001-F003	4		3			20			65.2	SI
RFETS	978	Laundry Sludge	D006-D009, D022, F001-F003					11				34.9	SI
RFETS	980	Equipment (May Contain Sludge)	D008, F001, F002		2							0.4	UNK
RFETS	990	Dirt	F001-F004	136	713	1	7					179.1	S
RFETS	995	Sludge	ROW	112	362			2	4			117.6	SI
Various	000 [j]	Not Recorded	Unidentified		4203		2342				17	1667.4	UNK
			TOTALS:	**20404**	**27648**	**2566**	**3124**	**1666**	**5295**	**115**	**400**	**35611.7**	

ANL-E = Argonne National Laboratory – East
Babcock = Babcock and Wilcox
IN-ANLW = INL – Argonne National Laboratory West
J. Haynes = J. C. Haynes, Ohio businessman who irradiated diamonds with Am-241
Mexico = Am-241 waste from a smoke detector manufacturing company in Mexico

Monsanto = Monsanto-Dayton Laboratory
RFETS = Rocky Flats Environmental Technology Site

a. The number and type of containers listed in this table are based on data as of October 01, 2006. Volumes are calculated using the following conversion factors: (a) 0.208 m^3/55-gal drum, (b) 0.314 m^3/83-gal drum, (c) 3.172 m^3/box, and (d) 3.398 m^3/bin. These conversion factors were used because multiple containers were used and the volumes of the containers vary (boxes and bins).

b. Only two of the IDCs are currently identified as TSCA-regulated waste in RPT-TRUW-12: RFETS 003 and Battelle 203.

c. Based upon additional characterization information obtained, the WG may change.

d. The number of containers may change, based upon actual waste retrieved.

e. The WG may be determined from RTR results.

f. Potential corrosives if liquids exceed 1%.

g. Blanks in the table indicate zero containers present in the inventory.

h. This table is included into this document for information only. Changes required to the table are administrative in nature and are not subject to the requirements of IDAPA 58.01.05.012 (40 CFR 270.42). This table will be updated once each calendar year as an equivalent or superior change.

i. RFETS 374, Blacktop, Concrete, Dirt, and Sand, has two WG that can be assigned to drums, based on the majority of waste in the container [>50% dirt or sand is Soil, >50% debris (concrete, blacktop, metal, combustibles, plastics, gloves, etc.) is HD].

j. Following RTR, drums with the 000 IDC are typically assigned the 00A or 00B IDC for unknown sludge/non-debris and unknown debris, respectively..

C-1 Chemical and Physical Analyses [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.13(a) and 270.14(b)(2)]

This section provides data on chemical and physical characteristics of waste received for storage and/or treatment at the MWMUs and data on waste presently stored at the TSA. The AMWTP waste characterization program extensively uses generator-supplied process information. Verification of generator-supplied data for existing waste stored at the TSA has been an ongoing activity since 1980. Activities previously conducted for waste verification include:

1. Visits to generator sites, completion of questionnaires, review of generator records, and generator personnel interviews to confirm potential hazards associated with the wastes;
2. Waste sampling and gas generation studies of waste to verify compliance with the WIPP WAC;
3. Detailed characterization using information obtained from waste shipment records, and observing waste-generating processes to verify for each IDC the waste form, the generation source of the waste, waste packaging and handling practices, waste container preparation, assay methods, and waste constituents;
4. Examination of more than 17,000 containers via RTR; and
5. Return of more than 260 containers to the Rocky Flats Environmental Technology Site (RFETS), formerly the Rocky Flats Plant, to be reopened and visually examined for free liquids (presence and volume), sludges, particulate quantities, presence of pyrophoric, toxic, or corrosive materials, correspondence of contents with previous documentation, and physical description of the waste form.

The results from these studies are documented and serve as the basis for the HWNs assigned in RPT-TRUW-12 and in this document.

The majority of the waste presently stored at the TSA was generated off-Site at other DOE-operated facilities. Most of the waste has been received from the RFETS in Colorado. Other sources of waste include the Mound Facility in Ohio, the Argonne National

Laboratory-East (ANL-E) in Illinois, the Battelle Columbus Laboratory in Ohio, and the Bettis Atomic Power Laboratory in Pennsylvania, while a portion of the waste was generated at INL facilities.

Descriptions of containers used for storing waste at the TSA are provided in Section D-1a(1), Attachment 1.A. Except for some overpacking and repackaging of retrieved containers that are damaged and for containerizing contaminated soil/wood/plastic/tarps from retrieval operations, waste is primarily packaged by non-AMWTP generators. Characterization of the physical forms and chemical compositions of wastes received for treatment and storage at the MWMUs are further detailed in Sections C-2, C-3, and C-4.

The following sections summarize the characterization strategy for existing waste received at the MWMUs. Sections C-1a and C-1g focus on the characterization of the MW that enters each of the waste management areas. Section C-2 presents the specifics of the planned waste characterization activities. The chemical and physical analyses for newly-generated and off-Site waste are discussed in Section C-2e. Additional analyses pertaining to LDR for final waste forms are discussed in Section C-3, while additional requirements for waste shipped to the WIPP are discussed in Section C-4.

The sampling and analysis frequencies specified below and in Sections C-2, C-3, and C-4 are the frequencies that were implemented when operations of the MWMUs first began. These initial frequencies are statistically re-evaluated to determine whether the sampling frequencies need to be increased or decreased. The statistical method for determining the analytical frequency is included in the AMWTP Waste Characterization Quality Assurance Project Plan (QAPjP), as shown in Appendix XXI.

C-1a Containerized Wastes [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR Part 264, Subpart I and 270.15(b)(1)]

The HWNs shown for each waste stream have been assigned based on a combination of process knowledge gathered from waste generators, waste-generator supplied data, and results of waste sampling and analysis. These data sources and the basis for assigning the HWNs are described in RPT-TRUW-12.

Containers are typically examined via RTR or by visual examination to verify contents and to identify SCW items, PCB-suspect electrical equipment, and other items that require separation prior to treatment. Items identified by examination as requiring removal from containers (e.g., non-vented gas cylinders, PCB-suspect electrical equipment, and liquids) are entered into the Operating Record. Characterization processes (e.g., RTR, assay, etc.) are briefly described in Section C-2b and in more detail in the AMWTP Waste Characterization QAPjP, as shown in Appendix XXI. Containers identified as having free liquid may be treated in the MWMUs. The overall characterization strategies for waste are discussed below.

TSCA-regulated waste (regulated under 40 CFR 761) may be stored in the MWMUs. Only two of the IDCs listed in Table C-1 are currently specified in RPT-TRUW-12 as possibly containing TSCA-regulated PCBs. They are the Battelle 203 (paper, cloth, metals, and glass) waste and the RFETS 003 (organic setup) waste. Containers with PCB-suspect electrical items, such as fluorescent light ballasts and small capacitors, are expected to be present in certain waste streams. These containers may be sent to WMF-676 or another MWMU for sorting, treatment, and/or storage.

Characterization Strategy for Waste

The AMWTP waste characterization approach is summarized in Exhibits C-1 through C-3, using the following main principles:

- Prior to treating waste, RTR is used to examine 100% of the containers to identify the waste matrix and identify any liquids or other SCW items. If the specific IDC cannot be verified, the broader WG is verified and HWNs are assigned based on best technical judgment. No additional sampling and analysis is required to complete the characterization of these waste containers. See Exhibit C-1 for further information.
- Waste containers with known IDCs but unknown HWNs are subjected to sampling and analysis and to visual examination. HWNs may be assigned based on sampling and analysis (e.g., headspace gas) or a “representative” waste sample (when possible), or based on best technical judgment. See Exhibit C-2 for further information. This process is repeated until sufficient data are available to assign specific HWNs to this IDC.
- Containers for which IDCs or WGs cannot be assigned based on RTR are subjected to sampling and analysis and visual examination. For those rare instance where the

correct IDC/WG cannot be determined following visual examination, HWNs are assigned based on a "representative" waste sample (when possible), or based on best technical judgment. See Exhibit C-3 for further information.

- AMWTP authorized RTR and/or visual examination personnel assign IDCs/WGs based on operational experience/expertise, characterization data and waste profile sheets for similar waste, generator waste-production history, sampling and analysis, etc. If an IDC cannot be assigned or if the IDC is listed with unknown HWNs, operators determine if a representative sample of the waste can be obtained. If so, analytical results are used to assign HWNs. Best technical judgment may be used to assign the broader WG to the waste and composited WG HWNs are assigned. These composited WG HWNs include all HWNs for the individual waste IDCs grouped within the WG, as applicable. A reduced, composited WG HWN list may be used when the process knowledge (e.g., physical matrix) supports the reduced list. All determinations involved in assigning IDCs, WGs, and/or HWNs are documented in the Operating Record. The information recorded in the Operating Record is updated within 72-hrs when new information is captured.
- When process knowledge is used for assigning HWNs and/or IDCs/WGs to an unknown container, it shall be used in conjunction with other characterization information (e.g., RTR, visual examination, assay, or sampling and analysis).

C-1g Wastes in Miscellaneous Units [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR Part 264.601 and 270.23(d)]

WMF-676 includes the following HWMA/RCRA-regulated miscellaneous treatment units:

- Box line and drum repack system areas that are used to sort, size reduce, repackage, sample, decant, neutralize, absorb, and visually inspect container contents;
- SCW glovebox system and DWPG which is used for decanting, neutralization, absorption, venting of gas containers, and opening/sampling smaller containers; and
- Supercompactor, used to compact waste drums into pucks and decant, neutralize, and absorb liquids.

The chemical and physical analyses associated with waste handled within WMF-676 are discussed in Section C-1a. Chemical and physical analyses specific to the miscellaneous units in WMF-676 are discussed below.

C-1g(1) Wastes in WMF-676 Pretreatment Areas

Containerized waste processed in the box lines and drum repack system pretreatment areas are typically not sampled and analyzed prior to receipt. This waste has been characterized, using process knowledge, visual examination, and/or RTR. For example, all containers of existing waste, and applicable containers of newly-generated waste, are examined via RTR to verify IDC, contents, and WG prior to receipt at WMF-676. In addition to preparing waste for downstream treatment, the pretreatment areas may be used to verify/obtain characterization data through visual examination. Verification of RTR characterization via visual examination is discussed further in the AMWTP Waste Characterization QAPjP, as shown in Appendix XXI.

Both debris and non-debris waste may be processed through the WMF-676 pretreatment units, provided that the appropriate WAC are satisfied. Debris waste is intended for subsequent treatment via supercompaction, while the non-debris wastes are characterized, liquids treated, and transferred out of WMF-676.

WMF-676 Characterization Strategy for Debris Waste

RTR is the primary tool used for identifying SCW items and other items that do not meet the supercompactor WAC. Visual examination may also be performed on select debris drums to verify the accuracy of RTR results with respect to the identification of all prohibited/SCW items and debris WG. Since all boxes and bins require pretreatment/repackaging, it is not necessary to designate a percentage of these containers for additional visual examination.

Containers that require sorting and/or visual examination in the pretreatment areas are managed so that compatible waste is contained within any individual transfer container sent to downstream treatment. This strategy simplifies the tracking of HWNs associated with the feeds to downstream treatment processes. To maximize the overall operational efficiency of WMF-676, IDCs from the same WG are intended to be co-mingled in containers. Debris waste with different IDCs/WGs is mixed only if the characterization information confirms that the wastes are compatible. When wastes from the same WG are combined, the sorted waste is then assigned HWNs based on technical judgment based on the information related to the IDCs/WGs involved. Waste with unknown IDCs/WGs and waste with known IDCs but unknown HWNs

that are assigned composited HWNs based on best technical judgment, are not co-mingled with other wastes (i.e., waste from other WGs) until characterization is complete.

WMF-676 Characterization Strategy for Non-Debris Waste

The non-debris waste that is expected to be characterized in WMF-676 is primarily non-debris waste in smaller containers (typically 1-L to 5-gal capacity) found within larger containers. Non-debris waste is processed through the pretreatment areas and the SCW glovebox system. The primary objective of pretreatment for non-debris waste is to collect samples for analysis and treatment, as required.

There are two scenarios involving container-in-container for non-debris waste, which may require sampling. The first scenario is a drum of containers, which contain waste from the same process. When a drum that has multiple containers of the same non-debris waste that requires sampling, one container of the waste is randomly selected for sampling. The sample is collected and analyzed for total metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs).

The second scenario is a container of non-debris waste that is not representative of waste that is contained in other containers that are retrieved from primary containers. Unknown containers of non-debris waste are sampled in the SCW glovebox system or in the DWPG. The samples are subjected to total metal and organic (VOC and SVOC) analyses, as applicable. The analytical results from unknown non-debris waste are used to determine a sampling frequency (see the AMWTP Waste Characterization QAPjP in Appendix XXI). Unknown non-debris waste that is not sampled is assigned an SI, SO, SW, or soil WG based upon RTR, headspace gas analysis, and/or visual examination. This waste is then assigned the appropriate composited WG HWNs shown in Table C-1.

Liquids collected from containers with unknown HWNs or generated from AMTWP processes are tested for metals, organics, ignitability, and corrosivity prior to further management. Additional details on the sampling and characterization of the non-debris waste are presented in the AMWTP Waste Characterization QAPjP in Appendix XXI and Section C-2.

C-1g(2) Wastes in the SCW Glovebox System and DWPG

SCW may be removed from containers in the pretreatment areas or the supercompactor, or may consist of entire IDCs that warrant unique handling in the SCW glovebox system and/or DWPG. Containerized liquids, elemental mercury, and items prohibited by the supercompactor WAC are expected to be the most common types of SCW removed from debris containers in the pretreatment areas. Liquids from the pretreatment areas and elemental mercury are generally collected in an appropriate container, as necessary, placed in a transfer container, and transferred either to the SCW glovebox system or the DWPG for treatment. Additionally, containers may be hand carried to the SCW glovebox system or the DWPG and enter via bagports. Sampling and analysis of SCW items is generally not conducted in the pretreatment areas, but is performed in the SCW glovebox system or DWPG. Therefore, until the chemical and physical analyses for these wastes are obtained, they are stored within the SCW glovebox system, DWPG, or the SCW collection area.

Liquids received at the SCW glovebox system and DWPG are examined for multiple phases, and separated, as required. Once separated, liquids are checked for pH using pH/litmus paper or a pH instrument and neutralized as required. After neutralization, liquids may be co-mingled based upon a positive compatibility test. Aqueous and organic liquids collected from waste containers with known HWNs are assigned the listed HWNs associated with the original waste.

Liquids collected from waste with unknown HWNs are subjected to pH/flashpoint measurement, total metals, and organic analysis. Following characterization of the liquid, it is neutralized (if found to be corrosive) and then absorbed on an appropriate material and transferred to downstream treatment or out of WMF-676.

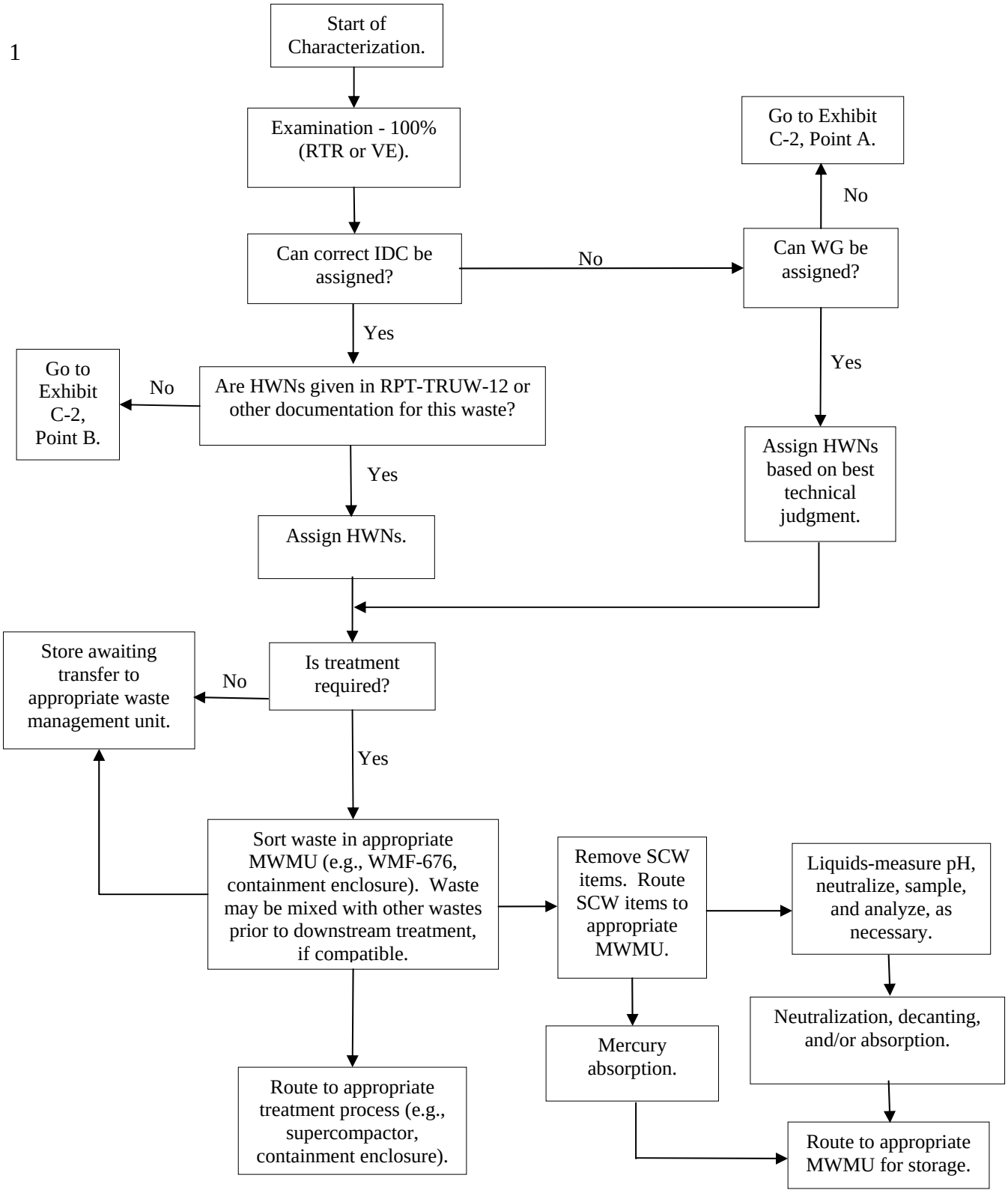
Containerized elemental mercury from the pretreatment areas is not analyzed prior to absorption in the SCW glovebox system or the DWPG. However, if there is a second liquid phase with unknown HWNs, then the second liquid phase is decanted, analyzed, and treated as described above. See Attachment 1.F.ii for further information on the absorption of mercury in the SCW glovebox system or the DWPG. The smaller containers of SI/SO/SW SCW items that are opened are sampled (if necessary), repackaged, then transferred to a downstream treatment

process or out of WMF-676. The SCW glovebox and the DWPG each have a maximum waste storage capacity of 200 gal. If additional storage capacity is required for SCW items pending analytical results, the sampled SCW items are removed from the SCW glovebox system or the DWPG and routed to the SCW collection area.

C-1g(3) Wastes in the Supercompactor Unit

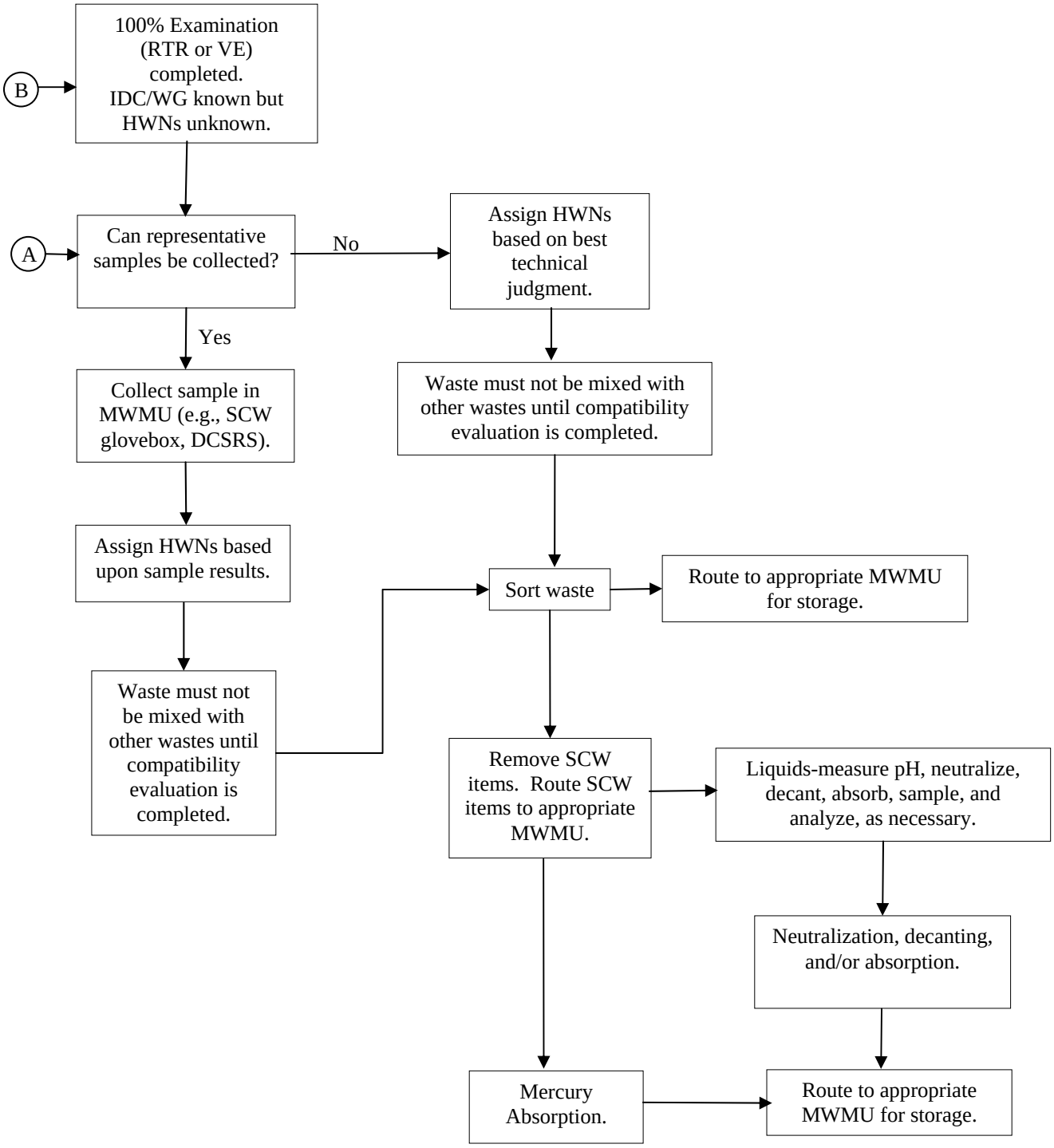
The debris waste listed in Table C-1 are intended for treatment via supercompaction, although some debris waste may be direct shipped to the WIPP or to another waste management unit. As discussed in Section C-1g(1), any sampling required to fully characterize debris waste is typically performed in the pretreatment areas, provided representative samples can be collected. As a result, the debris waste that arrives at the supercompactor for treatment is fully characterized. No additional characterization is required for this waste provided that the supercompactor WAC is satisfied.

Liquids in the supercompactor gloveboxes are treated as described in Attachment 1.F.iii.



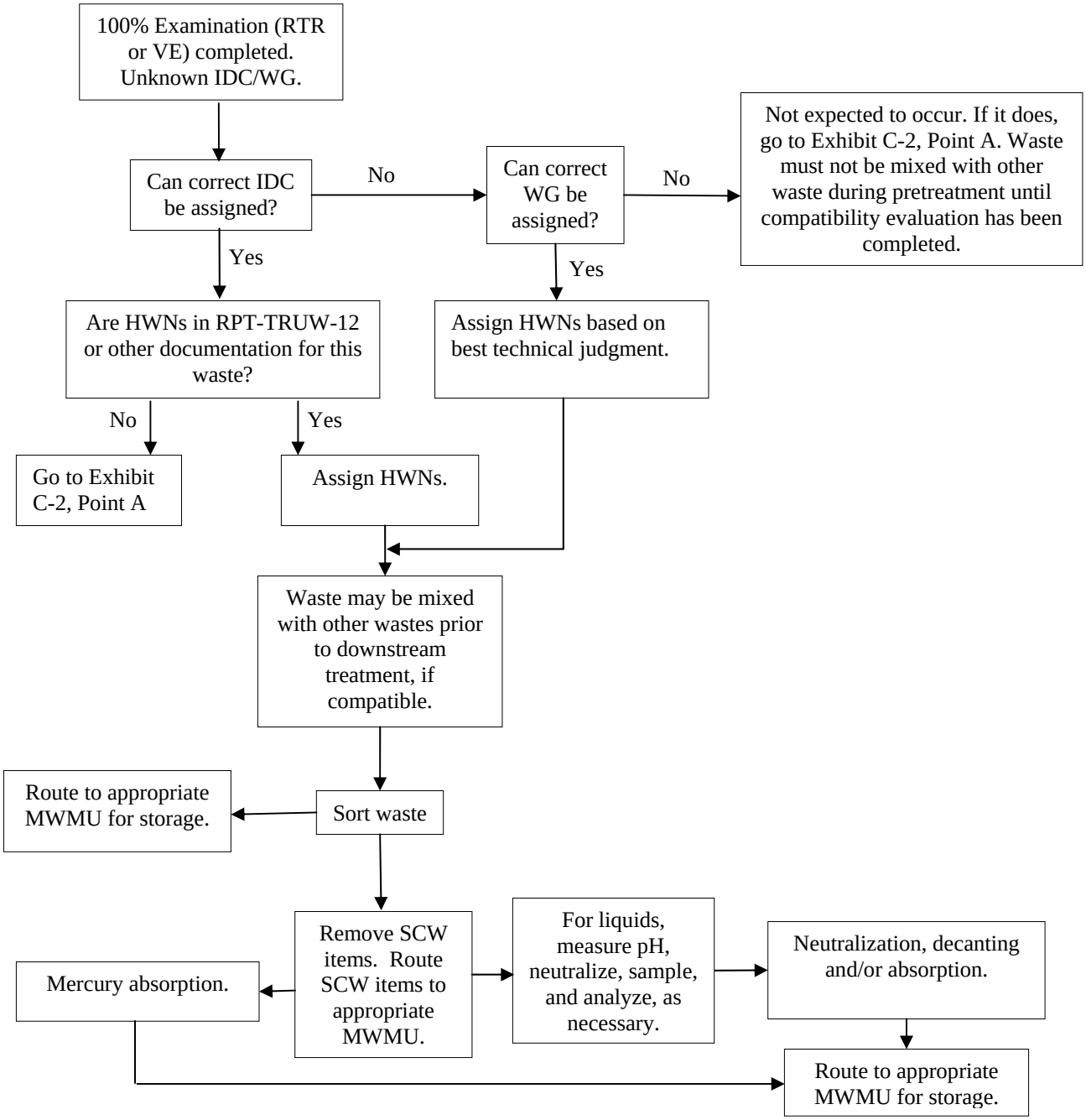
VE – visual examination

Exhibit C-1. Characterization of Waste with Known IDCs/HWNs



VE – visual examination

Exhibit C-2. Characterization of Waste with Known IDC/Unknown HWNs



VE – visual examination

Exhibit C-3. Characterization of Waste with Unknown IDCs/HWNs

C-2 Waste Analysis Plan [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.13(b) and (c), and 270.14(b)(3)]

This WAP describes the methods for conducting characterization in the MWMUs. This WAP is designed to establish consistent characterization, sampling, sample management, analytical methods, parameter selection, and controls for waste at and generated by the AMWTP.

The objectives of this WAP are to:

- Ensure that sufficient information is available for safe and compliant handling, storage, treatment, and disposition of wastes and residues;
- Establish uniform and comparable waste characterization requirements;
- Verify that incoming wastes are properly characterized and described in required documentation;
- Generate information regarding the waste (from waste characterization, process knowledge, and waste profiles), in the Operating Record, for all wastes stored at the MWMUs;
- Ensure treatment residuals and AMWTP-generated wastes are characterized in accordance with regulatory requirements; and
- Ensure that waste is characterized to meet the disposal waste management unit's WAP.

C-2a Parameters and Rationale [IDAPA 58.01.05.008; 40 CFR 264.13(b)(1)]

Table C-2 summarizes the general parameters evaluated for waste, treatment residue, and secondary waste, and the rationale for their selection. The general parameters in Table C-2 are selected to ensure that adequate characterization is available to satisfy the requirements of HWMA/RCRA. Waste information is updated based upon waste characterization analysis performed as described in this section and in Section C-4.

The primary method used to characterize the waste accepted at the MWMUs is process knowledge, which serves as the basis for the HWNs assigned to existing IDCs. Additionally, waste is characterized by examination (RTR or visual examination) and/or sampling and analysis. See Exhibits C-1, C-2, and C-3 for a schematic presentation. All determinations involved in assigning IDCs, WGs, and/or HWNs are documented in the Operating Record,

typically via the DMS. Analytical results obtained from the waste analysis are also entered into the Operating Record, typically via the DMS.

Prior to treatment, the waste containers are typically characterized using process knowledge. For liquid absorbent, the appropriate absorbent is selected based upon the process knowledge maintained within the waste profile and/or Operating Record.

In addition, any MW generated at the MWMUs from normal operations, leaks or spills, and/or closure processes are characterized by the methods described in this section. Leaks and spills are characterized utilizing process knowledge based upon the source of the leak or spill. The same HWNs that are assigned to the source of the leak or spill are assigned to the waste generated during the clean up activities, as applicable. In the event that the source is unknown or the HWNs are not known for the source, sampling and analysis may be used.

C-2b Test Methods [IDAPA 58.01.05.008; 40 CFR 264.13(b)(2)]

Table C-3 summarizes the minimum characterization parameters, sampling methods, and frequencies for stored waste and secondary waste. Table C-4 summarizes the potential characterization/analytical methods that may be used to analyze waste, treatment residuals, and secondary waste. These analyses are performed in accordance with the methods specified in SW-846, ASTM analytical methods, or other EPA-approved methods. Typically, the analyses are performed at a contracted analytical laboratory.

Waste Characterization Equipment

The waste characterization equipment located within the MWMUs is used to examine containerized waste prior to treatment and/or disposition. The characterization equipment is also used to verify the accuracy of generator-furnished data packages. Most of the waste characterization systems are linked to the DMS. Data from characterization systems that are not connected to the DMS are generally electronically transmitted to the DMS. The Operating Record is used to collect information relative to containers examined at the MWMUs and to build databases to support decisions regarding eventual shipment, treatment, or disposal at appropriate waste management units.

AMWTP personnel have barcode readers to track the receipt and storage of waste containers. The AMWTP contains the following equipment in support of characterization:

- RTR equipment,
- Areas for performing visual examination (e.g., containment enclosures, gloveboxes, etc.),
- Drum assay equipment,
- Box assay equipment,
- Drum venting, and
- Headspace gas sampling and analysis capabilities.

RTR Characterization

RTR equipment (located in WMF-610, WMF-628 and WMF-634) includes a radiography system that normally consists of an x-ray producing device, an imaging system, an enclosure for radiation protection, a container handling system, an audio/video recording system, and a personnel control and data acquisition station. The RTR equipment utilizes controls in order to optimize data quality. The system allows AMWTP personnel to vary the voltage to provide an optimum degree of penetration through the container. The container is scanned while AMWTP personnel view the image on a monitor. An audio/video recording or equivalent is made, on non-alterable media, of the waste container RTR images. Typically, the RTR equipment is used to identify or confirm the waste description and packaging configuration, and to identify items prohibited at WMF-676 or another MWMU.

As described previously, RTR is used to identify liquids (including mercury), physical form of the waste, and the presence of prohibited items that require separation in WMF-676. Details on how RTR is used to verify physical form, prohibited items, and related quality control (QC) requirements are in the AMWTP Waste Characterization QAPjP, provided in Appendix XXI. In the case of unlabeled containers, RTR is used to correlate the contents of the container with known waste types and, if possible, assign an IDC or WG. The RTR results are recorded in the Operating Record, typically via the DMS.

Visual Examination

Areas for performing visual examination (e.g., containment enclosures, gloveboxes, etc.) are located throughout the MWMUs. Visual examination constitutes opening a container to identify and/or verify waste container contents. Equipment used for performing visual examination varies upon the area where the examination is performed, but it may include items such as ventilation hoods, inspection stations, measuring devices, etc. Visual examination is normally performed as quality control check on RTR, but visual examination may also be performed in lieu of RTR in order to identify liquids, physical form of the waste, and the presence of prohibited items. Visual examination results are recorded in the Operating Record, typically via the DMS.

Assay Equipment

The drum assay systems (located in WMF-610, WMF-628, WMF-634, and WMF-676) are a combination of high-efficiency passive neutron, quantitative neutron, quantitative gamma ray, and active neutron techniques, which are used to determine radionuclide isotopic composition, quantify the radionuclide masses, and compute the associated derived quantities, such as total and TRU activity for each container.

The box assay system is a combination of high-efficiency passive neutron, quantitative gamma ray, and active neutron techniques used to determine fissile mass of a given container.

Drum Venting and Headspace Gas Sampling

The DVS, located in WMF-634, is an on-line sampling system that contains multiple gas chromatography/mass spectrometry (GC/MS) units. Gas samples may also be collected from the drums and transferred to the GC/MS using canisters. Additional GC/MS equipment is located in WMF-628, WMF-634, and WMF-635 via portable headspace gas sampling equipment.

Drums containing specified debris (IDC 00B) and non-debris waste (IDC 00A), (i.e., waste that can not be assigned an IDC/WG based on RTR, or waste with known IDCs/WGs but unknown HWNs) are vented as a precaution against over-pressurization. A sample of the headspace gas from below the inner liner of the drum is collected and generally injected into one

of the GC/MS instruments, or other equivalent method. Headspace gas sample results on a container may be used to discriminate organic from inorganic waste or to provide additional characterization information. Additional information regarding the headspace gas sampling and analysis of unknown waste drums is provided in the AMWTP Waste Characterization QAPjP, presented in Appendix XXI.

C-2c Sampling Methods [IDAPA 58.01.05.005 and 58.01.05.008; 40 CFR Part 261, Appendix I and 264.13(b)(3)]

As described earlier, waste generated from normal operations and/or closure processes (e.g., PPE, floor sweepings, rags/wipes from routine maintenance/decontamination activities, and equipment) is normally characterized based on the process knowledge of the original waste that comes into contact with the generated waste (see Table C-3). When this is not possible, the waste may be physically sampled (see Table C-5 for sampling equipment and strategies) and analyzed. Residuals, including debris from the routine decontamination/maintenance of treatment and/or storage areas, carry the HWNs assigned to the waste managed in the areas. Characteristic HWNs may be removed if it can be shown that the characteristic HWNs no longer apply.

The appropriate sampling technique for waste is based on knowledge of the waste matrix (e.g., solid, liquid, or sludge) and the specific analytes of interest. The sampling and analyses of liquids is conducted, as necessary, to address incompatibility concerns. Solid debris waste is generally contaminated with hazardous constituents at levels low enough that incompatibility concerns between solids (especially for solids within the same IDC or WG) are expected to be minimal. However, before mixing even solid materials from different containers, the IDC/WG characterization information is consulted to confirm that no incompatibilities exist.

Liquid waste, other than decontamination wastewater, is generated at the MWMUs primarily as SCW. Liquid waste may be retrieved as intact containers, free liquid removed from containers, or residual liquid removed from treatment areas. Liquid generated during treatment activities within the MWMUs retains the HWNs assigned to the original waste and is typically collected in an appropriate container for transfer to a MWMU where the liquid may be absorbed,

or the liquid may be absorbed in place. Characteristic HWNs may be removed if it can be shown that the characteristic HWNs no longer apply.

Non-debris wastes that are homogeneous in nature may be sampled through drum coring. The sampling and analysis of waste through drum coring is conducted to determine or verify HWNs. See Table C-5 for sampling equipment and strategies of non-debris waste.

The methods used for sampling waste in the MWMUs that are described in the AMWTP Waste Characterization QAPjP are those specified in SW-846, ASTM methods, or other EPA-approved methods. SW-846 procedures are used for sampling activities; specifically, sample size, container type, holding times, preservatives, replicates, and chain-of-custody. Personnel collecting samples are required to maintain a permanent log of sampling activities. The log entries include: purpose of sampling; date and time of collection; sample number; sampling location; sampling methodology; container description; waste description (sludge, liquid, contaminated soil, etc.); description of generating process or originating waste (IDC and container barcode number); name and address of waste generator; name and address of field contact; number and volume of samples; list of suspected hazardous constituents; field observations; field measurements; destination; and signature of collector, as applicable.

A chain-of-custody record is assigned to each sample or group of samples. The record contains the sample number, date and time of collection, sample description, and signatures of a collector and subsequent custodians. Additional quality assurance (QA)/QC procedures are described in the AMWTP Waste Characterization QAPjP. See Appendix XXI for further information.

Contaminated disposable sampling equipment is managed in the same manner as the waste sampled. Reusable equipment is thoroughly decontaminated prior to reuse. Waste generated from decontamination activities is managed appropriately depending on either process knowledge, characterization, or the contaminant levels identified through the sampling and analysis.

C-2d Frequency of Analysis [IDAPA 58.01.05.008; 40 CFR 264.13(b)(4)]

The expected frequency of analysis is included in Table C-3. The frequencies listed are those established when operations began. However, these frequencies may be adjusted up or down, based upon operational experience and the consistency of analytical results, as required to maintain operational efficiencies. A statistical evaluation is conducted to evaluate whether the current analytical frequencies warrant adjustment. All statistical methods used are done to ensure that the characterization method being utilized correctly identifies the waste stream to allow the assignment of either a true mean or worse case concentration of the chemical constituents potentially present in each waste stream. Statistical methods utilized for the various AMWTP characterization techniques are documented in the Operating Record. For drum core sampling, a minimum of five drums per waste stream are sampled. New waste characterization data or more frequent analyses are required when:

- A new waste stream is generated by AMWTP operations or received from off-Site,
- The process generating an established waste stream changes,
- Analytical data show that a waste stream that was expected to have a consistent composition is actually highly variable,
- The waste characteristics are highly variable from shipment to shipment for off-Site waste, or
- There is reason to suspect a change in off-Site waste based on inconsistencies in the manifest, packaging, appearance, or labeling of the waste; or there are inconsistencies between the waste verification results and the waste characterization data provided by the generator.

The statistical method for re-determining analytical frequencies for waste is based upon methods described in SW-846, Volume II, Chapter 9, and is presented in the AMWTP Waste Characterization QAPjP.

C-2e Additional Requirements for Waste Generated Off-Site [IDAPA 58.01.05.008; 40 CFR 264.12(b), and 264.13(c)]

Waste generated off-Site may be stored, treated, and/or characterized at the MWMUs. Off-Site waste must meet the requirements set forth in the WAC specified in this document to be accepted at the MWMUs.

The waste acceptance process at the MWMUs involves sequential execution of the following six steps:

1. Waste generators characterize their waste and transmit appropriate data to the AMWTP on a waste profile form. See Appendix XX for an example waste profile form.

2. The appropriate AMWTP personnel review the waste profile form and any other required/related documents and work with generators to resolve issues discovered during the review of the waste profile form.

3. AMWTP personnel conduct assessments of the generator facilities, as required.

4. When satisfied that the waste profile form is true, accurate, and complete, and that the waste meets the MWMU WAC, the appropriate AMWTP personnel authorize shipment of the waste.

5. The generator and AMWTP personnel finalize shipment logistics.

6. Waste movements are screened and inspected upon receipt before being accepted for management.

Off-Site generators are required to prepare and implement a Quality Assurance Program that has been assessed and approved by the appropriate AMWTP personnel. The Quality Assurance Program must describe the methods a waste generator uses to ensure waste is properly controlled and waste characterization, packaging, and documentation are accurate. The following basic elements must be addressed in the Quality Assurance Program, as a minimum, and the generator maintains the elements in an auditable form, unless explanations are provided detailing why a particular element is not relevant to the program:

- Contractor name and contacts;
- Descriptions of all processes generating wastes to be shipped to AMWTP;
- Facility waste management strategy;
- Organizational structure;
- Duties and responsibilities of key positions;

- Training and qualification of personnel, and qualification of procedures and equipment applicable to the waste being shipped;
- Waste separation/segregation and control;
- Waste characterization control, including process knowledge control of chemical constituent identification and quantification, and control of sampling and analysis in accordance with SW-846;
- Process knowledge information;
- Packaging, handling, and storage control; and
- Waste certification methodology.

Waste generators with an AMWTP approved Quality Assurance Program are required to submit a complete waste profile that must be approved by AMWTP personnel before shipment or acceptance of the waste. The waste characterization information provided in the waste profile form may be based on process knowledge, original material safety data sheets (MSDSs), and/or a detailed chemical and physical analysis of a representative sample. The basic minimum information required is outlined below:

- General Information: Information including the location generating the waste, technical contacts, rate of generation, name of waste, and a description of the process generating the waste. It includes a description of any documentation attached, including analytical data, process knowledge documentation, and MSDSs.
- Physical Characteristics of Waste: Information including waste types or description, physical state, solid or liquid, layers, pH, density, flash point, and chemical composition and constituents is listed, as applicable. This information can be based upon process knowledge.
- Chemical Characteristics of Waste: Information including process knowledge or analytical data for total metals, volatiles, semivolatiles, pesticides and herbicides, HWMA/RCRA listed wastes (F, K, U, or P), and whether the waste can be classified as a wastewater. This information can be based upon process knowledge.
- Radiological Characteristics of Waste: Requires the generator to determine the radioisotope composition of the waste. This information may be based upon process knowledge.
- Certification: The generator, or authorized designee, must sign a certification statement to certify that all information provided in the waste profile is true, accurate, and complete.

Process knowledge and/or analytical data must be provided to accurately identify all applicable HWNs and underlying hazardous constituents (UHCs), if applicable; TSCA-regulated wastes; DOT hazard classes; and the proper shipping names. If adequate process knowledge exists to ensure that a particular constituent is not present in the waste and this information is documented, then there is no requirement to analyze for that constituent. For example, if there is no reason to suspect pesticides and herbicides, analysis for those parameters is not required. However, the waste profile must establish that there is no reason to suspect the constituent is in the waste. This can be accomplished by including a detailed process description and/or published data of the process with the waste profile. Laboratory analysis, if required for waste profiling, is performed and documented by a laboratory with QA/QC procedures in compliance with SW-846.

The technical accuracy review includes evaluation of the waste profile for conformance to the MWMUs WAC. If the waste profile, waste packaging data, and supporting data are found to be in proper order; if the waste meets the WAC and WAP; and if the waste is within the Part A Permit Application limits, the waste is approved and the generator is notified. As part of this approval notification, the AMWTP notifies the off-Site generator in writing that the AMWTP has the appropriate permits for managing the generator's waste and accepts the waste the generator is shipping per IDAPA 58.01.05.008 (40 CFR 264.12) requirements. If information in the waste profile deviates from these conditions, the deviations are resolved before the shipment is authorized.

If verification is performed at the generator location, AMWTP personnel place tamper-indicating devices on the shipment containers to ensure that tampering of the container has not occurred after verification. Otherwise, waste from off-Site generators destined for storage at the MWMUs undergoes waste verification. Upon arrival, 10% of the containers in each shipment of waste from off-Site generators are randomly selected to undergo fingerprinting by one or more of the following:

- Use of RTR equipment to verify waste form contents and AMWTP prohibited items, and/or
- Headspace gas sampling and analysis for target VOCs.

The shipment is not officially accepted until waste fingerprinting/verification results are received that substantiate the data on the generator's waste profile sheet. This 10% verification frequency is adequate to determine whether the shipment is rejected or accepted. Noncompliances with the MWMUs WAC, fingerprinting results, or other discrepancies are formally resolved with the generator. Resolution may be verbal or written. The DEQ is verbally notified in a timely manner of all nonconformances related to off-Site shipments. Written notification of the resolution is provided to the DEQ within 15 days of resolving the nonconformance. In accordance with IDAPA 58.01.05.008 (40 CFR 264.72), the notification describes the discrepancy and attempts to reconcile it. Copies of the manifest and other shipping papers are included.

When off-Site waste shipments arrive, the following steps are implemented:

- Security inspectors or other appropriate personnel notify AMWTP personnel that the waste shipment has arrived.
- AMWTP personnel review the shipping papers for completeness and accuracy.
- AMWTP personnel perform radiological control and industrial safety inspections of the shipment and its contents in accordance with established procedures for receipt, inspection, and documentation of waste received.
- Following completion and documentation of the receiving inspections, the waste shipment is tentatively accepted.
- For off-Site waste, final inspection of incoming shipments is completed and the results are recorded in the Operating Record. After verification has been approved, the waste shipment is officially accepted for receipt, the containers are unloaded, and the containers are then placed in storage.

The ultimate responsibility for MW characterization resides with the generator. Any HWMA/RCRA-regulated waste shipped to the MWMUs that does not conform to the WAP and WAC requirements may be returned to the waste generator for resolution or may be corrected prior to acceptance. AMWTP personnel have the responsibility and authority to evaluate the WAP and WAC violations and to determine the corrective action required of the generator. Attempts are made to resolve discrepancies in shipping manifests. If the discrepancy cannot be resolved, the shipment is returned to the generator unless the discrepancy involves the condition

of the package. Damaged containers are repaired, repackaged, or overpacked, to prevent the release of waste constituents during transport.

C-2f Additional Requirements for Ignitable, Reactive, or Incompatible Wastes [IDAPA 58.01.05.008; 40 CFR 264.13(b)(6) and 264.17]

Generators of off-Site waste are required to provide information that identifies any potential ignitable, reactive, or incompatible wastes prior to their acceptance. The generator-supplied information is reviewed to determine if the waste is reactive, explosive, or flammable/hazardous compressed gas, since such wastes are not accepted at the MWMUs.

No waste in the existing TSA inventory is assigned HWN D003 by RPT-TRUW-12. Historically, IDCs RFETS-480 and -481 were the only wastes for which small amounts of pyrophoric, unoxidized plutonium were identified as potential problems. Further examination of the documented process knowledge (from Report No. WM-F1-82-021, “Content Code Assessments for INEL Contact-Handled Stored Transuranic Wastes”) revealed that this was a concern only for RFETS-481. However, the referenced report states that any pyrophoric plutonium fines present in the waste were washed off the metal debris prior to packaging. Thus, no wastes are currently identified as containing pyrophoric radionuclides. Any IDCs that are determined to contain pyrophoric radionuclides are addressed under the Atomic Energy Act (AEA), and procedures for their management are implemented. However, any such wastes are not designated as HWN D003 reactive wastes, since the pyrophoric/reactive characteristic is associated strictly with the AEA regulated portion of the waste.

Only a few of the IDCs in RPT-TRUW-12 are assigned HWN D001. Most of these ignitable IDCs are so designated because of the presence of nitrate salts, which are oxidizers. The remaining IDCs are assigned HWN D001 because of the potential presence of cyclohexane, and are only a concern if liquids are detected. The existing ignitability determinations given in RPT-TRUW-12 are verified and documented in the detailed IDC-specific waste profiles that are maintained for all wastes managed at the MWMUs.

AMWTP personnel ensure that incompatible wastes are segregated during storage. The MWMUs WAC prohibits the receipt of waste with reactives, pesticides/herbicides, unstable chemicals, and incompatible wastes. These prohibitions and limitations have been enacted to

ensure safe waste management practices by minimizing the potential for accidental commingling of incompatibles.

A waste compatibility evaluation was performed for the AMWTP using the EPA guidance manual "A Method for Determining the Compatibility of Hazardous Wastes," EPA-600/2-80-076, April 1980. The methodology involves classifying IDCs into 41 reactivity group numbers (RGNs) and then, using a chemical compatibility chart, determining the compatibility of each potential binary combination of reactivity groups. The compatibility evaluation covered the waste IDCs identified in RPT-TRUW-12, and the results are presented in "Chemical Compatibility Evaluation of Transuranic Waste for the AMWTP," AMWTP-5232-RPT-ESH-014, (RPT-ESH-014). RPT-ESH-014 is maintained in the Operating Record and updated as new characterization information becomes available, as required. This evaluation determines the incompatibilities for the storage and treatment (e.g., commingling) of the waste IDCs identified in RPT-TRUW-12.

The commingling of any waste will only occur after the waste streams to be commingled have been evaluated for compatibility. Should the process information on the compatibility of waste be insufficient to determine if liquid waste streams are compatible, a compatibility test will be run using ASTM D5058-90 Test Method A, prior to commingling the liquid waste.

Extensive waste data have been developed for each IDC documenting the existing characterization information and the results of the compatibility evaluations. As the waste characterization efforts progress, the compatibility evaluations are updated and the wastes are re-categorized into the 41 RGNs to identify any new incompatible binary combinations. If additional incompatibilities are identified or data validation/waste characterization eliminates potential incompatibilities, additional precautions may be implemented or certain practices may be relaxed, as warranted.

Table C-2. Summary of General Parameters for Wastes and the Rationale for Selection

Waste Parameter(s)	Media Type	Rationale for Selection
IDC/WG	Debris and non-debris	Determine if HWNs can be assigned based on RPT-TRUW-12.
HWNs and hazardous constituents	Debris and non-debris	Verify HWNs are included in the Part A Permit Application.
Physical matrix via examination (RTR or visual examination)	Debris and non-debris	Verify matrix and debris WG, assign IDC/WG/HWNs to unknown debris drums, identify items that require removal.
Headspace gas	Debris and non-debris	Aid in identifying IDC for drums of unknown non-debris and debris wastes.
Reactivity, ignitability, and compatibility evaluations	Debris and non-debris	Identify potential reactivity and health and safety precautions prior to sorting.
pH	Liquid	Identify liquids requiring neutralization and appropriate precautions for corrosive waste.
Flash point	Liquid	Identify appropriate precautions for ignitable waste.

Table C-3. Minimum Characterization Parameters for Wastes

Waste Stream	Sampling Method	Sampling Frequency	Analytes and Analytical Methods
Primary Wastes			
Boxes and drums	Non-intrusive	100%	Examination (RTR or VE) to verify physical matrix, verify IDC and debris or non-debris WG, identify items for removal
	Non-intrusive	100% of all IDCs with known HWNs and hazardous constituents	Completion of process knowledge-based ignitability, reactivity, and compatibility evaluations
	Intrusive	Based on miscertification rate per the AMWTP Waste Characterization QAPjP	Visual examination to verify RTR results. Removal of any SCW items.
SCW items	Grab with Coliwasa, tube sampler, or equivalent	100% if liquid is unknown	PK for known/listed characteristic HWNs pH, flashpoint Toxic metals Organics
	Grab with scoop (for small inner containers)	100% of unknown non-debris drums initially with statistical revaluation for individual containers; 1 container per selected drum for container-in-container waste from a single IDC	PK for known/listed characteristic HWNs Corrosivity/pH Toxic metals Reactivity and compatibility evaluations based on PK and/or analytical results Containerized free liquid via visual examination or RTR Organics
Secondary Wastes:			
Used PPE, rags, decon debris, etc.	NA	NA	PK – cleanup debris characterization and treatment identical to waste being handled; PCB-contaminated rags are managed per TSCA regulations
Maintenance metal debris	NA	NA	PK – characterization identical to waste being handled
Used HEPA filters in drums	NA	NA	PK – characterization identical to waste being handled
Broken-down wooden process boxes	NA	NA	PK – disposed as LLW unless PK indicates otherwise
Crushed process drums	NA	NA	PK – disposed as LLW unless PK indicates otherwise
Absorbed hydraulic oil	NA	NA	PK – characterization prior to direct ship, identical to waste being handled
Sample Residues	NA	NA	PK—characterization identical to waste being handled
Contracted analytical lab absorbed liquid residues	NA	NA	PK—characterization prior to direct ship, identical to waste being handled

Table C-3. Minimum Characterization Parameters for Wastes (continued)

Waste Stream	Sampling Method	Sampling Frequency	Analytes and Analytical Methods
Absorbed supercompactor liquid	NA	NA	PK – characterization prior to absorption, this is included with the SCW items listed in this table
Absorbed decon water	NA	NA	PK – characterization prior to direct ship, identical to waste being handled
Sweepings from box breakdown area	NA	NA	PK – characterization prior to supercompaction, identical to waste being handled
SCW core sample residue	NA	NA	PK – characterization prior to direct ship, identical to waste being handled
Analytical lab absorbed liquid residues	NA	NA	PK – characterization prior to direct ship, identical to waste being handled

VE = Visual examination

PK = process knowledge

NA = not applicable

Table C-4. Potential Waste Characterization Methods

Parameters	Analyte	Characterization/Analytical Method
IDC/WG	NA	PK, RTR, visual examination
HWNs	NA	PK, RTR, visual examination, drum coring, and/or sampling and analysis
HWMA/RCRA listed wastes, waste constituents, composition	Volatile Organics	PK, SW-846
	Semi-volatile organics	PK, SW-846
	Metals	PK, SW-846
Toxicity characteristic constituents (TCLP may be used for final waste form LDR status determinations)	TCLP metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver)	PK, SW-846
	TCLP organics	PK, SW-846
Other parameters	Free liquids	PK, RTR, visual examination
	Cyanide, total & amenable	PK, SW-846
	Thallium	PK, SW-846
	Antimony	PK, SW-846
	Beryllium	PK, SW-846
	Nickel	PK, SW-846
	Vanadium	PK, SW-846
	Zinc	PK, SW-846
Debris/non-debris status, SCW identification	Physical matrix	PK, RTR, visual examination
Reactivity/cyanide or sulfide-bearing	Reactivity/cyanide or sulfide-bearing	PK; Methods for Chemical Analysis for Water and Waste, EPA-600/4-79-020
Compatibility[a]	Compatibility	PK, waste characterization results, compatibility evaluations, ASTM, SW-846
Ignitability	Ignitability	PK, ASTM, SW-846
Corrosivity/pH	Corrosivity/pH	PK, SW-846

a. Compatibility determinations are made by a combination of process knowledge; analysis; compatibility evaluations per "A Method for Determining the Compatibility of Hazardous Wastes" (EPA-600/2-80-076), compatibility groupings in 40 CFR 264, Appendix V; compatibility by hazard class in accordance with DOT, and/or waste-to-waste compatibility testing.

Table C-5. Methods and Strategies for Sampling Debris/Secondary Waste

Waste Composition	Sampling Equipment	Sampling Strategies
HEPA filters, composite filters	Shredder, scissors, shears, scoop, spoon Rotating coring device	Shredding, cutting, or size-reducing an appropriately-sized sample Size-reduced composite sample, where applicable
Plastic bags, PPE	Shredder, scissors, shears, scoop, spoon	Shredding, cutting, or size-reducing an appropriately-sized sample (size-reduced composite sample, where applicable)
Filter media and HEPA filters	Shredder, scissors, shears, scoop, spoon Rotating coring device	Shredding, cutting, or size-reducing an appropriately-sized sample Size-reduced composite sample, where applicable
Paper, cloth	Shredder, scissors, shears, scoop, spoon	Shredding, cutting, or size-reducing an appropriately-sized sample (size-reduced composite sample, where applicable)
Drums, cans, furniture, motors/pumps, construction hardware (nails, screws, etc.)	Drill, rotating coring device, surface swipes, grab sample	Size-reduced composite sample, grab sample, or swipe analysis
Asphalt, uncoated concrete, firebrick, cinder block	Impact hammer (hammer and chisel), rotating coring device	Size-reduced composite sample
Uncoated wood	Rotating coring device, shredder, or other appropriate equipment	Size-reduced composite sample
Coated concrete, coated wood	Rotating coring device, shredder, or other appropriate equipment	Size-reduced composite sample
Glass, plastic	Shredder, scissors, shears, impact hammer for fracturing, etc.	Size-reduced composite sample
Rubber	Shredder, scissors, shears, scoop, spoon	Shredding, cutting, or size-reducing an appropriately-sized sample (size-reduced composite sample, where applicable)
Metal tools, structural steel, steel pipe, rebar, assorted scrap	Drill, rotating coring device, surface swipes, grab sample	Size-reduced composite sample, grab sample, or swipe analysis
Contaminated metal equipment (machinery, glove boxes)	Drill, rotating coring device, surface swipes, grab sample	Size-reduced composite sample, grab sample, or swipe analysis
Drums, cans, furniture, motors/pumps, construction hardware (nails, screws, etc.)	Drill, rotating coring device, surface swipes, grab sample	Size-reduced composite sample, grab sample, or swipe analysis

C-3 Waste Analysis Requirements Pertaining to Land Disposal Restrictions [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13 and 268.7]

The Hazardous and Solid Waste Amendments (HSWA) prohibit the land disposal of certain types of hazardous wastes. The U. S. Congress has granted the WIPP a "No Migration Variance," thus waste destined for shipment to the WIPP is not subject to LDR requirements. Therefore, waste destined for the WIPP is not subject to the requirements of this section.

Waste managed at the MWMUs that is destined for disposal at waste management units other than the WIPP is assumed to be restricted waste subject to LDR requirements. Information presented in this section describes how generators and the AMWTP characterize, document, and certify LDR subject wastes.

Off-Site generators sending wastes to the MWMUs are required to provide all notifications and certifications as mandated by IDAPA 58.01.05.011 (40 CFR 268.7). Accordingly, generators of wastes that are subject to the LDRs or any LDR-related variances are required to submit to AMWTP personnel the notifications and certifications required by LDR with their shipments.

In cases where a generator determines that an LDR waste does not meet the applicable treatment standards set forth in IDAPA 58.01.05.011 (40 CFR Part 268, Subpart D), or exceeds the applicable prohibition levels set forth in IDAPA 58.01.05.011 (40 CFR Part 268, Subpart C), the generator provides a one-time written notice with the initial shipment. The following information is included with the initial waste shipment:

- HWNs and shipping information;
- Notification that the waste is subject to LDRs and listing the constituents of concern for HWNs F001-F005, F039, and UHCs, unless the waste is treated and monitored for all constituents. If all constituents are treated and monitored, there is no requirement to list those constituents on the LDR notice;
- The notice must include the applicable wastewater/non-wastewater category {see IDAPA 58.01.05.011 [40 CFR 268.2(d) and (f)]} and subdivisions made within a HWN based on waste-specific criteria (such as HWN D003 reactive cyanide); and
- Waste analysis data when available.

Copies of all LDR-required notices (received or sent by the AMWTP) are retained as part of the Operating Record per IDAPA 58.01.05.008 (40 CFR 264.73).

C-3a Waste Characterization [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13 and 268.7]

For non-AMWTP newly-generated and off-Site wastes, the waste generators are required to document the level of characteristic and listed hazardous constituents in wastes shipped to the MWMUs. This information, coupled with the other analytical requirements stipulated in the WAC and WAP, allows generators and AMWTP personnel to accurately make LDR determinations. For wastes in the existing waste inventory and wastes generated by the MWMUs, existing process knowledge/waste characterization information supplemented by waste verification and analysis information are used to make LDR determinations. The supporting data used to make LDR determinations are maintained in the Operating Record, as described earlier.

C-3b Sampling and Analytical Procedures [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13(b)(2) and (3), and 268.7]

LDR waste forms generated by the AMWTP are sampled and analyzed (Tables C-4 and C-5) using only EPA-approved methods, as stated in Sections C-2b and C-2c. Approved test methods are discussed in the AMWTP Waste Characterization QAPjP, presented in Appendix XXI.

C-3c Frequency of Analysis [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13(b)(4) and 268.7]

LDR wastes are characterized at frequencies specified in, or designed to meet, the selected waste management unit's WAP. In accordance with IDAPA 58.01.05.008 (40 CFR 264.13), wastes treated at the AMWTP are subjected to a full characterization whenever:

- A new waste stream is generated or received,
- A generating process changes,
- Waste characteristics exhibit temporal variations, or

- Waste from off-Site generators does not match the waste designated on the accompanying manifest or the waste fails waste verification.

Analytical frequencies for LDR purposes are re-evaluated statistically using the statistical formulas given in the AMWTP Waste Characterization QAPjP, presented in Appendix XXI.

C-3d Additional Requirements for Treatment Facilities [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13 and 268.7]

This section describes the additional sampling, analytical, and documentation requirements the AMWTP employs when treating LDR waste at the MWMUs.

In addition to the required information for LDR notifications, any other information required in applicable IDAPA 58.01.05.011 (40 CFR 268.7) notifications must be included. LDR certifications are completed by AMWTP personnel when MW meets LDR treatment standards after treatment, in accordance with IDAPA 58.01.05.011 [40 CFR 268.7(b)] requirements.

C-3d(1) Off-Site Facilities [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13(a) and 268.7(b)]

All off-Site waste received by the AMWTP is received per Section C-2e. See Section C-2e for additional information.

C-3d(2) Analysis of Waste or Waste Treatment Residues [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13 and 268.7]

Final waste forms are assigned the HWNs assigned to the original waste treated. Characteristic HWNs may be removed if it can be shown that the characteristic HWNs no longer apply. The UHCs expected to be in the original waste are also determined, if the original waste was designated with HWNs D001, D002, D004-D011, or D018-D043. Sampling and analyses of the final waste forms (in accordance with SW-846 methods) determine if the applicable treatment standards and universal treatment standards (UTS) have been satisfied. Because treatment processes often tend to concentrate any inorganic constituents present in the feeds, the inorganic UHCs listed in IDAPA 58.01.05.011 (40 CFR 268.48) are typically measured via TCLP extraction followed by the appropriate analytical methods (except for fluorine, vanadium,

and zinc). However, total and amenable cyanide analyses are included only for waste feeds carrying HWNs F006-F009, and are not performed on TCLP extracts. Compliance with the UTS for selected organic UHCs in the feed is also verified by analyses, with the organic UHCs comprised of those organic compounds that caused the original waste to be given either HWNs F001-F005 or D018-D043. The organic UHCs are included in final waste form analyses only until data are available to justify their elimination. The initial checks for compliance with organic UTSs are required to demonstrate that a "good-faith analytical effort" was attempted to achieve analytical detection limits for the organic UHCs that do not exceed the specified UTSs by an order of magnitude.

Secondary wastes generated from normal operations that undergo further treatment at the MWMUs are tested and/or process knowledge is used to determine if the waste mandates any additional LDR treatment standards. The MW generated is assumed to be restricted waste. Final determinations on whether the waste is restricted occur upon receipt of analytical results and/or upon completing process knowledge evaluations.

When sampling and analysis is used to determine if a MW meets LDR treatment standards, total analysis is used for cyanide and organics while metals are determined via totals or TCLP extraction, and the appropriate analytical method, as specified in IDAPA 58.01.05.011 (40 CFR 268.40 and 268.48). Liquid/non-liquid determinations of waste generated are based on process knowledge, visual assessments, and/or testing using the paint filter liquids test.

C-3d(3) Sampling and Analytical Procedures [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR-264.13 and 268.7]

The sampling and analytical procedures used to characterize secondary wastes for LDR compliance verification are described in the AMWTP Waste Characterization QAPjP, located in Appendix XXI, and are designed to meet the expected receiving waste management unit's WAC and WAP.

C-3d(4) Frequency of Analysis [IDAPA 58.01.05.008 and 58.01.05.011; 40 CFR 264.13 and 268.7]

The frequency of analyses for final waste forms and secondary wastes is specified in Table C-6, unless changes are warranted based on trends shown in actual analyses. Analytical

frequencies for LDR purposes are evaluated statistically per the AMWTP Waste Characterization QAPjP, or in accordance with the receiving waste management unit's WAP.

Table C-6. LDR Sampling and Analysis of Final Waste Forms

Waste Form	Sampling Method	Sampling Frequency	Analytes and Analytical Methods[a]
Final waste forms	Trier, thief, chisel, scoop, auger, impact hammer, rotating coring device to collect composite/grab sample	10% of containers initially with statistical re-evaluation	Toxic metals/inorganic UHCs via TCLP: Antimony Arsenic Barium Beryllium Cadmium Chromium (total) Cyanide (total and amenable) Lead Mercury Nickel Selenium Silver Thallium Volatile and semi-volatile organic regulated hazardous constituents and UHCs

a. Analytical methods are performed in accordance with SW-846 or other EPA-approved methods.

C-4 Waste Analysis Requirements Pertaining to the WIPP [IDAPA 58.01.05.008; 40 CFR 264.13]

The WIPP is a designated disposal facility for TRU waste and is a fully permitted disposal facility for MW. As mentioned in Section C-3, the WIPP is not subject to LDR. All MW disposed at the WIPP is subject to the WIPP Hazardous Waste Permit, as amended, by the New Mexico Environment Department. The information included in this section is a portion of the characterization requirements for disposal at the WIPP, and relates primarily to those activities that are used to update the process knowledge information for the various waste streams destined for disposal at the WIPP.

C-4a Waste Characterization [IDAPA 58.01.05.008; 40 CFR 264.13]

Prior to transfer to and receipt by the WIPP, waste must be characterized according to the WIPP WAP, Attachment B of the WIPP RCRA Hazardous Waste Permit. AMWTP waste destined for WIPP disposal must meet the requirements of the WIPP WAP, as amended. The descriptions of the activities associated with WIPP WAP characterization activities are current as of the submittal date for this revision, and will be adjusted to meet the WIPP WAP amendments, as necessary.

The WIPP allows for waste that consists of particles smaller than 2.36 in. in size to be considered debris if the waste is a manufactured object and if it is not a particle of soil or process residues (i.e., inorganic process residues, inorganic sludges, salt waste, and pyrochemical salt waste). Containers of this waste that can be shipped to the WIPP are characterized using acceptable process knowledge, RTR, visual examination, and/or sampling and analysis. Randomly selected containers of non-debris waste are selected for representative sampling and analyses according to Section C-4b.

C-4b Sampling and Analytical Procedures [IDAPA 58.01.05.008; 40 CFR 264.13(b)(2) and (3)]

Selected drums of non-debris waste that can be direct shipped to the WIPP are sampled within the DCSRS in WMF-634. The drums to be sampled are randomly selected from the waste stream. There are four non-debris waste streams: SI, SO, SW, and soil.

The DCSRS is used to extract a core from the waste in the drum at a randomly selected location. After the core has been extracted, a sample is collected from a random location over the length of the core. This sample, therefore, is extracted from a random location in both the horizontal and vertical planes. The selection of the sample is documented in the Operating Record. Further information is provided in the AMWTP Waste Characterization QAPjP.

The methods used for sampling MW that are described in the AMWTP Waste Characterization QAPjP are those specified in ASTM methods or other EPA-approved methods. SW-846 QA/QC procedures are used for sampling activities; specifically, sample size, container type, holding times, preservatives, replicates, and chain-of-custody. AMWTP personnel performing sample collection are required to maintain a permanent log of sampling activities. The log entries include the following:

- Purpose of sampling,
- Date and time of collection,
- Sample number,
- Sampling location,
- Sampling methodology,
- Container description,
- Waste description (sludge, liquid, contaminated soil, etc.),
- Description of generating process or originating waste (IDC and container barcode number),
- Name and address of waste generator; name and address of field contact; number and volume of samples,
- List of suspected hazardous materials,
- Field observations,
- Field measurements (e.g., pH),
- Destination, and
- Signature of collector.

A chain-of-custody record is assigned to each sample or group of samples. The record includes the sample number, date and time of collection, sample description, and signatures of the collector and subsequent custodians. Upon disposition of the sample, the chain-of-custody

record is maintained in the Operating Record. Additional QA/QC procedures are described in the AMWTP Waste Characterization QAPjP.

C-4c Frequency of Analysis [IDAPA 58.01.05.008; 40 CFR 264.13(b)(4)]

Characterization is accomplished on a waste stream basis. The number of samples required per non-debris waste stream is evaluated statistically per the AMWTP Waste Characterization QAPjP. The initial number of samples is estimated to be five samples per non-debris waste stream.

Upon collection and analysis of the preliminary samples, or at any time after the preliminary samples have been analyzed, the AMWTP may assign HWNs to a waste stream. For waste streams with calculated upper confidence limits below the regulatory threshold, the AMWTP collects the statistically required number of samples if the AMWTP intends to establish that the constituent is below the regulatory threshold.

TABLE OF CONTENTS

ATTACHMENT 3

PROCEDURES TO PREVENT HAZARDS (SECURITY)

F. PROCEDURES TO PREVENT HAZARDS 1

F-1 Security 1

F-1a Security Procedures and Equipment 1

F-1a(1) Surveillance System 1

F-1a(2) Barrier 2

F-1a(3) Means to Control Entry 2

F-1a(4) Warning Signs 2

LIST OF EXHIBITS

Exhibit F-1. Example INL Boundary No Grazing Sign 4

Exhibit F-2. Example INL Boundary No Trespassing Sign 5

Exhibit F-3. Example of Warning Sign 6

F. PROCEDURES TO PREVENT HAZARDS

F-1 Security [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.14, 270.14(b)(4)]

A three-level security system including INL property warning signs, access control for the INL, and security surveillance patrolling provides overall security at the INL, the RWMC, and the AMWTP.

F-1a Security Procedures and Equipment [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.14 and 270.14(b)(4)]

The MWMUs are located within the TSA portion of the RWMC. To gain access to the RWMC and the AMWTP, authorized personnel or visitors must first gain access to the INL by the public highways, as described in Attachment 1. Once within the INL, traffic to the RWMC and the AMWTP enters the RWMC from Adams Boulevard via one of the designated AMWTP access gates. When authorized, traffic may enter the TSA directly through one of four gates in the southern part or one of the two gates in the northern part of the TSA fence. Three of the south gates and both of the north gates are for AMWTP personnel, DOE, Government, and INL contractor-owned vehicle access, and the fourth south gate is a railroad entrance. The access points described above are identified on the RWMC/AMWTP Topographic Map, located in Appendix II. The RWMC and the AMWTP are provided with a surveillance system, a physical barrier, and the means to prevent entry of unauthorized persons to all MWMUs.

F-1a(1) Surveillance System [IDAPA 58.01.05.008; 40 CFR 264.14(b)(1)]

Access to the AMWTP is controlled by access control personnel who are based at or near the various entrances to the AMWTP and the TSA. These entrances serve as the main access control points for persons and vehicles entering or exiting the AMWTP area. Typically, AMWTP personnel and visitors enter the TSA through a dedicated gate either on the south or north end of the TSA. See the RWMC/AMWTP Topographic Map in Appendix II for further information. All personnel entering through the south gate must check in at the AMWTP access point to obtain access authorization. All personnel entering through the north gate must check in

at the RWMC access point to obtain access authorization. Visitors to the AMWTP are escorted, as required.

Further security is provided by INL security personnel, who conduct roving patrols around the perimeter of the RWMC. If off-normal conditions are detected, the appropriate AMWTP, RWMC, and/or INL personnel are immediately notified. All gates, located on the outermost fence surrounding the RWMC leading into the AMWTP controlled areas, are locked when not manned or in use.

F-1a(2) Barrier [IDAPA 58.01.05.008; 40 CFR 264.14(b)(2)(i)]

Physical security at the RWMC/AMWTP includes fencing of the entire area with locked or monitored gates. The perimeter fence and access gates are presented on the RWMC/AMWTP Topographic Map, located in Appendix II. The perimeter fence is designed as a deterrent to any unauthorized person attempting to enter or remove material from the RWMC and the AMWTP, and as a deterrent to livestock attempting to enter the RWMC and the AMWTP. The perimeter fence is constructed of either chain link or metal wire. Portions of the fence may be topped with barbed wire.

F-1a(3) Means to Control Entry [IDAPA 58.01.05.008; 40 CFR 264.14(b)(2)(ii)]

Means to control entry at the AMWTP are maintained by both administrative controls and physical measures. As discussed in Sections F-1a(1) and F-1a(2), the RWMC and the AMWTP are provided with a surveillance system and are surrounded by a perimeter fence and lockable gates. Access into the RWMC/AMWTP security area is controlled by locked or manned gates, card-readers, or access control personnel located at the various RWMC and AMWTP entrances.

F-1a(4) Warning Signs [IDAPA 58.01.05.008; 40 CFR 264.14(c)]

Warning signs are posted in the vicinity of each entrance to the MWMUs and in the vicinity of each TSA gate. These signs are written in English (the principal language in southeast Idaho), are legible from a distance of 25 ft, and are visible from most angles of

approach. See Exhibits F-1, F-2, and F-3 for example warning signs used throughout the INL and the TSA.

NO GRAZING BEYOND THIS POINT

NO TRESPASSING

By Order of the

United States Department of Energy

The unauthorized entry upon any facility, installation, or real property subject to the jurisdiction, administration or in the custody of the United States Department of Energy, which has been designated as subject to the provisions contained in Part 860 of the Rules and Regulations of the United States Department of Energy (10 CFR Part 860), which rules were continued in effect by Section 705(a) of the Department of Energy Organization Act, is prohibited, and the unauthorized carrying, transporting, or otherwise introducing or causing to be introduced any dangerous weapon, explosive, or other dangerous instrument or material likely to produce substantial injury or damage to persons or property, into or upon such facility, installation, or real property is prohibited.

Whoever willfully violates the aforesaid regulation shall, upon conviction thereof, be punishable by a fine of not more than $1,000. Whoever willfully violates this regulation with respect to any facility, installation, or real property enclosed by a fence, wall, floor, roof, or other structural barrier, shall be guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not to exceed $5,000 or imprisonment for not more than 1 year, or both.

By authority of Section 229 of the Atomic Energy Act of 1954, as amended, and Part 860 of the Rules and Regulations of the United States Department of Energy, this facility, installation, or real property has been designated as subject to these regulations by the United States Department of Energy.

Exhibit F-1. Example INL Boundary No Grazing Sign

NO TRESPASSING

By Order of the

United States Department of Energy

The unauthorized entry upon any facility, installation, or real property subject to the jurisdiction, administration or in the custody of the United States Department of Energy, which has been designated as subject to the provisions contained in Title 10, Code of Federal Regulations, Part 860, is prohibited. The unauthorized carrying, transporting, or otherwise introducing or causing to be introduced, any dangerous weapon, explosive, or other dangerous instrument or material likely to produce substantial injury or damage to persons or property, into or upon such facility, installation, or real property is likewise prohibited.

Whoever willfully violates these regulations upon conviction, shall be punishable by a fine of not more than $5,000. Whoever willfully violates these regulations with respect to any facility, installation, or real property enclosed by a fence, wall, floor, roof, or other structural barrier, shall be guilty of a misdemeanor and, upon conviction, shall be punished by a fine not to exceed $100,000 or imprisonment for not more than 1 year, or both. (Title 42, United States Code, ¤ 2278(a); Title 18, United States Code, ¤ 3571.)

By authority of Section 229 of the Atomic Energy Act of 1954, as amended [(Title 42, United States Code, ¤ 2278(a)], and Title 10, Code of Federal Reulations, Part 860 of the rules and regulations of the Department of Energy, this facility, installation, or real property has been designated as subject to these regulations by the United States Department of Energy. Trespassers may be subject to the provisions stated above.

Exhibit F-2. Example INL Boundary No Trespassing Sign

Exhibit F-3. Example of Warning Sign

TABLE OF CONTENTS

ATTACHMENT 4

PROCEDURES TO PREVENT HAZARDS (INSPECTIONS)

F-2 Inspection Schedule 1
F-2a General Inspection Requirements 1
F-2a(1) Types of Problems 4
F-2a(2) Frequency of Inspections 4
F-2a(3) Inspection Records and Record Keeping 4
F-2a(4) Remedy Schedule 4
F-2b Specific Process Inspection Requirements 5
F-2b(1) Container Inspection 5
F-2b(8) Miscellaneous Unit Inspection 6

LIST OF TABLES

Table F-1. WMF-634 Inspection Program Summary 8
Table F-2. Type II Module (WMF-628 – WMF-633) Inspection Program Summary ... 13
Table F-3. Type I Module Inspection Program Summary 17
Table F-4. SWEPP Inspection Program Summary 21
Table F-5. WMF-676 General Facility/Storage Areas Inspection Summary 24
Table F-6. Box Line Inspection Program Summary 27
Table F-7. SCW Glovebox System Inspection Program Summary 29
Table F-8. Supercompactor Inspection Program Summary 31
Table F-9. Drum Repack System Inspection Program Summary 33

F-2 Inspection Schedule [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.15 and 270.14(b)(5)]

This section describes the various inspection programs in place to ensure safe storage of waste containers at the MWMUs, proper operation of supporting equipment and monitoring equipment, and availability of emergency equipment in sufficient number and in operable condition whenever needed.

Inspections are conducted in the MWMUs to detect leaks, spills, or container deterioration that may lead to the release of HWMA/RCRA-regulated waste constituents to the environment or pose a threat to human health. Inspections typically performed in the MWMUs are for container integrity, fire or spill response equipment, emergency warning or communications systems, or operations support equipment. HWMA/RCRA deficiencies noted during the inspection and any corrective actions taken are documented and placed in the Operating Record. See Attachment 1.A for additional information on the Operating Record and the associated requirements. Deterioration or malfunction of containers, equipment, or structures identified during the inspection is remedied on a schedule that ensures the problem does not lead to any environmental or human health hazard. Imminent hazards or hazards that have already occurred are addressed immediately on a case-by-case basis. Corrective action is initiated and tracked to completion.

F-2a General Inspection Requirements [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.15, 264.33, and 270.14(b)(5)]

Inspections are performed by AMWTP personnel on a routine basis. Table F-1 lists the inspections performed in WMF-634, Table F-2 lists the inspections performed in the Type II Modules (WMF-628 - WMF-633), Table F-3 lists the inspections performed in the Type I Module, Table F-4 lists the inspections performed in SWEPP, and Tables F-5 through F-9 list the inspections performed in WMF-676. These inspections satisfy the HWMA/RCRA-required inspections for container storage/treatment units. In addition to these inspections, preventive maintenance (PM) of buildings, equipment, and various operating systems are conducted on a regular basis and are typically tracked via the AMWTP computerized maintenance management system (CMMS). Inspection records are maintained as part of the Operating Record. The

inspection records are used to document HWMA/RCRA-required inspections conducted at the MWMUs.

AMWTP personnel routinely conduct inspections of the AMWTP area, fences, gates, warning signs, locks, and equipment; waste loading and unloading areas; and structural and operating equipment. These inspections are conducted in accordance with the frequencies noted in Tables F-1 through F-9.

PM inspections are developed, reviewed, approved, scheduled, and issued using the AMWTP CMMS. Typical PM inspections performed for the AMWTP include:

- Fire control system components such as:
    - Fire water pumps
    - Valves
    - Fire extinguishers and hydrants
    - Sprinkler systems
- Standby power generators
- Emergency lights (including those associated with ventilation systems, indicating possible dangerous conditions due to ventilation system low flow)
- Container handling equipment

PM inspections are performed per a set schedule. The frequency of an inspection is based upon the AMWTP Maintenance Analysis Program or vendor specifications/recommendations. The AMWTP Maintenance Analysis Program is designed to determine the maintenance requirements for a specific piece of equipment. Typical items addressed under the Maintenance Analysis Program include the frequency of use, operational requirements, intended use, failure modes, results/consequences of a failure, environmental conditions, and safety concerns.

Calibration of equipment is performed in accordance with established procedures and integrated into the AMWTP CMMS. Calibrations are scheduled to occur prior to the calibration expiration date. Calibrations are conducted in accordance with specific checklists containing step-by-step instructions, as appropriate.

AMWTP personnel conduct regular radiation surveys of the MWMUs using appropriate instrumentation. These surveys enable the detection of changes in radiation levels related to the wastes in storage. The surveys are recorded on survey forms, which are then signed and dated (including time) by the AMWTP personnel performing the survey. Whenever a container is dropped or otherwise mishandled, AMWTP personnel will conduct a radiation survey and inspect the integrity of the container.

Following completion of the above-described inspections, any problems requiring further action are corrected on a timely basis with full knowledge of the appropriate AMWTP management personnel. AMWTP personnel report and record all identified HWMA/RCRA deficiencies, status of corrective actions, and completions of corrective actions. When a deficiency is identified, the appropriate corrective action and the urgency of the need are evaluated.

Deficiencies are tracked on a weekly basis until the deficiencies have been corrected. The Operations Manager, or designee, shall review all completed HWMA/RCRA inspection forms and the status of all unresolved deficiencies on a weekly basis. The review of the completed inspection forms will be done to ensure that the forms are accurately filled out and that all deficiencies are adequately identified. Conditions identified during the weekly reviews that are adverse to accuracy, completeness, or timeliness of deficiency corrective actions shall be immediately given to AMWTP Management (including the Environmental, Security, Safety, and Health Manager) for resolution. The AMWTP Environmental Manager, or designee, shall provide oversight on deficiency tracking and resolution to ensure that this process is properly implemented. If remedial actions cannot be completed within 21 calendar days of discovery (10 days of determination for any HWMA/RCRA deficiencies associated with secondary containment systems), the Operations Manager, or designee, shall take action to notify the Environmental, Security, Safety, and Health Manager, or designee, for review and determination of necessary notifications and/or other actions. When the deficiency has been corrected, the corrective action taken and date completed are to be entered on the inspection form or in association with the inspection form (e.g., attached to the inspection form).

F-2a(1) Types of Problems [IDAPA 58.01.05.008; 40 CFR 264.15(b)(3)]

Tables F-1 through F-9 identify the types of conditions evaluated during inspections. These inspection items are outlined in operating procedures or maintenance procedures that support the inspections. All HWMA/RCRA deficiencies noted during an inspection are corrected, a work request written, or the deficiency is recorded in the Operating Record. The date when the condition is corrected or repairs are made is recorded in the Operating Record.

F-2a(2) Frequency of Inspections [IDAPA 58.01.05.008; 40 CFR 264.15(b)(4) and 264.174]

The frequency of inspections is outlined in Tables F-1 through F-9. To ensure the safety of personnel and protection of the environment, the inspection frequencies vary according to operational need for the MWMUs and associated equipment. Inspection schedules are based on radiological and personnel safety concerns. These factors are discussed further in Section F-2b.

In addition to the inspections described above, various inspections may be required prior to, and at the start of, operation of various types of equipment.

F-2a(3) Inspection Records and Record Keeping [IDAPA 58.01.05.008; 40 CFR 264.15(d) and 264.73(b)(5)]

Inspection records are maintained as part of the Operating Record. See Attachment 1.A for additional information on the Operating Record. The inspection records include, at a minimum, the date and time of inspection, the name of the person performing the inspection, a notation of the observations made, and the date and nature of any repairs or remedial actions taken.

F-2a(4) Remedy Schedule [IDAPA 58.01.05.008; 40 CFR 264.15(c)]

Deterioration or malfunction of ventilation and/or containment systems may lead to an environmental or human hazard. The presence of and oversight by AMWTP personnel during operations ensures quick detection and mitigation of equipment deterioration and malfunction that could present a hazardous situation. Where a hazard is imminent or has already occurred, remedial action is taken immediately. Equipment is taken out of service, repairs are

accomplished, and readiness inspections performed prior to the equipment being placed back into service. See Attachment 7 for further information.

F-2b Specific Process Inspection Requirements [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.15(b)(4), 264.174, and 270.14(b)(5)]

F-2b(1) Container Inspection [IDAPA 58.01.05.008; 40 CFR 264.15(b) and 264.174]

The containers and the container storage areas in the MWMUs are inspected, at least weekly, for leaks, spills, and container deterioration. Specific information on how inspections are performed in the various MWMUs is provided below.

Type II Modules

AMWTP personnel conduct a visual container inspection from the center aisle in WMF-634, looking down the aisle space between each row of containers. The inspector moves from row to row, examining approximately half the length of each aisle (approximately 25 ft). After walking the length of the center aisle, the inspector moves along the wall to the "back" of the module (south wall) to inspect the remaining half-lengths of each row (approximately 25 ft). The inspector walks through each aisle looking for signs of container leaks and deterioration as well as the condition of the pallets or risers. Additional inspections are conducted on containers, which are located on the north side of WMF-634 looking for similar leaks, spills, or container deterioration. Any HWMA/RCRA deficiencies detected during the inspections are reported to the appropriate AMWTP management personnel, and documented in the Operating Record. See Table F-1 for further information on container inspections in WMF-634.

The inspections of containers in the Type II Modules, WMF-628 through WMF-633, are performed on both the north and south sides of the buildings, as described for the inspections on the south side of WMF-634. See Tables F-3 for further information on container inspections in WMF-628 through WMF-633.

Type I Module and SWEPP

Visual inspection of containers in the Type I Module and SWEPP are conducted by the inspector walking around the outside circumference of the storage areas and looking down the

aisle space between each row of containers. The inspector walks through each aisle looking for signs of container leaks and deterioration as well as the condition of the pallets or risers. See Table F-3 for further information on container inspections in the Type I Module and Table F-4 for further information on container inspections in SWEPP. Any HWMA/RCRA deficiencies detected during the inspection are reported to the appropriate AMWTP management personnel, and documented in the Operating Record.

AMWTP Treatment Facility

AMWTP personnel conduct a visual inspection of containers in the storage areas of WMF-676. AMWTP personnel also conduct a visual inspection of all containers stored within treatment areas. See Attachment 1.F, Table D-3 for a list of storage and treatment areas in WMF-676. The inspector performs inspections, either visually or via the CCTV system, looking for signs of container leaks and deterioration, as well as inspecting the condition of the storage area. Containers are stored such that they are easily visible from all sides either manually by the inspector or via the CCTV system inspection methods. See Table F-5 for further information on container inspections in WMF-676. Any HWMA/RCRA deficiencies detected during the inspection are reported to the appropriate AMTWP management personnel, and documented in the Operating Record.

F-2b(8) Miscellaneous Unit Inspection [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.602, 270.14(b)(5), and 270.23(a)(2)]

The miscellaneous units located in WMF-676 are inspected, at least weekly, for leaks, spills, and secondary container system integrity deterioration. Specific information on how inspections are performed in the various WMF-676 miscellaneous units is provided below.

Box Lines/Hot Maintenance

Routine visual inspections of the box lines and hot maintenance area may be conducted via observation windows or the CCTV system to limit the number of personnel entries into process areas. The box lines and hot maintenance area are visually inspected for leaks, spills, or signs of physical damage that threatens the integrity of the secondary containment system, when MW is present. Inspection schedules are presented in Table F-6.

SCW Glovebox System

Routine visual inspections of the SCW glovebox system may be conducted via observation windows or the CCTV system. The SCW glovebox system is inspected for signs of leaks, spills, or signs of physical damage that threatens the integrity of the secondary containment system, when MW is present. Inspection schedules are presented in Table F-7.

Supercompactor

Routine visual inspections of the supercompactor may be conducted via observation windows or the CCTV system, limiting the number of personnel entries into process areas. The supercompactor and surrounding area are inspected for signs of leaks, spills, or signs of physical damage that threatens the integrity of the secondary containment system, when MW is present. Inspection schedules are presented in Table F-8.

Drum Repack System

Routine visual inspections of the drum repack system may be conducted via observation windows or the CCTV system, limiting the number of personnel entries into process areas. The drum repack system is inspected for signs of leaks, spills, or signs of physical damage that threatens the integrity of the secondary containment system, when MW is present. Inspection schedules are presented in Table F-9.

Table F-1. WMF-634 Inspection Program Summary

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other degradation of floors, ramps, curbs, walls, and special coatings, which could compromise the integrity of the secondary containment system. Visually inspect the floor, including interior ramps, and curbs for evidence of significant cracks and gaps (i.e., ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling coating, that curbs are in good condition, and that no liquid is present on the floor.
Spill Pallets/Pans	W	Problem: Cracks, gaps, or other degradation of spill pallets/pans, which could compromise the integrity of the secondary containment system. Liquid in spill containment system. Visually inspect the spill pallets/pans, or equivalent, for evidence of significant cracks and gaps that may compromise the integrity of the containment. Ensure that no liquid is present in the spill containment system.
Leaks/Spills	D/W	Problem: Spilled or leaking containers. Visually inspect the area for MW leaks and spills. Initiate corrective action, if needed. Inspect loading and unloading areas daily when in use. Inspect storage areas weekly.
Aisle Space[c]	W	Problem: Insufficient aisle space. Ensure a minimum of 3-ft aisle space is maintained between rows of containers and between the rows and all internal and external walls unless one side of a container resides against an interior/exterior wall or structure of the building. Ensure a minimum 20-ft center access aisle is maintained.
Container Integrity	W	Problem: Damaged or leaking containers and containers that are not closed. Visually inspect for any liquid present on or near the container and defective, visibly pitted, or metal-fatigued containers by scanning around the outside of each stack, and down the aisles.

Table F-1. WMF-634 Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas (Continued)		
Container Position	W	Problem: Containers may be improperly stored or positioned based on the storage configuration. Check that containers are positioned properly and properly located in the storage configuration. Dense pack configuration: • Drums are no more than 4 wide by 5 high by 22 long. • Boxes are no more than 4 wide by 4 high by 11 long. Row with one side of a container residing against an interior/exterior wall or structure of the building: • Boxes and drums are no more than 1 container wide by 1 container high by 10 containers long. Stainless steel macroencapsulation containers: • Drums are no more than 2 wide by 2 high by 22 long. • Boxes are no more than 2 wide by 2 high by 11 long. Repaired containers: • Drums are no more than 2 wide by 2 high by 22 long. • Boxes are no more than 2 wide by 2 high by 11 long. Bag/Plastic wrap containers: • Containers with rigid waste are no more than 4 wide by 5 high by 22 long. • Containers with non-rigid waste are no more than 4 wide by 1 high by 22 long.
Treatment Areas		
Leaks/Spills	D	Problem: Spilled or leaking containers. Visually inspect for any liquids present in the treatment area, when treatment activities are occurring. Initiate corrective action if needed.
Safety and Emergency Equipment		
Spill Response Equipment[d]	M	Problem: Required spill response equipment/supplies missing from the spill kit. Check the tamper seal on the spill kit. If the spill kit has been opened since the last inspection, inventory the spill kit contents. Affix seal after inventory check/restocking.

Table F-1. WMF-634 Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a, b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Safety and Emergency Equipment (Continued)		
Fire Extinguishers[d]	M[e]	Problem: Missing fire extinguisher, improper type of fire extinguisher, or inaccessible fire extinguisher. Ensure fire extinguishers are visible, are in the proper location, are the proper type, easily accessible, and that the fire extinguishers are adequately pressurized for use.
Fire Hazard Surveillance	M	Problem: Accumulation of flammable/combustible materials and the presence of ignition sources. Ensure all areas are free of uncontrolled accumulation of combustibles.
Fire Suppression Systems	A[e]	Problem: Fire suppression systems not operational. Ensure fire suppression systems (e.g., hydrants, fire hoses, sprinkler systems, and supporting equipment) are present and ready for operation.
Fire Detection Systems and Alarms	A[e]	Problem: Fire detection systems or alarms not operational. Ensure fire detection systems/alarms are ready for operation.
Manual Fire Alarms	A[e]	Problem: Inoperable manual fire alarm systems/equipment. Ensure manual fire alarms are ready for operation.
Emergency Communications Equipment	M	Problem: Emergency communications equipment not operational. Ensure that the telephone(s) are operational by checking for a dial tone.
Standby Generator	M	Problem: Generator is inoperable. Verify that the equipment is functioning properly. Verify fuel level.
Security Devices[f]		
TSA Fence Area	M	Problem: Fence has been damaged/breached. Check TSA fence for condition, deterioration, and identify areas requiring repair.
TSA Fence and Gate Warning Signs	M	Problem: Fence and gate warning signs missing, not in proper location, not visible, or not in good condition. Check TSA fence and gate warning signs for the condition of the signs. Ensure signs are visible, in good condition, and verify the location of the signs.

Table F-1. WMF-634 Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a, b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Security Devices[f] (continued)		
TSA Fence Gates and Locks	M	Problem: Gates not operating properly. Gates or locks missing. Check TSA fence gates and locks for condition, deterioration, and identification of items requiring repair.
Door Entrances	M	Problem: Entrance warning signs missing, not in the proper location, not visible, or not in good condition. Verify that required warning signs are located in the vicinity of all doors leading into the operational areas of each MWMU and that the signs are in good condition, and are visible.
Monitoring Equipment		
Continuous Air Monitors (CAMs)	M/A	Problem: CAM is inoperable, not calibrated, filter integrity compromised, or pump inoperable. Conduct monthly CAM performance check. Perform an annual CAM calibration.
Operating and Structural Equipment		
External Structure	A	Problem: Significant precipitation accumulation and/or structure degradation. Inspect the outside areas of WMF-634, looking for significant precipitation accumulation, and inspecting the integrity of the outside of the structure.
Operating and Structural Equipment (continued)		
AMWTP Drainage System[f]	Q	Problem: Accumulation of material that would affect effective operations of the AMWTP drainage system. Inspect the drainage systems located within AMWTP area of control for materials that may cause blockage or prevent drainage.

a. D = Daily (each work day); W = Weekly; M = Monthly; Q = Quarterly; A = Annually.

b. Inspections are conducted only when MW is present.

c. Minimum aisle spacing requirements are excluding support beams and portable equipment.

d. Locations and type of equipment are identified in Table G-5 of Attachment 7.

e. Inspection frequencies determined by NFPA 10, 25, and/or 72.

f. The security devices and drainage system inspections identified on Table F-1 are applicable for all of the MWMUs addressed in this document. These inspection items are not reiterated on Tables F-2, F-3, F-4, and F-5.

Table F-2. Type II Module (WMF-628 – WMF-633) Inspection Program Summary

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other degradation of floors, ramps, curbs, walls, and special coatings, which could compromise the integrity of the secondary containment system. Visually inspect the floor; including interior ramps, and curbs for evidence of significant cracks and gaps (i.e. ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling coating, that curbs are in good condition, and that no liquid is present on the floor.
Spill Pallets/Pans	W	Problem: Cracks, gaps, or other degradation of spill pallets/pans, which could compromise the integrity of the secondary containment system. Liquid in spill containment system. Visually inspect the spill pallets/pans, or equivalent, for evidence of significant cracks and gaps that may compromise the integrity of the containment. Ensure that no liquid is present in the spill containment system.
Leaks/Spills	D/W	Problem: Spilled or leaking containers. Visually inspect the area for MW leaks and spills. Initiate corrective action, if needed. Inspect loading and unloading areas daily when in use. Inspect the storage areas weekly.
Aisle Space[c]	W	Problem: Insufficient aisle space. Ensure a minimum of 3-ft aisle space is maintained between rows of containers and between the rows and all internal and external walls unless one side of a container resides against an interior/exterior wall or structure of the building. Ensure a minimum 20-ft center access aisle is maintained in each module.
Container Integrity	W	Problem: Damaged or leaking containers and containers that are not closed. Visually inspect for any liquid present on or near the container and defective, visibly pitted, or metal-fatigued containers by visually inspecting around the outside of each stack, and down the aisles.

Table F-2. Type II Module (WMF-628 – WMF-633) Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a, b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas (Continued)		
Container Position	W	Problem: Containers may be improperly stored or positioned based on the storage configuration. Check that containers are positioned properly and properly located in the storage configuration. Dense pack configuration: • Drums are no more than 4 wide by 5 high by 22 long. • Boxes are no more than 4 wide by 4 high by 11 long. Row with one side of a container residing against an interior/exterior wall or structure of the building: • Boxes and drums are no more than 1 container wide by 1 container high by 10 containers long. Stainless steel macroencapsulation containers: • Drums are no more than 2 wide by 2 high by 22 long. • Boxes are no more than 2 wide by 2 high by 11 long. Repaired containers: • Drums are no more than 2 wide by 2 high by 22 long. • Boxes are no more than 2 wide by 2 high by 11 long. Bag/Plastic wrap containers: • Containers with rigid waste are no more than 4 wide by 5 high by 22 long. • Containers with non-rigid waste are no more than 4 wide by 1 high by 22 long.
Treatment Areas		
Leaks/Spills	D	Problem: Spilled or leaking containers. Visually inspect for any liquids present in the treatment area(s), when treatment activities are occurring. Initiate corrective action if needed.
Safety and Emergency Equipment		
Spill Response Equipment[d]	M	Problem: Required spill response equipment/supplies missing from the spill kit. Check the tamper seal on the spill kit. If the spill kit has been opened since the last inspection, inventory the spill kit contents. Affix seal after inventory check/restocking.

Table F-2. Type II Module (WMF-628 – WMF-633) Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Safety and Emergency Equipment (continued)		
Fire Extinguishers[d]	M[e]	Problem: Missing fire extinguisher, improper type of fire extinguisher, or inaccessible fire extinguisher. Ensure fire extinguishers are visible, are in the proper location, are the proper type, easily accessible, and that the fire extinguishers are adequately pressurized for use.
Fire Hazard Surveillance	M	Problem: Accumulation of flammable/combustible materials and the presence of ignition sources. Ensure all areas are free of uncontrolled accumulation of combustibles.
Fire Suppression Systems	A[e]	Problem: Fire suppression systems not operational. Ensure fire suppression systems (e.g., hydrants, fire hoses, sprinkler systems, and supporting equipment) are present and ready for operation.
Fire Detection Systems and Alarms	A[e]	Problem: Fire detection systems or alarms not operational. Ensure fire detection systems/alarms are ready for operation.
Manual Fire Alarms	A[e]	Problem: Inoperable manual fire alarm systems/equipment. Ensure manual fire alarms are ready for operation.
Emergency Communications Equipment	M	Problem: Emergency communications equipment not operational. Ensure that the telephone(s) are operational by checking for a dial tone.
Monitoring Equipment		
CAMs	M/A	Problem: CAM is inoperable, not calibrated, filter integrity compromised, or pump inoperable. Conduct monthly CAM performance check. Perform an annual CAM calibration.
Operating and Structural Equipment		
External Structure	A	Problem: Significant precipitation accumulation and/or structure degradation. Inspect the outside areas of WMF-628 through WMF-633, looking for significant precipitation accumulation, and inspecting the integrity of the outside of the structures.

a. D = Daily (each work day); W = Weekly; M = Monthly; Q = Quarterly; A = Annually.

b. Inspections are conducted only when MW is present.

c. Minimum aisle spacing requirements are excluding support beams and portable equipment.

d. Locations and type of equipment are identified in Table G-5 of Attachment 7.

e. Inspection frequencies determined by NFPA 10, 25, and/or 72.

Table F-3. Type I Module Inspection Program Summary

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other degradation of floors, ramps, curbs, walls, and special coatings, which could compromise the integrity of the secondary containment system. Visually inspect the floor, including interior ramps, and curbs for evidence of significant cracks and gaps (i.e., ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling coating, that curbs are in good condition, and that no liquid is present on the floor.
Spill Pallets/Pans	W	Problem: Cracks, gaps, or other degradation of spill pallets/pans, which could compromise the integrity of the secondary containment system. Liquid in spill containment system. Visually inspect the spill pallets/pans, or equivalent, for evidence of significant cracks and gaps that may compromise the integrity of the containment. Ensure that no liquid is present in the spill containment system.
Leaks/Spills	D/W	Problem: Spilled or leaking containers. Visually inspect the area for MW leaks and spills. Initiate corrective action, if needed. Inspect loading and unloading areas daily when in use. Inspect storage areas weekly.
Aisle Space[c]	W	Problem: Insufficient aisle space. Ensure a minimum of 3-ft aisle space is maintained between the rows of containers and all interior and exterior walls unless one side of a container resides against an interior/exterior wall or structure of the building. Ensure a minimum 10-ft access aisle is maintained in the PAAA/WCRA.
Container Integrity	W	Problem: Damaged or leaking containers and containers that are not closed. Visually inspect for any liquid present on or near the container and defective, visibly pitted, or metal-fatigued containers by scanning around the outside of each stack, and down the aisles.

Table F-3. Type I Module Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas (continued)		
Container Position	W	Problem: Containers may be improperly stored or positioned based on the storage configuration. Check that containers are positioned properly and properly located in the storage configuration. Dense pack configuration: • Drums are no more than 4 wide by 5 high by 30 long. • Boxes are no more than 4 wide by 4 high by 15 long. Row with one side of a container residing against an interior/exterior wall or structure of the building: • Boxes and drums are no more than 1 container wide by 1 container high by 10 containers long. Stainless steel macroencapsulation containers: • Drums are no more than 2 wide by 2 high by 30 long. • Boxes are no more than 2 wide by 2 high by 15 long. Repaired containers: • Drums are no more than 2 wide by 2 high by 30 long. • Boxes are no more than 2 wide by 2 high by 15 long. Bag/Plastic wrap containers: • Containers with rigid waste are no more than 4 wide by 5 high by 30 long. • Containers with non-rigid waste are no more than 4 wide by 1 high by 30 long.
Treatment Areas		
Leaks/Spills	D	Problem: Spilled or leaking containers. Visually inspect for any liquids present in the treatment areas, when treatment activities are occurring. Initiate corrective action if needed.
Safety and Emergency Equipment		
Spill Response Equipment[d]	M	Problem: Required spill response equipment/supplies missing from the spill kit. Check the tamper seal on the spill kit. If the spill kit has been opened since the last inspection, inventory the spill kit contents. Affix seal after inventory check/restocking.

Table F-3. Type I Module Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Safety and Emergency Equipment (continued)		
Fire Extinguishers[d]	M[e]	Problem: Missing fire extinguisher, improper type of fire extinguisher, or inaccessible fire extinguisher. Ensure fire extinguishers are visible, are in the proper location, are the proper type, easily accessible, and that the fire extinguishers are adequately pressurized for use.
Fire Hazard Surveillance	M	Problem: Accumulation of flammable/combustible materials and the presence of ignition sources. Ensure all areas are free of uncontrolled accumulation of combustibles.
Fire Suppression Systems	A[e]	Problem: Fire suppression systems not operational. Ensure fire suppression systems (e.g., hydrants, fire hoses, sprinkler systems, and supporting equipment) are present and ready for operation.
Fire Detection Systems and Alarms	A[e]	Problem: Fire detection systems or alarms not operational. Ensure fire detection systems/alarms are ready for operation.
Manual Fire Alarms	A[e]	Problem: Inoperable manual fire alarm systems/equipment. Ensure manual fire alarms are ready for operation.
Emergency Communications Equipment	M	Problem: Emergency communications equipment not operational. Ensure that the telephone(s) are operational by checking for a dial tone.
Standby Generator	M	Problem: Generator is inoperable. Verify that the equipment is functioning properly. Verify fuel level.
Monitoring Equipment		
CAMs	M/A	Problem: CAM is inoperable, not calibrated, filter integrity compromised, or pump inoperable. Conduct monthly CAM performance check. Perform an annual CAM calibration.
Operating and Structural Equipment		
External Structure	A	Problem: Significant precipitation accumulation and/or structure degradation. Inspect the outside areas of WMF-635, looking for significant precipitation accumulation, and inspecting the integrity of the outside of the structure.

a. D = Daily (each work day); W = Weekly; M = Monthly; Q = Quarterly; A = Annually.

b. Inspections are conducted only when MW is present.

c. Minimum aisle spacing requirements are excluding support beams and portable equipment.

d. Locations and type of equipment are identified in Table G-5 of Attachment 7.

e. Inspection frequencies determined by NFPA 10, 25, and/or 72.

Table F-4. SWEPP Inspection Program Summary

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other degradation of floors, ramps, curbs, walls, and special coatings, which could compromise the integrity of the secondary containment system. Visually inspect the floor; including interior ramps, and curbs for evidence of significant cracks and gaps (i.e. ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling coating, that curbs are in good condition, and that no liquid is present on the floor.
Spill Pallets/Pans	W	Problem: Cracks, gaps, or other degradation of spill pallets/pans, which could compromise the integrity of the secondary containment system. Liquid in spill containment system. Visually inspect the spill pallets/pans, or equivalent, for evidence of significant cracks and gaps that may compromise the integrity of the containment. Ensure that no liquid is present in the spill containment system.
Leaks/Spills	D/W	Problem: Spilled or leaking containers. Visually inspect the area for MW leaks and spills. Initiate corrective action, if needed. Inspect loading and unloading areas daily when in use. Inspect the storage areas weekly.
Aisle Space[c]	W	Problem: Insufficient aisle space. In the SSA, ensure a minimum of 3-ft aisle space is maintained between rows of containers and, a 2-ft aisle space is maintained between rows of containers and internal and external walls unless one side of a container resides against an interior/exterior wall or structure of the building. In SWEPP Staging Areas 1 and 2 and the north and south loading/unloading areas, ensure that a 3-ft aisle space is maintained between rows of containers and internal and external walls.
Container Integrity	W	Problem: Damaged or leaking containers and containers that are not closed. Visually inspect for any liquid present on or near the container and defective, visibly pitted, or metal-fatigued containers by scanning around the outside of each stack, and down the aisles.

Table F-4. SWEPP Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Storage Areas (Continued)		
Container Position	W	Problem: Containers may be improperly stored or positioned based on the storage configuration. Check that containers are positioned properly and properly located in the storage configuration. Dense pack configuration: • Containers are no more than 4 wide by 3 high by 'n' long, allowing for appropriate aisle space. Row with one side of a container residing against an interior/exterior wall or structure of the building: • Containers are no more than 1 container wide by 1 container high by 10 containers long. Stainless steel macroencapsulation containers: • Containers are no more than 2 wide by 2 high by 'n' containers long, allowing for appropriate aisle space. Repaired containers: • Containers are no more than 2 wide by 2 high by 'n' containers long allowing for appropriate aisle space. Bag/Plastic wrap containers: • Containers with rigid waste are no more than 4 wide by 5 high by 'n' containers long, allowing for appropriate aisle space. • Containers with non-rigid waste are no more than 4 wide by 1 high by 'n' long, allowing for appropriate aisle space.
Safety and Emergency Equipment		
Spill Response Equipment[d]	M	Problem: Required spill response equipment/supplies missing from the spill kit. Check the tamper seal on the spill kit. If the spill kit has been opened since the last inspection, inventory the spill kit contents. Affix seal after inventory check/restocking.
Fire Extinguishers[d]	M[e]	Problem: Missing fire extinguisher, improper type of fire extinguisher, or inaccessible fire extinguisher. Ensure fire extinguishers are visible, are in the proper location, are the proper type, easily accessible, and that the fire extinguishers are adequately pressurized for use.

Table F-4. SWEPP Inspection Program Summary (continued)

Item IDAPA 58.01.05.008 [40 CFR 264.15(b)(1)]	Frequency[a,b] IDAPA 58.01.05.008 [40 CFR 264.15(b)(4)]	Types of Problems IDAPA 58.01.05.008 [40 CFR 264.15(b)(3)]
Safety and Emergency Equipment (Continued)		
Fire Hazard Surveillance	M	Problem: Accumulation of flammable/combustible materials and the presence of ignition sources. Ensure all areas are free of uncontrolled accumulation of combustibles.
Fire Suppression Systems	A[e]	Problem: Fire suppression systems not operational. Ensure fire suppression systems (e.g., hydrants, fire hoses, sprinkler systems, and supporting equipment) are present and ready for operation.
Fire Detection Systems and Alarms	A[e]	Problem: Fire detection systems or alarms not operational. Ensure fire detection systems/alarms are ready for operation.
Manual Fire Alarms	A[e]	Problem: Inoperable manual fire alarm systems/equipment. Ensure manual fire alarms are ready for operation.
Emergency Communications Equipment	M	Problem: Emergency communications equipment not operational. Ensure that the telephone(s) are operational by checking for a dial tone.
Standby Generator	M	Problem: Generator is inoperable. Verify that the equipment is functioning properly. Verify fuel level.
Monitoring Equipment		
CAMs	M/A	Problem: CAM is inoperable, not calibrated, filter integrity compromised, or pump inoperable. Conduct monthly CAM performance check. Perform an annual CAM calibration.
Operating and Structural Equipment		
External Structure	A	Problem: Significant precipitation accumulation and/or structure degradation. Inspect the outside areas of WMF-610, looking for significant precipitation accumulation, and inspecting the integrity of the outside of the structure.

a. D = Daily (each work day); W = Weekly; M = Monthly; Q = Quarterly; A = Annually.

b. Inspections are conducted only when MW is present.

c. Minimum aisle spacing requirements are excluding support beams and portable equipment.

d. Locations and type of equipment are identified in Table G-5 of Attachment 7.

e. Inspection frequencies determined by NFPA 10, 25, and/or 72.

Table F-5. WMF-676 General Facility/Storage Areas Inspection Summary

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[a,b] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Storage/Treatment Areas		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other degradation of floors, ramps, curbs, walls, and special coatings, which could compromise the integrity of the secondary containment system. Manually, or using CCTV, visually inspect the secondary containment system for evidence of significant cracks and gaps (i.e. ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling or excessive damage of the coating and that no liquid is present.
Spill Pallets/Pans	W	Problem**:** Cracks, gaps, or other damage that would compromise the integrity of the secondary containment system. Liquid in spill containment system. Visually inspect the spill pallets/pans, or equivalent, for evidence of significant cracks and gaps that may compromise the integrity of the containment. Ensure that no liquid is present in the spill containment system.
Leaks/Spills	D/W	Problem: Spilled or leaking containers. Manually, or using CCTV, visually inspect the area for MW leaks and spills. Initiate corrective action, if needed. Inspect loading and unloading areas daily when in use. Inspect storage areas weekly.
CCS/Maintenance Area (Rooms 147/147D) and Drum Assay Conveyor Area (Room 126C) Container with Poor Integrity	D	Problem: Spilled or leaking containers. Manually, or using CCTV, visually inspect containers identified with poor integrity in the CCS/Maintenance Area and the Drum Assay Conveyor Area for leaks and spills. Initiate corrective action, if needed. Verify that containers identified with poor integrity do not reside in the CCS/Maintenance Area or the Drum Assay Conveyor Area for longer than seven (7) calendar days.
Container Integrity	W	Problem: Damaged or leaking containers and containers that are not closed. Manually, or using CCTV, visually inspect for any liquid present on or near the container and defective, visibly pitted, or metal-fatigued containers.

Table F-5. WMF-676 General Facility/Storage Areas Inspection Summary (continued)

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[a,b] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Storage/Treatment Areas (continued)		
Container Position	W	Problem: Containers may be improperly stored or positioned based on the storage configuration. Manually, or using CCTV, visually verify containers are properly located in the storage area. Verify that rows of containers are no more than two (2) containers wide, two (2) containers high, by up to 'n' in length, allowing for aisle space requirements given that no container within the row resides against a wall of WMF-676 or that rows of containers are no more than one (1) container wide, two (2) containers high, by up to 'n' in length, allowing for aisle space requirements given that one side of a container resides against a wall of WMF-676.
Aisle Space [c]	W	Problem: Insufficient aisle space. Ensure a minimum of 2-ft aisle space is maintained between rows of containers and all interior and exterior walls. If a row of containers is only one (1) container wide, then one side of the row may reside against and interior or exterior wall.
Safety and Emergency Equipment		
Spill Response Equipment[d]	M	Problem: Required spill response equipment/supplies missing from the spill kit. Check the tamper seal on the spill kit. If the spill kit has been opened since the last inspection, inventory the spill kit contents. Affix seal after inventory check/restocking.
Fire Extinguishers[d]	M[e]	Problem: Missing fire extinguisher, improper type of fire extinguisher, or inaccessible fire extinguisher. Ensure fire extinguishers are visible, are in the proper location, are the proper type, easily accessible, and that the fire extinguishers are adequately pressurized for use.
Fire Hazard Surveillance	M	Problem: Accumulation of flammable/combustible materials and the presence of ignition sources. Ensure all areas are free of uncontrolled accumulation of combustibles.
Fire Suppression Systems	A[e]	Problem: Fire suppression systems not operational. Ensure fire suppression systems (e.g., hydrants, fire hoses, sprinkler systems, and supporting equipment) are present and ready for operation.

Table F-5. WMF-676 General Facility/Storage Areas Inspection Summary (continued)

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[a,b] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Safety and Emergency Equipment (continued)		
Fire Detection Systems and Alarms	A[e]	Problem: Fire detection systems or alarms not operational. Ensure fire detection systems/alarms are ready for operation.
Manual Fire Alarms	A[e]	Problem: Inoperable manual fire alarm systems/equipment. Ensure manual fire alarms are ready for operation.
Emergency Communications Equipment	M	Problem: Emergency communication equipment not operational. Ensure that the designated emergency telephone(s) are operational by checking for a dial tone.
Standby Generator	M	Problem: Generator is inoperable. Verify that the generator is functioning properly. Verify fuel level.
Operating and Structural Equipment		
External Structure	A	Problem: Significant precipitation accumulation and/or structure degradation. Inspect the outside areas of WMF-676, looking for significant precipitation accumulation, and inspecting the integrity of the outside of the structure.

a. D = Daily; W = Weekly; M = Monthly; Q = Quarterly; A = Annually.

b. Inspections are conducted only when MW is present.

c. Minimum aisle spacing requirements are excluding support beams and portable equipment.

d. Locations and type of equipment are identified in Table G-5 of Attachment 7.

e. Inspection frequencies determined by NFPA 10, 25, and/or 72.

Table F-6. Box Line Inspection Program Summary[a]

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Secondary Containment System		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other damage that would compromise the integrity of the secondary containment system. Manually, or using CCTV, visually inspect the secondary containment system for evidence of significant cracks and gaps (i.e. ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling or excessive damage of the coating and that no liquid is present.
Leaks/Spills	W	Problem: Spilled or leaking containers. Manually, or using CCTV, visually inspect the area for leaks and spills. Initiate corrective action, if needed.
Hot Maintenance		
Leaks/Spills	D	Problems: Leaking or spilled containers. Manually, or using CCTV, visually inspect the area for leaks and spills. Initiate corrective action, if needed.
Equipment		
Box Line Sorting Areas: • Box line size reduction area, • East and west sort trough, • Off-line sorting trough, • South box line, and • Waste export stations.	D	Problem: Presence of spilled liquids. Visually inspect via CCTV and/or observation windows for spilled liquids.
	W	Problem: Damage to structures threatening integrity of the system/equipment. Visually inspect (via CCTV and/or observation windows) structures for signs of damage or deterioration threatening integrity.
	Between incompatible waste streams	Problem: Residual waste. Inspect area for residual waste prior to accepting waste from an incompatible waste stream.

Table F-6. Box Line Inspection Program Summary[a] (continued)

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Equipment (continued)		
Gloveboxes/Gloveports including the venturi airlock glovebox and the tool/prohibited waste bag/bagless transfer station.	Q	Problem: Damage to seals threatening integrity. Visually inspect glovebox seals (e.g., gloves, metal panels over gloveports) for signs of damage threatening integrity. Seals will be inspected for conditions that may impact usability or create unacceptable risk of breakthrough.
	Q	Problem: Damaged gloveport seals threatening integrity. Visually inspect gloveport seals for damage threatening integrity.
	Between incompatible waste streams	Problem: Residual waste. Inspect for residual waste prior to accepting waste from an incompatible waste steam.

a. Inspections identified are in addition to the general inspections listed in Table F-5.

b. D = Daily; W = Weekly; Q = Quarterly.

c. Inspections are conducted only when MW is present.

Table F-7. SCW Glovebox System Inspection Program Summary[a]

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Secondary Containment System		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other damage that would compromise the integrity of the secondary containment system. Manually, or using CCTV, visually inspect the secondary containment system for evidence of significant cracks and gaps (i.e. ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling or excessive damage of the coating and that no liquid is present.
Leaks/Spills	W	Problem: Spilled or leaking containers. Manually, or using CCTV, visually inspect the area for leaks and spills. Initiate corrective action, if needed.
Equipment		
SCW Gloveboxes: • Transfer glovebox, • Treatment glovebox, • Container-in-container glovebox, and • Sampling glovebox.	D	Problem: Presence of spilled liquids. Visually inspect via CCTV and/or observation windows for spilled liquids.
	W	Problem: Damage to structures, threatening integrity of the system/equipment. Visually inspect (via CCTV and/or observation windows) for signs of damage or deterioration threatening integrity.
	Q	Problem: Damage to seals, threatening integrity. Visually inspect glovebox seals (e.g., gloves, metal panels over gloveports) for signs of damage threatening integrity. Seals will be inspected for conditions that may impact usability or create unacceptable risk of breakthrough.
	Q	Problem: Damaged gloveport seals threatening integrity. Visually inspect gloveport seals for damage, threatening integrity.

Table F-7. SCW Glovebox System Inspection Program Summary[a] (continued)

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Equipment (continued)		
SCW Gloveboxes (continued):	Between incompatible waste streams	Problem: Residual waste. Inspect for residual waste prior to accepting waste from an incompatible waste stream.

a. Inspections identified are in addition to the general inspections listed in Table F-5.

b. D = Daily; W = Weekly; Q = Quarterly.

c. Inspections are conducted only when MW is present.

Table F-8. Supercompactor Inspection Program Summary[a]

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Secondary Containment System		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other damage that would compromise the integrity of the secondary containment system. Manually, or using CCTV, visually inspect the secondary containment system for evidence of significant cracks and gaps (i.e. ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling or excessive damage of the coating and that no liquid is present.
Leaks/Spills	W	Problem: Spilled or leaking containers. Manually, or using CCTV, visually inspect the area for leaks and spills. Initiate corrective action, if needed.
Equipment		
Supercompactor Gloveboxes: • Infeed glovebox, • Supercompactor glovebox, • Post-compaction glovebox, and • Puck recovery glovebox.	D	Problem: Presence of spilled liquids. Visually inspect via CCTV and/or observation windows the exterior surfaces of the gloveboxes and the area underneath the gloveboxes for spilled liquids.
	W	Problem: Damage to structures, threatening integrity of the system/equipment. Visually inspect (via CCTV and/or observation windows) structures for signs of damage or deterioration, threatening integrity.
	Q	Problem: Damage to seals, threatening integrity. Visually inspect glovebox seals (e.g., gloves, metal panels over gloveports) for signs of damage threatening integrity. Seals will be inspected for conditions that may impact usability or create unacceptable risk of breakthrough.

Table F-8. Supercompactor Inspection Program Summary[a] (continued)

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Equipment (continued)		
Supercompactor Gloveboxes (continued):	Q	Problem: Damaged gloveport seals, threatening integrity. Visually inspect gloveport seals for damage, threatening integrity.
	Between incompatible waste streams	Problem: Residual waste. Inspect for residual waste prior to accepting waste from an incompatible waste stream.
Sumps/Pumps	Between incompatible waste streams	Problem: Sump contains free liquids and/or free liquid is present in the pump lines. Visually inspect the sump area via observation windows or CCTV for any free liquid and ensure all lines are free from any liquid accumulation.
	M	Problem: Liquid level probe failure. Perform maintenance checks on liquid level probes.

a. Inspections identified are in addition to the general inspections listed in Table F-5.

b. D = Daily; W = Weekly; M = Monthly; Q = Quarterly.

c. Inspections are conducted only when MW is present.

Table F-9. Drum Repack System Inspection Program Summary[a]

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
Secondary Containment System		
Secondary Containment System Integrity	W	Problem: Cracks, gaps, or other damage that would compromise the integrity of the secondary containment system. Manually, or using CCTV, visually inspect the secondary containment system for evidence of significant cracks and gaps (i.e. ≥ 1/32 in.) that may compromise the integrity of the containment. Ensure there is no peeling or excessive damage of the coating and that no liquid is present.
Leaks/Spills	W	Problem: Spilled or leaking containers. Manually, or using CCTV, visually inspect the area for leaks and spills. Initiate corrective action, if needed.
Equipment		
DWHE	D	Problem: Presence of spilled liquids. Visually inspect via CCTV and/or observation windows for spilled liquids.
	W	Problem: Damage to structures threatening integrity of the system/equipment. Visually inspect (via CCTV and/or observation windows) structures for signs of damage or deterioration threatening integrity.
	Between incompatible waste streams	Problem: Residual waste. Inspect for residual waste prior to accepting waste from an incompatible waste stream.

Table F-9. Drum Repack System Inspection Program Summary[a] (continued)

Item IDAPA 58.01.05.008 40 CFR 264.15(b)(1)	Frequency[b,c] IDAPA 58.01.05.008 40 CFR 264.15(b)(4)	Types of Problems IDAPA 58.01.05.008 40 CFR 264.15(b)(3)
DWPG	D	Problem: Presence of spilled liquids. Visually inspect via CCTV and/or observation windows for spilled liquids.
	W	Problem: Damage to structures, threatening integrity of the system/equipment. Visually inspect (via CCTV and/or observation windows) structures for signs of damage or deterioration, threatening integrity.
	Q	Problem: Damage to seals threatening integrity. Visually inspect glovebox seals (e.g., gloves, metal panels over gloveports) for signs of damage threatening integrity. Seals will be inspected for conditions that may impact usability or create unacceptable risk of breakthrough.
	Q	Problem: Damaged gloveport seals threatening integrity. Visually inspect gloveport seals for damage threatening integrity.
	Between incompatible waste streams	Problem: Residual waste. Inspect for residual waste prior to accepting waste from an incompatible waste stream.

a. Inspections identified are in addition to the general inspections listed in Table F-5.

b. D = Daily; W = Weekly; Q = Quarterly.

c. Inspections are conducted only when MW is present.

TABLE OF CONTENTS

ATTACHMENT 5

TRAINING PLAN

H. TRAINING PLAN 1

H-1 Outline of the Training Plan 1

H-1a Job Title/Job Description 1

H-1b Training Plan Content and Scheduling 2

H-1c Training Manager 3

H-1d Relevance of Training to Job Position 4

H-1e Training for Emergency Response 5

H-2 Implementation of the Training Plan 6

H. TRAINING PLAN

H-1 Outline of the Training Plan [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.16(a)(1) and 270.14(b)(12)]

This section describes the Training Plan for AMWTP personnel who work at the MWMUs. The Training Plan assists AMWTP personnel in performing their assigned duties in a safe manner, and it includes the required introductory and continuing training. The required training is tailored to each position title responsible for management of MW to cover the various tasks and responsibilities of AMWTP personnel. Successful implementation of the Training Plan enhances the overall safety program and contributes to safe operations involving MW at the MWMUs. The Training Plan satisfies the requirements of IDAPA 58.01.05.008 (40 CFR 264.16) and 29 CFR 1910.120(p) [Hazardous Waste Operations and Emergency Response (HAZWOPER)].

Personnel involved in MW handling, management, and operations at the MWMUs participate in a comprehensive training program per this Training Plan. In general, these employees receive training on operations, proper handling and management of MW, emergency response procedures, and other HWMA/RCRA-related topics.

The following section outlines the Training Plan for employees involved in MW management, handling, or operations at the MWMUs. The training consists of a combination of self-study, classroom instruction, computer-based training, and on-the-job training (OJT) in conjunction with qualification programs. Qualified personnel who have expertise in the subject provide the OJT.

H-1a Job Title/Job Description [IDAPA 58.01.05.008; 40 CFR 264.16(d)(1) and (d)(2)]

The following documents are kept as part of the Operating Record:

- The job title and position description, including requisite skills, education, qualifications, and duties for each position related to the management of MW and the names of the employee filling each job;
- Written descriptions of the type and amount of both introductory and continuing training required by each person filling a job position involved with the management of MW at the MWMUs; and

- Records that document that the minimum training and qualification requirements for the AMWTP personnel involved with management of MW have been successfully completed.

H-1b Training Plan Content and Scheduling [IDAPA 58.01.05.008; 40 CFR 264.16(c) and 264.16(d)(3)]

The Training Manager, or designee, ensures all AMWTP personnel working at the MWMUs are appropriately trained prior to initiating any work that may cause the employee to be potentially exposed to MW. The Training Manager, or designee, with assistance from management, is responsible for the scheduling and completion of all required training. All AMWTP personnel directly involved with activities at the MWMUs receive Facility Access training. Facility Access training is designed to familiarize all employees with the information and protocols necessary to maintain a safe work environment within the MWMUs. Facility Access orientation covers:

- General description of the MWMUs,
- Waste management activities performed in the MWMUs,
- Contingency Plan contents,
- MWMU access and security requirements, and
- Hazards associated with the AMWTP MWMUs.

The Contingency Plan training addresses emergency equipment use, availability, and location; alarms, evacuation procedures and routes; and other relevant emergency procedures.

AMWTP personnel receive annual HWMA/RCRA facility access training. This training is conducted to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, emergency systems, and other relevant topics.

AMWTP personnel working at the MWMUs also receive additional training if their job involves potential exposure to MW. These workers receive HAZWOPER training for TSD facilities (24 hr-initial, 8-hr refresher), as specified in 29 CFR 1910.120(p).

In addition, some AMWTP personnel involved in MW operations, described at 29 CFR 1910.120(p), may receive training in:

- respirator use and fit test,

- radiation worker training,
- first aid, and
- cardiopulmonary resuscitation (CPR).

AMWTP personnel in craft occupations and certain technicians receive specialized training in the areas applicable to their job assignments. This training may be required for acquiring and maintaining certification in their trade, or validating proficiency to perform certain tasks. Certification/proficiency training may be required for personnel responsible for such duties as fitters, mechanics, electricians, equipment operators, instrument technicians, vehicle technicians, and waste handling operators.

Personnel may be given written and/or oral examinations, operational evaluations, and reviews to ensure that they are adequately trained commensurate to their job positions. Examinations and evaluations meet performance-based training criteria. Results of examinations, evaluations, and reviews are documented. Completed checklists, examinations, and evaluations are placed in each individual's training record.

Occasionally, AMWTP personnel attend training classes conducted by outside vendors. In order to verify personnel attendance at such a course, a copy of the class certification or other documentation is maintained in the Operating Record.

H-1c Training Manager [IDAPA 58.01.05.008; 40 CFR 264.16(a)(2)]

The AMWTP Training Manager, or designee, is responsible for fulfilling the requirements of the Training Manager as specified at IDAPA 58.01.05.008 [40 CFR 264.16(a)(2)]. The Training Manager, or designee, is responsible for ensuring that personnel at the AMWTP are trained in programs and procedures for management of MW, environmental requirements, industrial and radiation safety, Contingency Plan, operational skills, and technical training.

The Training Manager, or designee, is responsible for the development or approval of the training courses provided to AMWTP employees. The Training Manager, or designee, reviews lesson plans and instructor’s qualifications to validate the acceptance of the training course. The Training Manager, or designated trainers, are qualified to instruct AMWTP personnel about the subject matter presented in training. Such trainers have academic credentials and/or the instructional experience necessary for teaching the subject(s).

The Training Manager, and designated trainers, are trained in MW management procedures. The Training Manager, or designee, ensures that MW management training (including training on the implementation of the Contingency Plan) is provided to the AMWTP personnel that are working at the MWMUs and that the training is relevant to the assigned positions. The Training Manager, or designee, is trained and qualified in the management of MW. In addition, the Training Manager, or designee, provides overall leadership and management direction to the AMWTP training organization. The Training Manager's, or designee's, duties include the following:

- Provide direction to the training organization,
- Ensure training personnel performance is evaluated,
- Provide direction for and approve the AMWTP Training Plan,
- Ensure AMWTP personnel receive training appropriate to their positions,
- Ensure all program objectives and requirements are satisfied, and
- Ensure the Training Plan meets the requirements of IDAPA 58.01.05.008 (40 CFR 264.16) and 29 CFR 1910.120.

H-1d Relevance of Training to Job Position [IDAPA 58.01.05.008; 40 CFR 264.16(a)(2)]

Individual Training Plan or Qualification Package profiles are prepared for each AMWTP position description that requires a formal Training Plan. Each profile serves as a training guide to identify the minimum requirements for achieving and maintaining required qualifications and certifications. The profile also serves as a checklist to ensure training record completeness. Training requirements for each position are maintained in the Operating Record.

At a minimum, each individual Training Plan profile identifies the following:

- Job description,
- Qualifications, and
- Training requirements.

Profiles identify typical qualification and certification requirements. Some positions may require specialized training (e.g., HWMA/RCRA Secondary Containment System Repair Procedure, Container Repair Procedure, etc.). Special-case training is documented in the training records. Profiles include requirements for hazardous and MW management and emergency

response training. The AMWTP Training Manager, or designee, is responsible for monitoring the status of personnel qualifications and certifications.

Persons who have the responsibility for evaluating training requirements for AMWTP personnel include, but are not limited to, the AMWTP Training Manager, or designee, and the appropriate supervisor or manager.

Individuals who demonstrate an equivalency for specific requirements or prerequisites identified in the training profile may be exempted from the associated training. The Training Manager, or designee, consults with the employee's manager/supervisor to review the claim for exemption or completion of equivalent training prior to approving the exemption or equivalency. Each exemption/equivalency is granted in writing and documented in the individual's training record.

H-1e Training for Emergency Response [IDAPA 58.01.05.008; 40 CFR 264.16(a)(3)]

Emergency response training is provided to all AMWTP personnel that work at the AMWTP, including specialized training for the AMWTP Emergency Response Organization (ERO). All personnel requiring unescorted access to the AMWTP receive training on the appropriate response to take when a fire, explosion, or release of MW is occurring or imminent at the MWMUs. This training provides instructions on controlling or responding to the incident and safe evacuation from the building/area. The Training Plan includes the following, as applicable:

- Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment;
- Use of communications or alarm systems;
- Response to fires or explosions; and
- Shutdown of operations.

Documentation that AMWTP personnel working at the MWMUs have received initial emergency response training, annual training, and specialized training is maintained in their training records.

H-2 Implementation of the Training Plan [IDAPA 58.01.05.008; 40 CFR 264.16(b), 264.16(d)(4), and 264.16(e)]

In conjunction with AMWTP Facility Access training, designated employees enter a qualification or certification program specific to their job assignments. AMWTP personnel holding qualifications and certifications are retrained or evaluated so they may retain their qualifications or certifications. Job assignments, which require the completion of a qualification or certification program, have time requirements associated with the Training Plan.

Initial training requirements are completed within six months of the individual's date of employment or assignment to a MWMU work location when their position involves the management of MW. Employees do not work in unsupervised positions involving MW until they have completed the minimum specified training requirements.

Training files include documentation of completed training, such as class rosters, signed checklists, completed exams, data base printouts, and other documents verifying training. For training provided by organizations external to the AMWTP, the original training records are typically maintained by the presenting organizations, and a copy of corresponding records is provided to the AMWTP Training Manager, or designee. This information is entered into the individual's training record.

A training record includes the person’s name, identification number, job title/position, and associated training documentation. Each training file includes the person’s individual training profile, which identifies the minimum required introductory and continuing training for the calendar year.

Training records for AMWTP personnel are maintained as part of the Operating Record per IDAPA 58.01.05.008 (40 CFR 264.73).

TABLE OF CONTENTS

ATTACHMENT 6

PROCEDURES TO PREVENT HAZARDS

F-3 Preparedness and Prevention Requirements 1
F-3a Equipment Requirements 1
F-3a(1) Alarms and Communication Equipment 1
F-3a(2) Internal Communications 1
F-3a(3) External Communications 2
F-3a(4) Emergency Equipment 3
F-3a(5) Fire Protection System 3
F-3a(6) Water for Fire Control 6
F-3b Aisle Space Requirements 7
F-4 Preventive Procedures, Structures, and Equipment 8
F-4a Unloading Operations 8
F-4b Run-Off 8
F-4c Water Supplies 8
F-4d Equipment and Power Failure 9
F-4e Personnel Protection Equipment 11
F-5 Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste 13
F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste 13
F-5b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste 15
F-5c Management of Ignitable or Reactive Wastes in Containers 17
F-5d Management of Incompatible Wastes in Containers 17
F-6 Interim Waste Management Strategy for the Waste Storage Facility 19
F-6a Background 19
F-6b Special Procedures 19
F-6b(1) Compatibility Determination 19
F-6b(2) Waste Segregation on the Basis of Compatibility 19
F-6b(3) Waste Separation on the Basis of Unknowns 20
F-6b(4) Waste Separation on the Basis of Free Liquids Content 20
F-6b(5) Special Facility Modifications 20

F-3 Preparedness and Prevention Requirements

This section discusses the emergency preparedness and prevention measures at the MWMUs.

F-3a Equipment Requirements [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.32 and 270.14(b)]

The following sections describe the alarms and communications equipment, emergency equipment, fire protection systems, and water for fire control at the MWMUs. The inspection and maintenance of equipment located within a MWMU is included in Attachment 4.

F-3a(1) Alarms and Communication Equipment [IDAPA 58.01.05.008; 40 CFR 264.32(a)]

The MWMU buildings are not continuously manned. They are locally and manually operated. The MWMUs are equipped with communications equipment, monitoring systems, and alarms to monitor storage conditions, operating conditions, treatment operations, and to automatically summon emergency assistance or notify personnel working in the area of emergency conditions. Alarms and parameters that are monitored include manual fire alarm pull stations, water flow alarms, low air-temperature alarm (for fire sprinkler riser room), and loss of power. Fire alarm signals are transmitted to the alarm room Fire Alarm Control Panel (FACP) and subsequently to the INL Fire Department. Notifications may then be made to RWMC/Warning Communications Center (WCC), as required, via telephone.

Additionally, the WSF and SWEPP allow for multiple CAM locations. A minimum of one CAM is located in the WSF and SWEPP when MW is present. The CAMs are equipped to provide readings of operational and alarm status, and sound an audible alarm if readings exceed pre-established setpoints. Alarms from CAM monitors are locally audible and visible.

F-3a(2) Internal Communications [IDAPA 58.01.05.008; 40 CFR 264.32(a)]

Telephone systems in the MWMUs provide communication service between offices, control rooms, selected process areas, the maintenance building, INL emergency services, and off-Site areas. Additional subsystems such as voice-mail, paging, intercom, portable radios, and

call accounting are incorporated, as required. WMF-634, at a minimum, is equipped with a telephone in the assay and RTR control rooms. The Type I Module, Type II Modules, SWEPP, and WMF-676 are each equipped, at a minimum, with one telephone. Hand-held radios are the primary communication method routinely used during normal and emergency operations.

The AMWTP fire alarm system, which serves all TSA MWMUs, is linked to the INL central fire alarm monitoring system. Any alarm condition within the AMWTP is transmitted to the alarm room. The INL Fire Department and WCC are then notified.

Initiating devices may include manual pull stations, area smoke and heat detectors, duct smoke detectors, sprinkler riser flow and tamper (valve position) switches, alarm cabinet door switches, environmental and radiation monitoring alarm contacts, and alarm contacts from any other extinguishing systems panels. Manual pull boxes initiate local and remote alarm signals. Control devices may include door holders, contact outputs for fan and damper control, and alarm and speaker signals.

An emergency notification system allows emergency communications from the AMWTP operator control stations via speakers located throughout the RWMC. The speakers are capable of broadcasting various distinct AMWTP local or global (local refers to the AMWTP control areas, while global includes all RWMC areas including the AMWTP control areas) alarm signals. The MWMUs are equipped with evacuation/voice paging speakers and manual fire alarm stations.

F-3a(3) External Communications [IDAPA 58.01.05.008; 40 CFR 264.32(b)]

External communication to summon emergency assistance is typically made via the AMWTP telephone system, vehicle two-way radios, hand-held two-way portable radios, and automatic alarms. In the event of an emergency, the organizations that may be contacted include: security personnel, the INL Fire Department, and/or the Emergency Operations Center (EOC). See Attachment 7 for additional information on reporting requirements. The WCC summons by telephone or pager system any outside emergency response organizations, as requested by the AMWTP.

The AMWTP alarm system is interfaced with the INL Site evacuation system so that Site evacuation alarms are transmitted to personnel within AMWTP controlled areas. An interface with the INL public address (PA) system allows voice evacuation notices from the INL to be transmitted throughout the AMWTP.

F-3a(4) Emergency Equipment [IDAPA 58.01.05.008; 40 CFR 264.32(c)]

Adequate spill control equipment, PPE, decontamination equipment, monitoring and survey equipment, and fire control equipment are available to respond to emergencies at the MWMUs. A list of the emergency equipment available at the MWMUs and its location is provided in Attachment 7.

F-3a(5) Fire Protection System [IDAPA 58.01.05.008; 40 CFR 264.32(c)]

Fire protection in the MWMUs is provided through a combination of smoke detectors, remote and local alarms, automatic fire extinguishing systems (sprinklers), clean agent systems, and portable fire extinguishers. Manual fire alarm stations are generally located next to personnel access doors. Once a fire is detected, the alarm sounds, the building HVAC system shuts down, and water is introduced through overhead piping. Once initiated, water suppression systems are shut-off manually.

AMWTP Waste Characterization Building

The fire protection system design for WMF-634 complies with the UBC occupancy classification F-1, and Type II-N regulations. The building fire protection design is in accordance with NFPA requirements. The fire protection system for WMF-634 meets the requirements for the Type II Modules, as discussed below.

Additional fire protection is provided in the control rooms of WMF-634. The RTR and assay control rooms and the drum coring room utilize a water based fire suppression system. A dedicated (high pressure mist) detection and suppression system is provided in the interior of the DCSRS gloveboxes. Fire protection is provided in areas of the DCSRS ventilation system. Deluge systems, connected to the primary fire water system, are provided to the HEPA filters (final

stage) and carbon absorption systems. Backup water is provided to the deluge systems via a water tank.

Type II Modules

Fire protection for the Type II Modules is provided through a combination of smoke detectors, remote and local alarms, an automatic fire extinguishing system, and portable fire extinguishers. One manual alarm station is located next to each personnel access door in the storage area and in the electrical room. The fire protection system is designed to provide approximately 0.29 gallons per minute (gpm)/ft^2 over a 2,600 ft^2 area with an approximate inside hose allowance of 100 gpm and an approximate outside hose allowance of 400 gpm. The sprinkler riser is located in the fire sprinkler riser room next to the electrical room on the exterior of the Type II Modules.

Type I Module

The Type I Module design complies with UBC occupancy classification H-7, and Type II-N regulations. The building fire protection design is in accordance with NFPA.

Fire protection for the Type I Module is provided through a combination of smoke detectors, remote and local alarms, two water-based automatic fire extinguishing systems, and fire extinguishers. Manual fire alarm pull stations and audible/visible alarm indication devices are installed throughout the Type I Module. Smoke detectors are located in the storage areas, electrical room, and drum venting area. The fire protection room in the northwest corner of the MSA houses the sprinkler riser and valves for the Type I Module.

The two sprinkler systems in the building provide full area coverage. One system protects the PAAA/WCRA and the TLA. The second system protects the remaining portions of the building, including the DVF. The systems are designed to deliver a water density of approximately 0.47 gpm/ft^2 over 2,500 ft^2 in the PAAA/WCRA and approximately 0.29 gpm/ft^2 over 2,600 ft^2 in the remaining portions of the building. Both designs include an approximate 500 gpm hose stream allowance.

SWEPP

Fire protection for the SWEPP is provided through a combination of smoke detectors, remote and local alarms, water based fire extinguishing systems, and fire extinguishers. Manual fire alarm pull stations and audible/visible alarm indication devices are installed throughout SWEPP.

The sprinkler system for the SWEPP building is a water-based fire suppression system. The main line of the sprinkler system runs to the center of the building and then runs the length of the building at ceiling level. Multiple branch sprinkler lines connect to the main sprinkler line, and sprinkler heads are located along the sprinkler line to provide coverage for the central areas of the building. The sprinkler system in the High Bay is designed to provide approximately 0.19 gpm/ft^2 over 1,500 ft^2.

AMWTP Treatment Facility

WMF-676 is divided into a process area and a non-process area, which are separated by a two-hr fire wall running east to west. One sprinkler riser serves each area, and these two riser systems are interconnected by the wet sprinkler system to provide operating flexibility during upset conditions.

The process area fire riser is located in the northeast stairwell and serves the first and second floors, interstitial space of the process area, along with the penthouse. It is served by a separate fire sprinkler riser supplied from the 10-in. main and an additional fire sprinkler riser supplied from the 8-in. main. The fire sprinkler system includes both a wet and a preaction system for various areas. The wet sprinkler fire riser and the preaction system fire riser are both located in the northeast stairwell. This riser connects to the 10-in. primary fire main east of WMF-676.

The non-process area fire sprinkler riser is located in the southwest stairwell and serves the first and second floor non-process areas, interstitial space, the central conveyor area, and the attached utility building. The riser is located in the southwest stairwell. The riser connects to the 10-in. secondary fire main south of WMF-676.

All WMF-676 areas have a sprinkler density of 0.20 gpm/ft^2 and a minimum design area of 1,500 ft^2, for a capacity of 300 gpm. The maximum fire water flow (800 gpm) is the sum of the maximum sprinkler flow (300 gpm) plus the required fire hose allowance (500 gpm). To maintain an 800 gpm water flow, the estimated residual pressure required for the non-process area is 105 psi, and 96 psi for the process area.

Additional fire protection is provided in areas of WMF-676. These secondary fire protection systems vary from clean agent systems to preaction dry pipe fire suppression systems to deluge systems. Gloveboxes are provided with fire detection and manually operated carbon dioxide, nitrogen, or water spray suppression systems. Carbon dioxide suppression systems are designed in accordance with the requirements of NFPA 12, Standard on Carbon Dioxide Extinguishing Systems.

F-3a(6) Water for Fire Control [IDAPA 58.01.05.008; 40 CFR 264.32(d)]

Fire water for the MWMUs is supplied by the RWMC and consists of two 250,000-gal water storage tanks fed by a deep well. One of the water storage tanks is dedicated for fire water storage and supplies a dedicated fire water distribution system. The second water storage tank supplies the RWMC potable water distribution system, which can be configured to supply backup fire water to the distribution system as needed. The fire water distribution system runs throughout the TSA to provide fire water supplies to (or in the immediate vicinity of) the MWMUs. The MWMUs are equipped with automatic sprinklers. Fire hydrants are located in the vicinity of the MWMUs. The RWMC is able to provide water through the fire water supply system at adequate volume, pressure, and duration to supply automatic sprinkler systems and hose streams to successfully fight fires at the MWMUs. Details of the fire water supply system are provided below.

Fire Water Storage Tank

The 250,000-gal fire water storage tank (WMF-727) is the primary RWMC water storage tank and is maintained to provide a minimum 2-hr water supply to meet RWMC's worst-case fire demand. Water is discharged directly into the firewater distribution piping system. Both the

tank level and water temperature are monitored by the RWMC fire alarm system. A circulation pump/water heating system is provided to move and heat the tank water as needed.

Potable Water Storage Tank

The 250,000-gal potable water storage tank (WMF-709) serves as a backup fire water tank. Both the tank level and water temperature are monitored as part of the RWMC fire alarm system. The potential for water freezing is reduced by recirculating the water, accomplished by using either the domestic pump or the auxiliary electric fire pump in WMF-603, with a portion of the discharge directed back to the tank. Water can be discharged through a backflow preventer into the fire water distribution piping system.

Water Storage Tank Feed (Deep Well Pump)

The potable water tank (WMF-709) is supplied by a deep well. The deep well pump is controlled automatically by the water level in the potable water tank. The fire water tank (WMF-727) is supplied from the potable water tank (WMF-709). The domestic pumps in the pump house (WMF-603) are used to move water from the potable water tank, through a backflow preventer to the fire water tank. The fire water tank can also be filled from the deep well pump if necessary, bypassing the potable water tank.

Fire Water Distribution System

The fire water storage tank discharges to the fire water distribution piping via pumps and a discharge header. The static water pressure is maintained at 135-150 psi throughout the distribution system. Within the TSA, there is a looped fire main system, with 8-in. and 10-in. mains with hydrants extending along three major roads to provide adequate fire water for all AMWTP MWMUs.

F-3b Aisle Space Requirements [IDAPA 58.01.05.008; 40 CFR 264.35]

The storage configuration for the MWMUs is described in Attachments 1.A, 1.B, 1.C, 1.D, 1.E, and 1.F.

F-4 Preventive Procedures, Structures, and Equipment

The following sections describe the preventive procedures, structures, and equipment used at the MWMUs to prevent or minimize releases of MW to the environment and to protect human health and the environment during MW management activities.

F-4a Unloading Operations [IDAPA 58.01.05.012; 40 CFR 270.14(b)(8)(i)]

Unloading operations and container handling operations are described in detail in Attachments 1.A, 1.B, 1.C, 1.D, 1.E, 1.F, 1.F.i, 1.F.ii, 1.F.iii, 1.F.iv, and 2.

F-4b Run-Off [IDAPA 58.01.05.012; 40 CFR 270.14(b)(8)(ii)]

As described in Attachment 1.A, the MWMUs are provided with a variety of flood control and drainage control measures to facilitate the drainage of water away from the TSA. The area around the MWMUs is graded to facilitate the drainage of precipitation away from the MWMUs. Storm water flows from the sloped roof of the structure and is then directed away from the MWMUs via the storm water drainage system. Culverts in the vicinity of the MWMUs are designed to discharge peak flows from a 25-yr storm event.

F-4c Water Supplies [IDAPA 58.01.05.012; 40 CFR 270.14(b)(8)(iii)]

Contamination of the RWMC water supply by MW management activities conducted at the MWMUs is prevented by the design of the MWMUs and the depth to groundwater. The MWMUs are designed to isolate the waste containers in storage from the environment, prevent deterioration of container integrity during long-term storage, and prevent released waste from entering the environment. The MWMUs are enclosed buildings. Further, frequent inspections of container condition and the presence of waste leaks and/or spills are conducted, as described in Attachment 4, to allow timely response and cleanup for any waste leak and/or spill. The design features and operational practices described above prevent leaks and/or spills from contacting soil which could migrate to the groundwater.

F-4d Equipment and Power Failure [IDAPA 58.01.05.012; 40 CFR 270.14(b)(8)(iv)]

Operational equipment failures can occur within the MWMUs without a power failure. Such failures do not unduly affect waste handling or storage activities. Operational equipment of concern at the MWMUs includes waste handling equipment (e.g., conveyors, forklifts, pallet-lift trucks), ventilation systems (e.g., air handlers, dampers, etc.), and monitoring equipment (e.g., detectors, alarms, etc.). If a malfunction occurs in the waste handling equipment during container handling, the equipment is designed to cease functioning and hold containers in position. Some of the systems identified above have local and/or remote alarms to signal trouble.

All of the above-described equipment undergoes periodic inspections to detect malfunctions and preventive maintenance to ensure acceptable operating performance. This is described in additional detail in Attachment 4. All personnel operating waste handling equipment are trained and qualified on the equipment. Training requirements are described in Attachment 5.

The RWMC and AMWTP have standby power sources for continued operation of critical systems during periods of commercial power outage. All generators come online automatically when commercial power is interrupted, unless manually overridden. They can be started manually and are equipped with time delays of several seconds to prevent nuisance starts.

A 175-kilo Watt (kW) generator is located at the pump house (WMF-603), and it supplies the power panel that provides standby power to RWMC/AMWTP facilities, monitoring systems, and emergency alarms. This generator is fueled by a 500-gal propane tank. A battery to supply continuous emergency power to the AMWTP Command Post is provided by an uninterruptible power supply (UPS) system. In addition, the fire alarm system has a battery backup, in case of power failure.

Specific information about the various standby power sources for the MWMUs is provided below.

Type II Module (Other Than WMF-634), Type I Module, and SWEPP

A 75-kW generator is located at the SWEPP, which supplies power for nearby lights and power receptacles, as well as for other TSA facilities. A 500-kW diesel generator supplies standby power to the various RWMC/AMWTP facilities, and is located on the east side of the TSA-RE. These standby generators ensure continued monitoring and alarm detection of fire detection systems, CAMs (except WMF-634), and other critical monitors and response systems for wastes in storage.

AMWTP Waste Characterization Building

WMF-634 has its own standby power supply that maintains certain HVAC systems and alarm systems. The power supply is supplied by a diesel generator, located on the exterior northwest wall, which provides sufficient power for WMF-634 to continue operations and shutdown characterization equipment in an operationally sound manner. The fire alarms are equipped with separate battery backup to provide at least 24 hrs of standby operation. Emergency lighting at WMF-634 is provided from battery-operated, automatically recharging, push-to-test lighting units and exit lights located at all doors to light egress routes upon loss of commercial power. The CAM(s) located in WMF-634 are not provided with standby power. In the event of a loss of power to WMF-634, radiological surveys are performed, as required, to detect possible releases of MW/MW constituents.

AMWTP Treatment Facility

The WMF-676 electrical power system is designed such that there are no single point failures to the devices supplied that will prevent proper protective action when required. Standby power for WMF-676 is supplied from a diesel-powered generator adequate to support all critical and safety-related loads. The diesel-powered generator also supplies power to essential process loads that cannot tolerate periods of interruption in excess of one hour. Additionally, WMF-676 is equipped with UPS systems that supply power to electrical loads that require continuous operation without interruption or perturbation. Additional detail on the WMF-676 electrical system is provided in Drawings 54-0101, 54-0102, and 54-0103 in Appendix VII.

The WMF-676 UPS is located in the electrical room adjacent to the computer room and is continuous duty and solid state. It consists of an alternate current inverter, rectifier/battery charger, storage batteries, control circuitry, status and metering panels, and a bypass transfer switch. The UPS supplies power to the UPS power distribution panel board, also housed in the electrical room. The UPS storage batteries are located in a cabinet next to the UPS.

Battery operated lighting is provided in areas that may be in use during emergencies or power outages, including those along the appropriate egress routes. Self-contained, battery-operated fixtures provide exit lighting. The CCR, the computer room, and the backup monitoring room lighting fixtures are provided with emergency power. Select lighting fixtures throughout WMF-676 are provided with standby power to aid in restoring WMF-676 to normal operations or to aid in safe shutdown during a power outage.

F-4e Personnel Protection Equipment [IDAPA 58.01.05.012; 40 CFR 270.14(b)(8)(v)]

Personnel are notified of and protected from chemical and radiological hazards associated with wastes managed at the MWMUs through radiological monitoring of personnel and containers, use of PPE (as may be required for particular tasks), and alarmed monitoring equipment. All operations are conducted such that employee exposures to MW are as low as reasonably achievable (ALARA), in accordance with AMWTP policy. All personnel involved in the management of MW are instructed in the use of PPE, as appropriate to their job functions and assigned tasks.

Prior to the start of any operation that may expose employees to the risk of injury or exposure to MW constituents, AMWTP personnel review the operation to ensure that the nature of hazards that might be encountered are properly considered; appropriate PPE is selected; and appropriate safety procedures and equipment are included. This review typically involves radiological control, industrial hygiene, and safety personnel, in addition to knowledgeable operations personnel.

If a particular activity to be conducted has not previously been performed or there are unique considerations to be addressed, appropriate work control documentation specifies precautions, PPE, monitoring, industrial safety, and industrial hygiene controls or activities to be

performed. The work control documents also present the sequence of activities to be completed, limiting factors to be identified, information to be recorded, and situations that may require operations to be shut down.

F-5 Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste

Containers stored at the MWMUs are packaged, handled, and managed to prevent the reaction of ignitable and incompatible wastes. HWMA/RCRA-regulated wastes (i.e., hazardous only wastes) are not stored in the MWMUs, with the exception of AMWTP generated wastes, which are managed in accumulation areas in accordance with IDAPA 58.01.05.006 (40 CFR 262.34).

The AMWTP strategy for treating waste minimizes the handling of incompatible wastes. Wastes are sequenced to be compatible with preceding and succeeding waste streams. Clean-out is initiated at changes between incompatible wastes (including unknowns). Clean-out involves emptying relevant treatment areas (e.g., sumps, containment enclosures, troughs) and removing visible waste from the area and equipment. Attachment 2 provides further information on the waste streams that are known to contain constituents that may be incompatible with other waste streams (e.g., high acidic, caustic, corrosive, unknown). Identification of waste streams with potential incompatibility issues is ongoing; the list is updated as more information becomes available about the waste (e.g., sample results, RTR observations, visual inspections).

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.17(a) and 270.14(b)(9)]]

Ignitable MWs are accepted at the MWMUs. The following general precautions are taken to prevent the ignition of ignitable waste:

- Wastes are segregated in the MWMUs, as described in Section F-6.
- Most stationary equipment used is grounded, as are the MWMUs, thereby preventing sparking. Portable electric tools are double-insulated, battery-operated, or have ground fault interrupter (GFI) circuit protection.
- Liquids collected from wastes are removed and treated as appropriate (e.g., neutralization or absorption for subsequent treatment or disposal). Residual liquids are cleaned up from a treatment unit (e.g., trough, containment enclosure) before receiving wastes from an incompatible waste IDC/WG or unknown.
- Open flame cutting or other similar spark or ignition sources are not allowed inside the MWMUs unless the open flame or spark source is isolated to the extent feasible from the waste present in the area. All such work is conducted in accordance with a specific

procedure or under a cutting and welding permit reviewed by safety personnel. Gas hoses for welding are equipped with flashback preventers.

- All electrical wiring and equipment complies with applicable NFPA codes.
- Smoking is only allowed outside the MWMUs in designated areas.
- Welding is allowed for performing treatment (macroencapsulation) inside WMF-610 and WMF-628 through WMF-635. All equipment is isolated to the extent feasible from the waste in storage. All such work in conducted in accordance with a specific procedure or under a hot work permit that has been reviewed by safety personnel. Gas hoses for welding are equipped with flashback preventers.

In addition to the general precautions listed above, the following are specific to containment enclosures located in the WSF and SWEPP.

- Restricting sizing operations to metal shears, nibblers, and other mechanical equipment that minimizes the generation of sparks unless evaluation of the waste present in the area indicates that ignition sources are unlikely to be a safety concern.
- When processing ignitable or incompatible wastes, treatment areas are visually inspected and residual waste is cleaned up and removed between incompatible sequences.
- Unknown wastes are sequenced through containment enclosures as if they are incompatible wastes. AMWTP personnel are required to visually inspect and clean up residues before and after unknowns or incompatibles are handled.

In addition to the general precautions listed above, the following are specific to WMF-676.

Box Lines/Hot Maintenance

- Restricting sizing operations to metal shears, nibblers, and other mechanical equipment that minimize the generation of sparks unless evaluation of the waste present in the area indicates that ignition sources are unlikely to be a safety concern.
- When processing ignitable or incompatible wastes, sorting areas are visually inspected and residual waste is cleaned up and removed between incompatible sequences.
- When using the overhead power manipulator to cut the lid of a box within one of the box lines, ignitable uncontainerized waste will not be located within the box line where the box lid cutting activity is occurring.

- Unknown wastes are sequenced through the box lines as if they are incompatible wastes. AMWTP personnel are required to visually inspect and clean up residues before and after unknowns or incompatibles are handled.

SCW Glovebox System

- Unknown wastes are sequenced through the SCW glovebox system as if they are incompatible. Glovebox areas are visually inspected and residues cleaned up (if present) before and after handling unknown wastes.
- All waste stored in the SCW gloveboxes is cleaned up and removed prior to receiving wastes from a different IDC/WG unless waste characterization or compatibility determines otherwise.

Supercompactor

- Fire suppression through a water misting system is provided in the supercompactor glovebox to suppress combustion during supercompaction of HWN D001 wastes.
- Any liquids collected in gloveboxes/sump are cleaned up and removed prior to receiving wastes from a different IDC/WG unless characterization information or compatibility determinations conclude otherwise.

Drum Repack System

- Unknown wastes are sequenced through the drum repack system as if they were incompatible. Areas are visually inspected and residues cleaned up (if present) before and after handling unknown wastes.
- All waste stored in the drum repack system is cleaned up and removed prior to receiving wastes from a different IDC/WG unless waste characterization or compatibility determinations conclude otherwise.

F-5b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.17(b) and 270.14(b)(9)]

The MWMUs design and operating practices provide precautions to prevent reactions which:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to pose a risk of fire or explosion or to threaten human health or the environment;
- Damage the structural integrity of the MWMU or secondary containment system; and

- Through similar means, threaten human health or the environment.

These practices and design features are intended to separate and protect wastes from sources of ignition, reaction, or spontaneous ignition, as follows:

- If incompatible wastes are placed in storage at the MWMUs, they are segregated/separated as discussed in Section F-6.
- If additional incompatibilities are identified or data review/waste characterization eliminates potential incompatibilities, additional precautions are implemented or certain separation/segregation practices may be relaxed, as warranted.
- Any leaks or spills that occur during waste processing are detected through the inspection program or by personnel present during specific operations. Personnel clean up incidental spills in a timely manner.
- The presence and oversight of personnel during waste handling and processing activities ensures quick detection and mitigation of leaks, spills, equipment failure, or other events that could present a hazardous situation.
- Alarms and emergency equipment are located throughout the MWMUs to ensure rapid response to potential problems, such as fires.
- Should a fire develop that is larger than can be manually controlled, then fire detection/suppression systems are automatically activated and the INL Fire Department is automatically notified.
- Ventilation systems in the MWMUs prevent buildup of toxic gases (e.g., CO) from equipment operation.
- Malfunctioning equipment is tagged and either locked out or isolated.
- Unknowns are physically separated from the general waste population while in the MWMUs.
- Criticality clean-outs of the MWMU treatment areas provide regular assessment of waste handling and processing conditions (e.g. leaking containers), thereby providing early identification of potentially hazardous situations (e.g., co-mingling of incompatible wastes).
- Treatment areas are emptied prior to receiving waste from a different IDC/WG, unless the characterization information or compatibility determinations allow mixing of wastes.
- Routine inspections of the storage areas provide regular assessment of storage conditions and early identification of potentially hazardous situations.
- The WSF and SWEPP are equipped with CAMs to monitor storage conditions and alarm locally (visible and audible) if materials monitored exceed acceptable levels.

This system provides sufficient early warning such that the source problem can be evaluated or personnel evacuated from the building, if necessary.

- Wastes are stored in containers that are kept closed at all times, except when removing or adding waste.

In addition to the general precautions for handling ignitable or reactive wastes listed above, those specific to WMF-676 are provide below.

Supercompactor

- Residual liquids released during the supercompaction process are collected in the puck recovery glovebox sump. The liquid wastes retain the listed HWNs associated with the original waste and are collected in compatible containers and may be transferred to the SCW glovebox system or the DWPG for additional characterization/treatment, if required, or absorbed in place. Additionally, liquid wastes may be absorbed in an area outside the supercompactor gloveboxes, in accordance with IDAPA 58.01.05.006 (40 CFR 262.34) standards.

F-5c Management of Ignitable or Reactive Wastes in Containers [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.176 and 270.15(c)]

The facility boundary line is defined as the INL boundary. The RWMC is three miles from the southern INL boundary, which is the closest boundary to the RWMC. Thus, the waste stored at the MWMUs is more than 50 ft from the INL boundary. Attachment 1, Exhibit B-1 provides a diagram showing the location of the RWMC relative to the INL boundary.

F-5d Management of Incompatible Wastes in Containers [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.177 and 270.15(d)]

AMWTP procedures specify that incompatible wastes are not to be placed in the same container. Procedures used to ensure that incompatible wastes are not co-mingled in process areas are listed below.

- Waste characterization information is reviewed to ensure incompatible wastes are not placed in the same container during operations;
- When liquids are encountered in process areas, the liquids are collected in separate containers and separated/segregated, if required, or absorbed in place;
- Process areas, from which unknown liquids have been collected and removed, are cleaned up prior to receipt of additional waste, unless the compatibility determinations allow mixing of liquids between containers of the same IDC/WG;

- Waste shall not be placed in an unwashed container that previously held an incompatible waste or material;
- Process area sumps and drip trays are emptied prior to receiving waste from incompatible IDCs/WGs or unknowns; and
- Unknowns are physically separated from the general waste population while managed in the MWMU container storage areas, unless the wastes are containerized and are located in an open SCW transfer container within WMF-676.

F-6 Interim Waste Management Strategy for the MWMUs

F-6a Background

Wastes received in prior years and stored at the MWMUs are managed as if they contain free liquid, unless it can be documented, other than by historical record, that no free liquids are present. Some of these wastes are potentially incompatible with other wastes managed at the MWMUs. To effectively control potential risks associated with incompatible wastes and ensure safe storage practices, all wastes are managed at the MWMUs in strict accordance with the special procedures described in Section F-6b.

F-6b Special Procedures

Wastes containing free liquids and/or potential incompatibles are safely managed at the MWMUs if:

- All wastes are evaluated for potential incompatibilities using the methodology presented in the guidance manual "A Method for Determining the Compatibility of Hazardous Wastes," EPA-600/2-80-076, April 1980,
- All wastes are stored in compatible groupings, and
- Unknown wastes, wastes with unknown IDCs/WGs following RTR examination or, wastes with known IDCs/WGs but unknown HWNs, are separated from the general waste population.

Sections F-6b(1) through F-6b(5) contain procedures used to organize waste inventories into compatible groups and segregate/separate incompatibles and unknowns.

F-6b(1) Compatibility Determination

For information on compatibility determinations, see Attachment 2.

F-6b(2) Waste Segregation on the Basis of Compatibility

Based on the results of the compatibility determinations described in Attachment 2, wastes are categorized into RGNs. Incompatible binary combinations of RGNs are identified and requirements for segregating/separating wastes with incompatible RGNs are established. It

must be noted that many IDCs have multiple RGNs. As the compatibility evaluations and segregation/separation activities progress, with regard to characterization of existing "unidentified" inventories, and as newly generated wastes are received, additional incompatible binary RGN combinations may be identified. If additional incompatibilities are identified or data validation eliminates potential incompatibilities, the number of segregated/separated storage areas may increase or decrease.

F-6b(3) Waste Separation on the Basis of Unknowns

Unknown wastes following RTR may be stored in the MWMUs pending further characterization. These wastes are physically separated from the general waste population.

F-6b(4) Waste Separation on the Basis of Free Liquids Content

All waste stored in the MWMUs is managed in compliance with HWMA/RCRA requirements for containers with free liquids (e.g., elevated on pallets in a secondary containment area/system), unless documented not to contain any free liquids. Containers documented not to contain any free liquids through means (e.g., RTR visual examination) other than historical knowledge may be stored in a MWMU without a containment system that meets the requirements of IDAPA 58.01.05.008 [40 CFR 264.175(b)].

F-6b(5) Special Facility Modifications

To meet the requirement for segregated storage areas, movable synthetic spill barriers developed for the purpose of spill control and liquids containment may be used. These barriers are compatible with the waste types expected for storage in the MWMUs. The barriers adhere to the floor surface without the need for any mechanical fasteners, thus protecting the integrity of the secondary containment system. The barriers are joined together with interlocking fasteners that are compatible with the wastes managed at the MWMUs. The fasteners are removable, allowing for the area surrounded by the barriers to be increased or decreased in size according to operational demands. Portable spill pallets that provide a separate segregation area may also be used to segregate MW within the MWMUs. In addition, a container holding a MW that is incompatible with any MW or other material stored nearby may be segregated from the incompatible MW/material by means of a dike, berm, wall, or other device. Segregation devices

used are compatible with the MW stored within the segregation area and prevent the migration of MW from the segregation area and/or commingling of incompatible MW/materials in the event of a release.

TABLE OF CONTENTS

ATTACHMENT 7

CONTINGENCY PLAN

G. CONTINGENCY PLAN 1

G-1 General Information 1
G-2 Emergency Coordinators 3
G-3 Implementation 5
G-4 Emergency Response Procedure 6
G-4a Notification 6
G-4b Identification of Hazardous Materials 7
G-4c Assessment 8
G-4d Control Procedures 9
G-4e Prevention of Recurrence or Spread of Fires, Explosions, or Releases 11
G-4f Storage and Treatment of Released Materials 12
G-4g Incompatible Waste 13
G-4h Post-Emergency Equipment Maintenance 14
G-4i Container Spills and Leakage 14
G-5 Emergency Equipment 19
G-6 Coordination Agreements 23
G-7 Evacuation Plan 26
G-8 Required Reports 35

LIST OF TABLES

Table G-1. AMWTP Emergency Action Managers 4
Table G-2. Example Protective Action Guides on Dose Limits for Workers Performing Emergency Services 16
Table G-3. Example Protective Action Guides for the Early Phase of a Nuclear Incident. 17
Table G-4. Example Emergency Response Planning Guides 18
Table G-5. Emergency Equipment for the MWMUs 20
Table G-6. Off-Site Agencies Having Memorandum of Agreement/Memorandum of Understanding with the INL 24

LIST OF EXHIBITS

Exhibit G-1. AMWTP Evacuation Routes 27
Exhibit G-2. WMF-634 Evacuation Routes 28
Exhibit G-3. Type II Module Evacuation Routes 29
Exhibit G-4. Type I Module Evacuation Routes 30
Exhibit G-5. SWEPP Evacuation Routes 31
Exhibit G-6. WMF-676 First Floor Evacuation Routes……..….32
Exhibit G-7. WMF-676 Second Floor Evacuation Routes……33
Exhibit G-8. WMF-676 Penthouse/Roof Evacuation Routes…..……..34

G. CONTINGENCY PLAN

G-1 General Information [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.51 and 270.14(b)(14)]

This HWMA/RCRA Contingency Plan discusses emergency response for the MWMUs. Emergency actions addressed include protection of human health, the environment, and RWMC/AMWTP buildings and equipment in an event originating from or affecting the MWMUs. The "Emergency Plan/RCRA Contingency Plan for the AMWTP" contains the implementing documents for emergency response for the AMWTP and is written to comply with requirements that are in addition to those of HWMA/RCRA. This Contingency Plan provides the HWMA/RCRA requirements that are being implemented through the "Emergency Plan/RCRA Contingency Plan for the AMWTP".

The Contingency Plan addresses the actions to be taken to protect human health and the environment at the MWMUs, in the event of an emergency. When implemented, the Contingency Plan is designed to minimize the hazards from fires, explosions, or any unplanned significant release of MW, or chemical constituents of the waste to the air, soil, surface water, or groundwater. The Contingency Plan provides for emergency procedures, identifies authorities and responsibilities of emergency response personnel and organizations, and identifies the manpower, equipment, and specialized services that are available to manage an emergency situation.

The Contingency Plan is maintained, at a minimum, at the WMF-634 and WMF-676 shift manager's office.

The Contingency Plan applies to all AMWTP personnel who are assigned to the MWMUs, support personnel who work at the MWMUs, or personnel who are providing assistance during an emergency. The plan also applies to visitors.

At a minimum, the Contingency Plan is amended, if necessary, whenever:

- The HWMA/RCRA permit is modified;
- The plan fails in an emergency;
- The design, construction, operation, maintenance, or other circumstances involving a MWMU changes, in a way that materially increases the potential for fires, explosions,

or significant releases of MW or waste constituents, or changes the response necessary in an emergency;

- The list of Emergency Coordinators (ECs), commonly referred to as the Emergency Action Manager (EAM), changes; or
- The list of emergency equipment changes.

General descriptions of the activities occurring in the MWMUs are provided in Attachments 1.A, 1.B, 1.C, 1.D, I.E, 1.F, 1.F.i, 1.F.ii, 1.F.iii, and 1.F.iv.

G-2 Emergency Coordinators [IDAPA 58.01.05.008; 40 CFR 264.52(d) and 264.55]

Table G-1 lists the names, addresses, and telephone numbers of the current AMWTP EAMs.

The on-duty EAM is the primary coordinator for emergency response activities. The other EAMs assume responsibilities as alternates in the order that they are listed in Table G-1. The EAM must be on call and available to respond to emergencies by reaching the facility within a short period of time during the shifts the EAM is designated as the primary EAM.

An EAM and alternate EAMs shall be designated for every shift of MWMU operations to provide continuous emergency response management for the MWMUs. If an incident overlaps more than one shift, the active EAM shall maintain the command until responsibility is officially passed to the oncoming EAM.

The AMWTP has an ERO that includes the EAM position. The EAM has managerial responsibilities and the technical knowledge of the MWMUs. The EAM is knowledgeable of operational activities at the MWMUs, building controls and equipment, building layout, characteristics of waste being handled, and the personnel involved with the MWMUs. The EAM also has the authority to commit the necessary resources to implement the Contingency Plan. This knowledge, leadership, and authority allows the EAM to function quickly and effectively when responding to an emergency incident.

The EAM, or designee, is responsible for:

- Ensuring that the emergency procedures are implemented when responding to any incident involving MW to mitigate or eliminate any immediate or potential hazard to personnel and/or the environment, and
- Serving as primary lead in coordinating with the INL Fire Department and Emergency Medical Technician (EMT) Services, INL EOC, and the WCC for the proper support from these organizations.

Table G-1. AMWTP Emergency Action Managers

Name	Work Phone	Pager	Home Phone	Home Address
Brian Warner (Primary)	208.557.7239	208.526.4444.4428		
Joel Shokes (Primary)	208.557.7311	208.526.4444.7680		
Rob Hamilton (Primary)	208.557.7311	208.526.4444.7653		
William Verlanic (Primary)	208.557.7311	208.526.4444.5783		
Michael Fogarty (Alternate)	208.557.7222	208.526.4444.6252		

Note: The above EAMs listed as Primary are On-Duty according to the schedule maintained by the AMWTP Emergency Planner. Off-Duty Primary and Alternate EAM's may assume EAM duties to relieve an On-Duty EAM or to take over in the EAM capacity should the On-Duty EAM become incapacitated.

G-3 Implementation [IDAPA 58.01.05.008; 40 CFR 264.52(a) and 264.56(d)]

The provisions of the Contingency Plan are implemented immediately whenever there is a fire or explosion within a MWMU, or there is a release of MW constituents that could threaten human health or the environment. The Contingency Plan will also be implemented whenever there is a fire outside of a MWMW that has the potential to involve MW or a MWMU. Such an occurrence (incident) requires classification to aid in expediting the appropriate emergency response. Classification of an occurrence is done in accordance with the AMWTP Occurrence Categorization, notification, and reporting procedure.

G-4 Emergency Response Procedure

G-4a Notification [IDAPA 58.01.05.008; 40 CFR 264.56(a)]

Regardless of classification, once an event is categorized as an emergency, the EAM (or designated representative) immediately notifies personnel within the affected MWMU of appropriate protective actions by activating the voice paging system, alarm system and/or radio, phone, or by word-of-mouth.

Personnel in the MWMU(s) are notified of an emergency either by radio, phone, word-of-mouth or by the evacuation and voice paging system. The paging system consists of a manually activated operator control system connected to AMWTP local and global communications and alarms system.

Once activated, the paging system simultaneously distributes the same "page alert tone" (chimes), followed by a voice message, if required, to all speakers connected to the system. The system consists of indoor/outdoor weatherproof paging speakers to distribute the voice message to the MWMU(s). Additionally, the MWMUs are equipped with telephones to allow for communications both on- and off-Site for summoning emergency assistance.

Monitoring systems (e.g., fire, radiation) in the MWMUs are equipped with audible alarms to notify personnel of potential emergencies.

During an emergency, the EAM informs the INL WCC of the event typically by using either a telephone or two-way radio. Notifications are made to local, state, and/or federal authorities using the telephone and faxed notification forms. The AMWTP EAM or the designated alternate ensures that the proper notifications are made in an emergency situation.

If it is determined that a MWMU has had a significant release, fire, or explosion which could threaten human health, or the environment outside the MWMU, the AMWTP EAM must immediately notify either the government official designated as the On-Scene Commander (OSC) for that geographical area (i.e., the State of Idaho Emergency Management System Communications Center), or the National Response Center. These notifications may also be made by the INL EOC. Appropriate State and/or local agencies with designated response roles will be notified if their help is needed.

The agencies that may be notified are:

- The management and operations (M&O) contractor emergency preparedness duty officer (the M&O contractor emergency preparedness duty officer may direct the WCC to contact the DOE-ID Manager Duty Officer and/or activate the ERO's);
- INL EOC ERO personnel if an alert, site area, or general emergency has been declared;
- DOE-ID Emergency Management Program Administrator;
- Other affected INL EROs, as deemed necessary;
- State, local, and tribal agencies, if help is needed; and
- DOE Headquarters Emergency Management Team, as deemed necessary.

The notification includes the following information:

- Name and telephone number of reporter;
- Name and address of the MWMU;
- Time and type of incident (e.g., release, fire);
- Name and quantity of material(s) involved, to the extent known;
- The extent of injuries, if any; and
- Possible hazards to human health, or the environment, outside the MWMU.

The EAM or the EOC also recommends to the appropriate local, state, or federal officials whether local areas should be evacuated.

G-4b Identification of Hazardous Materials [IDAPA 58.01.05.008; 40 CFR 264.56(b)]

The Operating Record contains information on the waste received at the MWMUs. The Operating Record includes information, to the extent known, relative to the content of each waste container, the generator of the waste, volumes of waste, and locations of waste containers within the MWMUs. The Operating Record is used to assist in the identification of waste materials involved in an emergency at the MWMUs.

Additionally, AMWTP barcodes on containers are scanned as the containers are transferred to, from, and within the MWMUs. The container information, to the extent known, is maintained in the Operating Record. The Operating Record accounts for the waste types and provides a real time inventory of waste as it is being processed through the MWMUs. In the

event of an emergency incident, the Operating Record is used to retrieve information on the waste that may be involved in the incident.

Measured or estimated radiological/chemical concentrations in air, soil, and water (mainly contaminated fire water at the MWMU) or on surfaces are used to characterize and identify the magnitude of any released MW constituents. Also, monitoring for radiological and chemical hazards may be performed to track any spread of MW constituents. The data may be collected from fixed and/or portable radiation/chemical monitoring instrumentation.

G-4c Assessment [IDAPA 58.01.05.008; 40 CFR 264.56(c) and (d)]

As feasible, and as safety conditions warrant, information shall be gathered near the scene of the incident to aid in the assessment of an actual or imminent fire, explosion, or significant release of MW so that the appropriate protective actions can be implemented. INL firefighters approach the affected area if incident assessment information is essential to the control of the incident, and only if adequately safe conditions are present and can be maintained. Typically, the AMWTP EAM and supporting personnel gather assessment information, when feasible, from remote locations. The following information can be used to assess the extent and consequences of an incident at the MWMUs.

<u>Specifics of an Actual Fire, Explosion, or Significant Release of MW:</u>

- Cause,
- Area involved,
- MWMU condition, and
- Type and quantity of MW that may be involved in the incident.

<u>Specifics of an Imminent Fire, Explosion, or Significant Release of MW:</u>

- Equipment or article involved,
- Probable cause,
- Estimated area involved,
- MWMU conditions and measurements of monitoring instruments, and
- Location, type, and quantity of nearby MW that could be involved in the incident.

<u>Current Conditions that Could Affect the Control or Isolation of an Incident:</u>

- Status of fire suppression system/alarms;

- Status of MWMU equipment controls, safety features, or isolation controls; and
- Weather conditions (e.g., wind speed and direction, precipitation, temperature, etc.).

Exposure Assessments:

- Type and quantity of the substance initiating a fire/explosion or potential fire/explosion;
- Type and quantity of MW involved in an incident or potential incident;
- Duration of a significant release of MW (if applicable) and duration of exposure;
- Measured or estimated radiological/chemical concentrations in air, fire water, or surfaces; and
- Names, total number, location, and condition of exposed persons.

If the release involves radiological hazards, the Protective Action Guide (PAG) exposure levels may be used to determine the appropriate response. See Tables G-2 and G-3 for examples of PAG exposure level values. If the release involves chemical hazards, the Emergency Response Planning Guide (ERPG) exposure levels may be used to determine the appropriate response. See Table G-4 for examples of ERPG exposure level values.

The EOC is responsible for the continued assessment of the emergency event. In developing protective actions and deciding on mitigative actions, the EOC considers both direct and indirect effects of the significant release (e.g., the effects of any toxic, irritating, asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-inducing explosions).

G-4d Control Procedures [IDAPA 58.01.05.008; 40 CFR 264.52(a)]

Fire. A fire at the MWMUs may arise from operations involving ignitable MW. A fire may also originate from the ignition of flammable or combustible equipment/fuels and then spread to involve or engulf nearby MW.

The MWMUs are constructed and designed to avoid the occurrence of a fire or control a fire if one starts. The MWMUs contain fire suppression systems/equipment, fire/smoke detectors, fire alarm systems, automatic systems for notifying the INL Fire Department, and use of building materials and components that adhere to regulations/codes for fire prevention.

Explosion. An imminent explosion or actual explosion at a MWMU is detected by:

- Gauges, monitors, or instrumentation that indicates an enclosed vessel or line is accumulating an abnormally large build-up of pressure or temperature;
- Visual identification of a bulging or ruptured drum, cylinder, vessel or line; or
- An explosion that progresses into fire and smoke, which then activates a fire/smoke alarm within a MWMU.

The MWMUs have few potential explosive hazards, and safety equipment and work practices reduce the probability of an explosion. An explosion at a MWMU may originate from a rupture in a compressed gas cylinder, failure of a liquefied petroleum gas tank, or a break in a high-pressure line/vessel.

Significant Release of MW. A significant release of MW constituents at a MWMU could result in an exposure to personnel or contamination of the surrounding environment. A significant release could occur from a spill of the MW during storage, characterization, or treatment operations or failure of characterization equipment or control systems. Also, water used to fight fires may become contaminated with MW constituents, imposing additional considerations when disposing of the water. However, the MWMUs are designed and constructed to eliminate, minimize, or control a potential release of MW. Also, safe work practices are implemented to further reduce the potential for a MW release.

Released or residual waste (from a fire or explosion) that cannot be identified by labels, records, logbooks, identification numbers, or the Operating Record are sampled and analyzed to determine the chemical properties of the waste. The resulting information is used to determine the proper disposition of the waste.

Off-Site Services. If personnel cannot extinguish a fire during the incipient stage, or an explosion or imminent explosion is detected, or a release of MW occurs at a MWMU that requires the support of off-Site firefighting/ hazardous material (HAZMAT) services, the INL Fire Department and, if needed, off-Site firefighting services are summoned for assistance. When the INL Fire Department or off-Site firefighting services respond, the tactical fire/explosion/release prevention and mitigation responsibilities are transferred to the responding senior INL Fire Department official. The senior INL Fire Department official assumes the authorities and commensurate responsibilities of the OSC. Upon completion of mitigation activities, on-scene control may be returned to AMWTP Operational Management.

G-4e Prevention of Recurrence or Spread of Fires, Explosions, or Releases [IDAPA 58.01.05.008; 40 CFR 264.56(e) and (f)]

The AMWTP EAM is responsible for all reasonable measures necessary to ensure fires, explosions, and significant releases do not occur, recur, or spread to other wastes at the MWMUs. These measures may include, where applicable, stopping processes and operations, collecting and containing released waste constituents, and removing or isolating containers.

The AMWTP EAM is also responsible for ensuring that the MWMUs and equipment contained within are monitored (as practical) for pressure buildup, gas generation, or rupture in valves, pipes, or other equipment.

The INL Fire Department is the primary responder to all fire and emergency situations at the RWMC, including the AMWTP MWMUs.

Fires. The MWMUs have many pre-engineered features that reduce the likelihood for a fire to occur, recur, or spread to other wastes contained within the building. All the materials used in the construction of the MWMUs are in accordance with UL, NFPA, and UBC requirements. The MWMUs are equipped with automatic fire protection systems, which consist of a combination of smoke detectors, remote and local alarms, an automatic fire extinguishing system (sprinklers), clean agent systems, and fire extinguishers. Typically, once a fire is detected in a MWMU, the alarm sounds, the building HVAC system shuts down, and water is introduced through overhead piping.

Explosions. The WAC for newly generated waste received at the AMWTP prohibits the receipt of explosives. Therefore, only existing wastes stored at the TSA in sealed containers have the potential for hydrogen gas buildup, which could result in an explosion. Unvented, sealed containers with the potential for pressure build-up are vented in the DVS (WMF-634) or DVF (Type I Module). In order to prevent pressure build-up due to radiolytically generated gas, filters are inserted into drums in the DVS or the DVF. See Attachments 1, 1.A, and 1.C for additional information. The following steps are implemented, as necessary, in response to an explosion in a MWMU:

- Ensure notification to the INL Fire Department,
- Shut down equipment operating in the MWMU,
- Evacuate the immediate area of the explosion, and

- Implement applicable emergency response procedures, as appropriate.

Releases. The MWMUs are designed to meet the HWMA/RCRA secondary containment system requirements, when containers with free liquids are present, and are capable of containing spills and leaks. Moveable synthetic spill control barriers may be used between segregated storage areas to provide physical containment for incompatible wastes, if required. Container storage areas in the MWMUs are visually inspected for evidence of deterioration or releases. See Attachment 4 for further information on inspections. CAMs are routinely used to detect the spread of airborne radioactive contamination. The CAMs also provide a reasonable indication of a potential significant release of hazardous constituents from the waste, as the radioactive and chemical wastes are commingled.

The following actions will be implemented in the event that: (a) a MW spill causes an immediate health hazard; (b) a MW spill cannot be contained with secondary containment or the application of absorbents; or (c) a threat exists for spilled material to migrate out of a MWMUs:

- Evacuate the immediate area.
- Review facility records to determine the identity and chemical nature of the released material, to the extent possible.
- Ensure the source of the release is secured, if possible.
- Ensure that a dike/spill containment is built to contain run-off, if required.
- Ensure storm drains do not receive potentially hazardous run-off or spill material. Build dikes around storm drains and close any valves controlling discharge, if required.

For additional information on the required responses to spills/leaks within a MWMU, see Sections G-4f and G-4i.

G-4f Storage and Treatment of Released Materials [IDAPA 58.01.05.008; 40 CFR 264.56(g)]

Once initial spill containment has been completed, the EAM ensures that recovered wastes are properly stored, treated, and/or disposed of, as required by HWMA/RCRA. For spills of liquid that escape secondary containment, the perimeter of the spill is diked with an absorbent material, such as absorbent pillows, that is compatible with the waste(s) released. Freestanding liquid is transferred to a labeled compatible container.

The remaining liquid is absorbed with an absorbent material and swept or scooped into a labeled compatible container. Spill residue is removed. Spills of dry waste are swept or shoveled into a labeled compatible container. Waste recovered from the spill is transferred to a new or clean, reusable container.

Waste resulting from the cleanup of a fire, explosion, or release of MW is contained and managed as HWMA/RCRA-regulated waste, until such time that it can be determined otherwise. In most cases the MW inventory, as part of the Operating Record, and process knowledge allow a determination of the waste constituents. When necessary, however, samples of the waste may be collected and analyzed to determine applicable HWNs. Typically, EPA-approved sampling and analytical methods are used.

Any contaminated soil resulting from a release of MW outside of secondary containment will be removed and placed into a labeled compatible container. If a spill is contained within secondary containment, then the area will either be decontaminated, the contaminated material (e.g., floor coating) will be removed and replaced, or the contamination will be fixed in place.

G-4g Incompatible Waste [IDAPA 58.01.05.008; 40 CFR 264.56(h)(1)]

In the event of a significant waste release, the EAM ensures that no wastes are received, treated, or stored in the affected areas until cleanup operations have been completed. This procedure ensures that incompatible wastes are not present in the vicinity of the significant release.

Abatement and cleanup waste generated as the result of a spill or release is evaluated to determine its compatibility with other wastes being managed in the storage areas. The evaluation identifies the material or waste that is spilled or released and determines its characteristics (e.g., ignitable, reactive, corrosive, and toxic). The waste generated by the abatement and cleanup activities are stored in that part of the storage area at the MWMUs that have been established to manage wastes with which it is compatible.

Additional controls are implemented (as necessary) to ensure segregation/separation of wastes, as required.

The AMWTP EAM does not allow MW operations to resume in a MWMU if significant amounts of incompatible wastes/materials have been released, before ensuring that necessary

post-emergency cleanup operations to remove potentially incompatible wastes/materials are completed. Operations not associated with a leak/spill in a specific MWMU may continue while the leak/spill is mitigated. For example, should a leak/spill occur in the WMF-676 SCW glovebox system, the supercompactor may continue operations.

G-4h Post-Emergency Equipment Maintenance [IDAPA 58.01.05.008; 40 CFR 264.56(h)(2)]

The AMWTP EAM ensures that emergency equipment is available and ready for its intended use before operations resume. Any equipment that cannot be decontaminated may be discarded. Equipment or supplies that cannot be reused following an emergency are replaced. After the equipment has been cleaned, repaired, or replaced, a post-emergency MWMU and equipment inspection is performed, and the results are recorded.

Cleaning and decontamination of equipment may be accomplished using non-hazardous materials whenever possible, by physically removing gross or solid residue, rinsing with water or another non-hazardous liquid, and/or washing with detergent and water.

Decontamination and cleaning may be conducted in a confined area that is isolated from the environment. Care is taken to prevent wind dispersion of particles and spray. Liquid or particulate resulting from cleaning and decontamination of equipment is placed in clean, compatible containers.

After AMWTP personnel have completed any post-emergency cleanup of waste and waste residues from areas where MWMU operations are ready to resume, and the AMWTP EAM has ensured that all emergency equipment used in managing the emergency has been cleaned or replaced and is ready for use, notifications are made to the following: EPA Regional Administrator, the Director of the Idaho DEQ, and any relevant local authorities. This post-emergency notification complies with IDAPA 58.01.05.008 [40 CFR 264.56(i)].

G-4i Container Spills and Leakage [IDAPA 58.01.05.008; 40 CFR 264.52(b), 264.171, and 264.175(b)]

Treatment/storage areas and containers at the MWMUs are inspected per a set schedule, as described in Attachment 4. Corrective or mitigative action is taken when container integrity is significantly deteriorated or compromised.

Additionally, AMWTP personnel can repair or overpack a leaking container, or place it in a drip pan before repairing, repackaging, or overpacking, to prevent continued leakage into a storage area that may affect other stored wastes. Damaged or leaking containers are repaired or overpacked before acceptance for storage in a MWMU, or are rejected and repaired, repackaged, or overpacked before being returned to the generator.

Waste containers are stored in the MWMUs on pallets, conveyors, or risers (conventional and spill) to prevent released waste from contacting or affecting other containers in storage. Inspections are conducted as described in Attachment 4. Spill response is completed as discussed in Section G-4e, Prevention of Recurrence or Spread of Fires, Explosions, or Releases, except for incidental spills, which would be immediately cleaned up. All spilled or leaked waste is cleaned up in a timely manner.

Table G-2. Example Protective Action Guides on Dose Limits for Workers Performing Emergency Services

Dose Limit[a] (rem)	Activity	Condition
5 (0.05 sieverts)	All emergency services	None
10 (0.1 sieverts)	Protecting valuable property	Where lower dose not practicable
25 (0.25 sieverts)	Lifesaving or protection of large populations	Where lower dose not practicable
>25 (> 0.25 sieverts)	Lifesaving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved

a. Sum of the external effective dose equivalent and the committed effective dose equivalent to non-pregnant adults from exposure and intake during an emergency situation. Workers performing services during emergencies should limit the dose to the lens of the eye to 3 times the listed values and the dose to any other organ (including skin and extremities) to 10 times the listed value. The limits apply to all doses from an incident, except those received in unrestricted areas as members of the public during the intermediate phase of the incident. No specific upper limit is given for thyroid exposure.

Table G-3. Example Protective Action Guides for the Early Phase of a Nuclear Incident

Protective Action	PAG (Projected Dose)	Comments
Evacuation (or sheltering)[a]	1-5 rem[b] (0.01 – 0.05 sieverts)	Evacuation (or for some situations, sheltering) should normally be initiated at 1 rem.
Evacuation (or sheltering)[a]	1-10 rem[b] (0.01 – 0.1 sieverts)	Where evacuation is impractical or for particularly vulnerable populations[a] (e.g., those who are not readily mobile).
Evacuation (or sheltering)[a]	50-250 rem (skin) (0.5 – 2.5 sieverts)	Exposure to the skin should seldom, if ever, be the controlling pathway for protective action.

a. Sheltering may be the preferred protective action when it will provide protection equal to or greater than evacuation based on consideration of factors such as source term characteristics, and temporal or other Site specific conditions.

b. The sum of the effective dose equivalent resulting from exposure to external sources and the committed effective dose equivalent from all significant inhalation exposure pathways during the early phase.

Table G-4. Example Emergency Response Planning Guides

Chemical	ERPG-1[a]	ERPG-2[b]	ERPG-3[c]
Acrolein	0.1 ppm	0.5 ppm	3 ppm
Acrylic Acid	2 ppm	50 ppm	750 ppm
Allyl Chloride	3 ppm	40 ppm	300 ppm
Ammonia	25 ppm	200 ppm	1000 ppm
Benzyl Chloride	1 ppm	10 ppm	25 ppm
Bromine	0.2 ppm	1 ppm	5 ppm
1,3-Butadiene	10 ppm	50 ppm	5000 ppm
n-Butyl Isocyanate	0.01 ppm	0.05 ppm	1 ppm
Carbon Disulfide	1 ppm	50 ppm	500 ppm
Carbon Tetrachloride	20 ppm	100 ppm	750 ppm
Chlorine	1 ppm	3 ppm	20 ppm
Dimethylamine	1 ppm	100 ppm	500 ppm
Formaldehyde	1 ppm	10 ppm	25 ppm
Hydrogen Chloride	3 ppm	20 ppm	100 ppm
Hydrogen Cyanide	NA	10 ppm	25 ppm
Hydrogen Fluoride	5 ppm	20 ppm	50 ppm
Hydrogen Sulfide	0.1 ppm	30 ppm	100 ppm
Isobutyronitrile	10 ppm	50 ppm	200 ppm
Methanol	200 ppm	1000 ppm	5000 ppm
Methyl Chloride	NA	400 ppm	1000 ppm
Phenol	10 ppm	50 ppm	200 ppm
Phosgene	NA	0.2 ppm	1 ppm
Sulfur Dioxide	0.3 ppm	3 ppm	15 ppm
Sulfuric Acid (Oleum, Sulfur Trioxide, and Sulfuric Acid)	2 mg/m^3	10 mg/m^3	30 mg/m^3
Tetrafluoroethylene	200 ppm	1000 ppm	10,000 ppm
Trimethylamine	0.1 ppm	100 ppm	500 ppm
Vinyl Acetate	5 ppm	75 ppm	500 ppm

a. ERPG-1 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing other than mild transient adverse health effects or perceiving a clearly defined objectionable odor.

b. ERPG-2 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing irreversible or other serious health effects that could impair their ability to implement protective action determinations.

c. ERPG-3 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing life-threatening health effects.

NA = not applicable

ppm = parts per million

mg/m^3 = milligram per cubic meter

In the event a hazardous substance involved in an incident does not have a published ERPG value, protective action determinations are formed based on the best readily available technical information.

G-5 Emergency Equipment [IDAPA 58.01.05.008; 40 CFR 264.52(e)]

The types, locations, and capabilities of emergency equipment available in the MWMUs are listed in Table G-5.

Communications systems used by the AMWTP include commercial telephone, commercial cellular telephones, and radio networks. These communications systems, though not dedicated to emergency response, are available at the RWMC/AMWTP to provide prompt communications.

The RWMC/AMWTP evacuation siren and take cover alarm, as well as the emergency voice paging system, are operated from any one of the emergency notification system control panels located in WMF-637, WMF-620, WMF-610, WMF-601, WMF-685 and the Operator Control Stations in WMF-634 and WMF-636. Take cover and evacuation alarms are audible in all areas of the MWMUs.

The MWMUs' fire protection systems consist of a combination of smoke detectors, remote and local alarms, and automatic sprinkler systems. Fire alarms are triggered either automatically in response to a fire or manually at a pull box. Once activated, the fire alarm system activates a local alarm and transmits an alarm signal to the INL Fire Department.

Table G-5. Emergency Equipment for the MWMUs

MWMU	Location[a]	Equipment
WMF-634	North Wall (3) South Wall (3) West Wall East Wall In the Electrical Room	Fire Extinguishers (ABC Type)
	West Wall East Wall	Spill Control / Cleanup Equipment[b]
Type II Modules (WMF-628 through WMF-633)	North Wall (3) South Wall (3) West Wall East Wall In the Electrical Room	Fire Extinguishers (ABC Type)
	West Wall East Wall	Spill Control / Cleanup Equipment[b]
Type I Module[c]	North Wall (2) South Wall (2) West Wall (2) East Wall (4) WMF-615 Area (2) PAAA Interior Walls (2) In the Electrical Room	Fire Extinguishers (ABC Type)
	East Wall South Wall West Wall (2)	Spill Control / Cleanup Equipment[b]
SWEPP	North Wall North Stairwell (2) South Wall East Wall Generator Room H&V Room Electrical Panel Area	Fire Extinguishers (ABC Type)
	South Wall West Wall	Spill Control / Cleanup Equipment[b]

Table G-5. List of Emergency Equipment (continued)

WMF-676	Spill Control/Cleanup Equipment 1st Floor Waste Receiving and Storage, Room 134 (2 locations) 1st Floor Supercompaction, Room 141B 1st Floor Drum Staging Area, Room 143 (2 locations) 2nd Floor SCW Treatment, Room 236 (3 locations)	Spill Control/Cleanup Equipment[b]
WMF-676	Fire Extinguisher Locations 1st Floor Drum Storage Area 'C', Room 143 (4 locations) 1st Floor Corridor, Room 145 1st Floor Drum Storage Area 'A', Room 146 1st Floor Drum Storage Area 'B', Room 146B 1st Floor Waste Drum Venturi/Filter, Room 146A 1st Floor Supercompaction, Room 141B 1st Floor Drum Venturi Airlock, Room 127A (2 locations) 1st Floor Transfer Conveyor, Room 131 (3 locations) 1st Floor LLW Box Fill Station, Room 128A 1st Floor Secondary Waste Room, Room 128B (2 locations) 1st Floor Empty Container/LLW Export, Room 128C (2 locations) 1st Floor Terminal Filter Room, Room 122A (2 locations) 1st Floor Terminal Filter Room, Room142B 1st Floor Waste Receiving and Storage, Room 134 (3 locations) 2nd Floor SCW Treatment, Room 236 (6 locations)	Fire Extinguisher

Table G-5. List of Emergency Equipment (continued)

WMF-676	Fire Extinguisher Locations 2nd Floor Box Conveyor Area, Room 226 2nd Floor Area 300 HEPA Filter Room, Room 214A (3 locations) Interstitial Filter Maintenance Area, Room 212C Interstitial Filter Maintenance Area, Room 212F Interstitial Filter Maintenance Area, Room 212H	Fire Extinguisher

a. The equipment listed in this Table is located in the vicinity of the areas described in the "Location" column. A single piece of equipment is provided at each location unless otherwise noted in parenthesis following the location description.

b. The Spill Control / Cleanup Equipment includes shovel/broom, vermiculite/absorbent, spill pads, acid neutralizer, caustic neutralizer, solvent absorbent, spill disposal plastic bags, scraper/scoop, and pH paper.

c. All wall locations noted for the Type I Module are the exterior walls unless otherwise noted.

G-6 Coordination Agreements [IDAPA 58.01.05.008; 40 CFR 264.52(c) and 264.37]

The AMWTP has access to INL resources, such as on-Site security, medical, and fire assistance, on a 24-hr basis. The INL Fire Department would be the primary initial responder to an emergency event originating at the MWMUs.

If additional resources are necessary, off-Site assistance is requested through the AMWTP and/or INL EOC. Off-Site interfaces for providing emergency response support are coordinated through DOE-ID. DOE-ID has mutual aid agreements in place with federal, state, local, and tribal agencies that define cooperative emergency policies and procedures and the roles of the participants. A listing of these agreements is included in Table G-6.

Copies of the Contingency Plan are provided to the local police, fire departments, and emergency response personnel (e.g., hospitals, paramedics, etc.). These agencies are provided the opportunity to participate in on-Site and off-Site drills and exercises, which include walkthroughs and orientation sessions, to familiarize them with the layout of the MWMUs, properties of waste handled at the MWMUs, associated hazards and locations where personnel would normally be working, entrances to and roads inside the MWMUs, and possible evacuation routes.

Area hospital personnel participate in orientation sessions to familiarize them with the properties of wastes handled at the AMWTP MWMUs and the types of injuries or illnesses that might occur from fires, explosions, or release of wastes.

Table G-6. Off-Site Agencies Having Memorandum of Agreement/Memorandum of Understanding with the INL

Item #	Title	Executed Date	Expiration Date
1	Memorandum of Understanding Between State of Idaho and U.S. Department of Energy Idaho Operations Office Radiological Assistance Response for DOE and/or Non-DOE Incidents in Public Access Areas	01/07/94	None[a]
2	Memorandum of Understanding Between U.S. Department of Energy Idaho Operations Office and the State of Idaho for INEEL Radiological Emergency Preparedness and Response	12/20/02	None[a]
3	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Bingham County Sheriff's Office	10/25/04	10/25/09
4	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Bonneville County Sheriff's Office	10/06/04	10/06/09
5	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Butte County Sheriff's Office	10/12/04	10/12/09
6	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Clark County Sheriff's Office	09/23/04	09/23/09
7	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Jefferson County Sheriff's Office	09/23/04	09/23/09
8	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and City of Idaho Falls, Idaho Police Department	10/26/04	None[a]
9	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Bingham County Emergency Management Services	09/23/04	09/23/09
10	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Bonneville County Emergency Management Services	09/23/04	09/23/09
11	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Butte County Emergency Management Services	09/23/04	09/23/09
12	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Clark County Civil Defense	09/23/04	09/23/09
13	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Jefferson County Emergency Management Services	11/16/04	11/16/09
14	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Portneuf Medical Center	08/18/03	08/18/08
15	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Eastern Idaho Regional Medical Center	02/13/06	02/13/11
16	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and Bingham Memorial Hospital	01/09/06	01/09/11
17	Agreement-in-Principle Between the Shoshone-Bannock Tribes and the United States Department of Energy	09/27/00	None[a]

Table G-6. Off-Site Agencies Having Memorandum of Agreement/Memorandum of Understanding with the INL (continued)

Item #	Title	Executed Date	Expiration Date[a]
18	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and the Idaho Transportation Department	10/11/01	None[a]
19	Annual Operating Plan for Mutual Fire Aid 2005 Between Idaho National Lab Fire Department and Bureau of Land Management, Department of Interior, Idaho Falls District, Caribou/Targhee National Forest Department of Agriculture	05/06/05	None[a]
20	Environmental Oversight and Monitoring Agreement (Agreement in Principle) Between the United Stated Department of Energy and the State of Idaho	09/29/00	None[a]
21	Interagency Agreement By and Between United States Department of Energy Idaho Operations Office and National Park Service	05/09/02	None[a]
22	Reciprocal Fire Fighting Assistance Agreement Between U.S. Department of Energy and Rexburg City/Madison County Fire Department, City of Arco Fire Department, City of American Falls Fire Department, City of Blackfoot Fire Department, City of Chubbuck Fire Department, Jefferson Central Fire District, City of Pocatello fire Department, City of Rigby Fire Department, Lost River Fire District, City of Ammon Fire Department, Shelley/Firth District, Fort Hall Fire Protection District, West Jefferson Fire Department, South Custer Rural Fire District, North Custer Rural Fire District, Hamer Volunteer Fire Department	05/29/01	None[a]
23	Memorandum of Understanding By and Between United States Department of Energy Idaho Operations Office and City of Idaho Falls Fire Department Reciprocal Fire Fighting Assistance Agreement	01/30/02	None[a]
24	Cooperative Fire Control Agreement for Mutual Fire Aid Between U.S. Department of Energy Idaho Operations Office and United States Department of Agriculture Salmon-Challis National Forest	10/13/99	None[a]
25	Memorandum of Agreement Between the Naval Reactors Facility and Department of Energy Fire Department Idaho National Engineering and Environmental Laboratory	01/09/01	None[a]

a. The memorandum of agreement/memorandum of understanding does not have a set expiration date. The executed agreement/memorandum is typically reviewed after five years and may be modified/extended per agreement between the parties.

G-7 Evacuation Plan [IDAPA 58.01.05.008; 40 CFR 264.52(f)]

Personnel are notified to take cover and/or evacuate by alarms and voice paging messages. Evacuation routes are through the nearest unobstructed emergency exit. Exhibit G-1 provides the location of evacuation routes for AMWTP personnel at the RWMC.

AMWTP personnel are notified of an emergency by the internal communications and alarm system (voice or signal). This system is connected to and compatible with the existing RWMC communications and alarm system. Different audible signals are sounded for fire or building evacuation.

The evacuation routes for the MWMUs are through the nearest personnel exit or egress doors. Exhibit G-2 shows evacuation routes and the locations of the personnel egress doors at WMF-634. Exhibit G-3 shows evacuation routes and the locations of the personnel egress doors in the Type II Modules (WMF-628 through WMF-633). Exhibit G-4 shows evacuation routes and the locations of the personnel egress doors in the Type I Module. Exhibit G-5 shows evacuation routes and the locations of the personnel egress doors at SWEPP. Exhibits G-6, G-7, and G-8 show evacuation routes and the locations of the personnel egress doors at WMF-676.

The MWMU layouts provide adequate emergency evacuation routes through aisles around stored waste. Upon evacuating the MWMUs, personnel exit the RWMC through either the south or north gate designated for the AMWTP, unless directed otherwise. Personnel evacuate to a designated assembly area, normally the south gate evacuation assembly area. During an evacuation of the RWMC or the AMWTP, AMWTP personnel typically use buses or privately owned vehicles to evacuate the site.

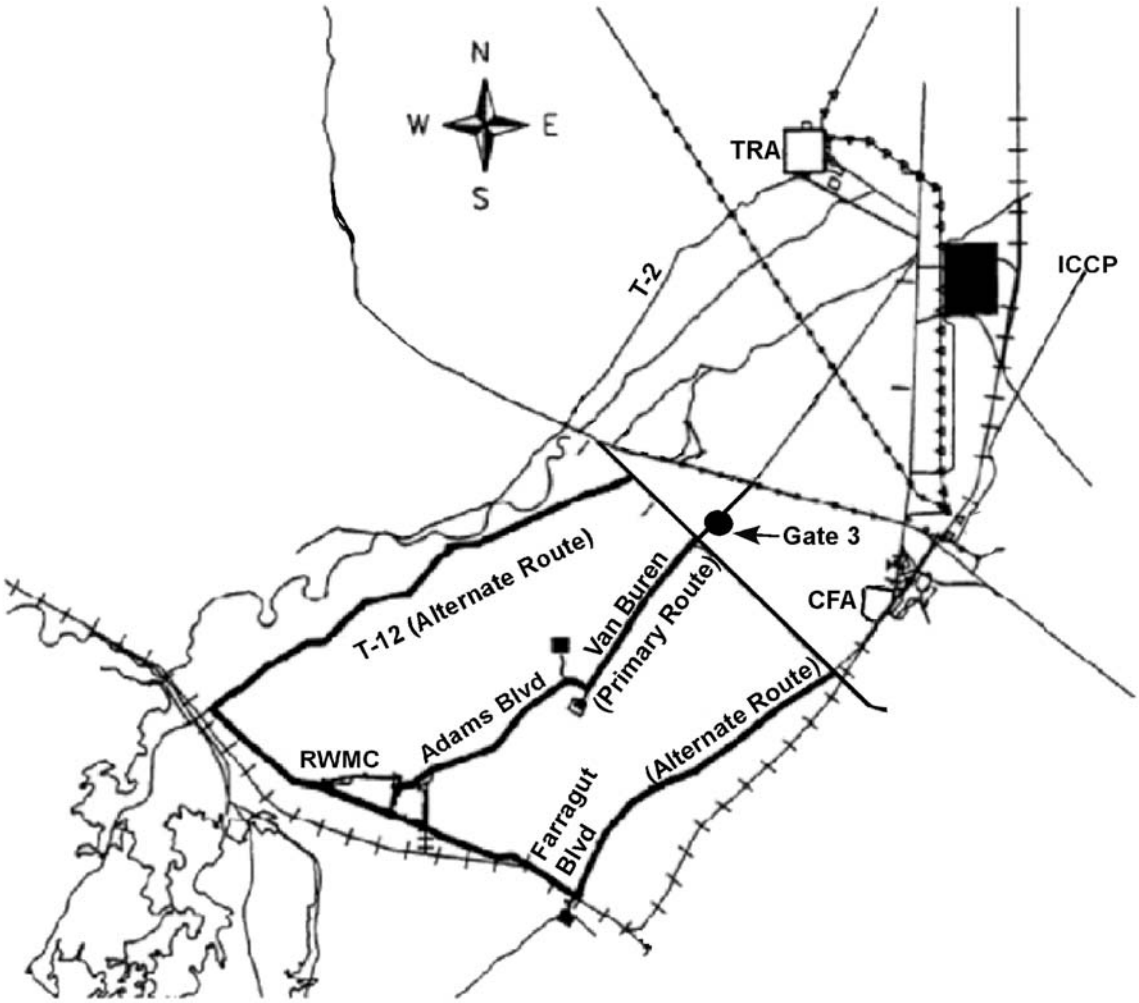


Exhibit G-1. AMWTP Evacuation Routes

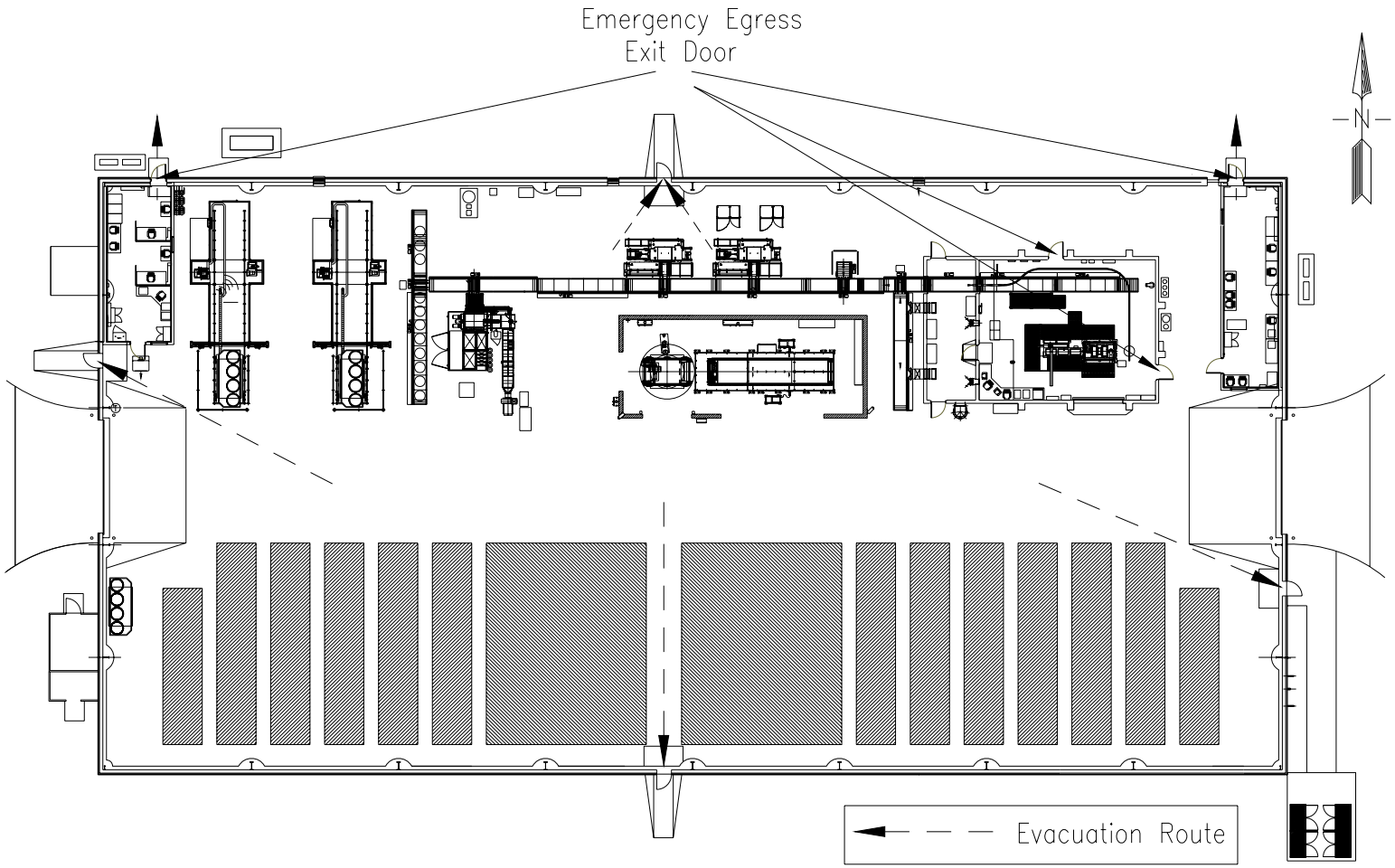


Exhibit G-2. WMF-634 Evacuation Routes

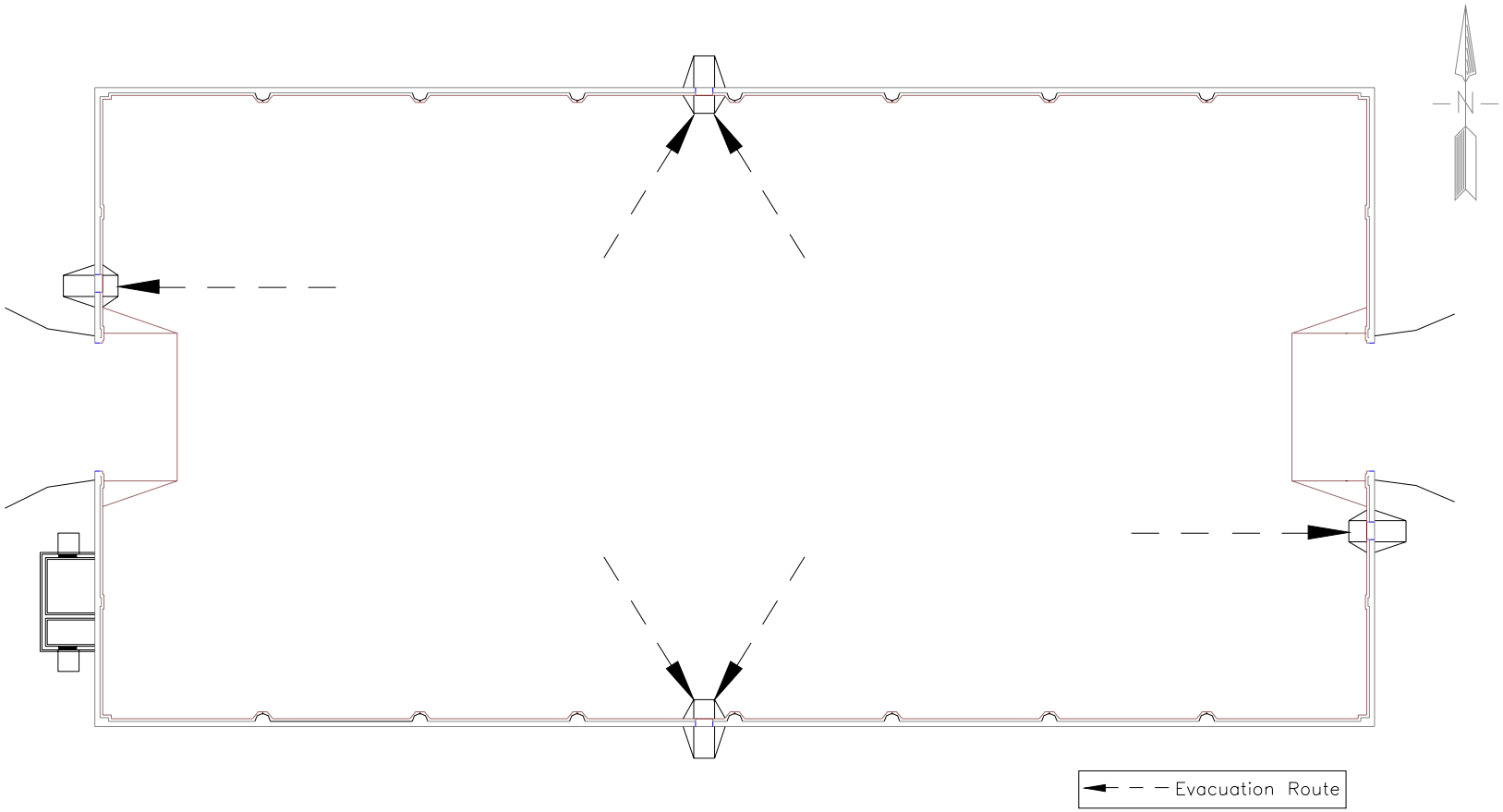


Exhibit G-3. Type II Module Evacuation Routes

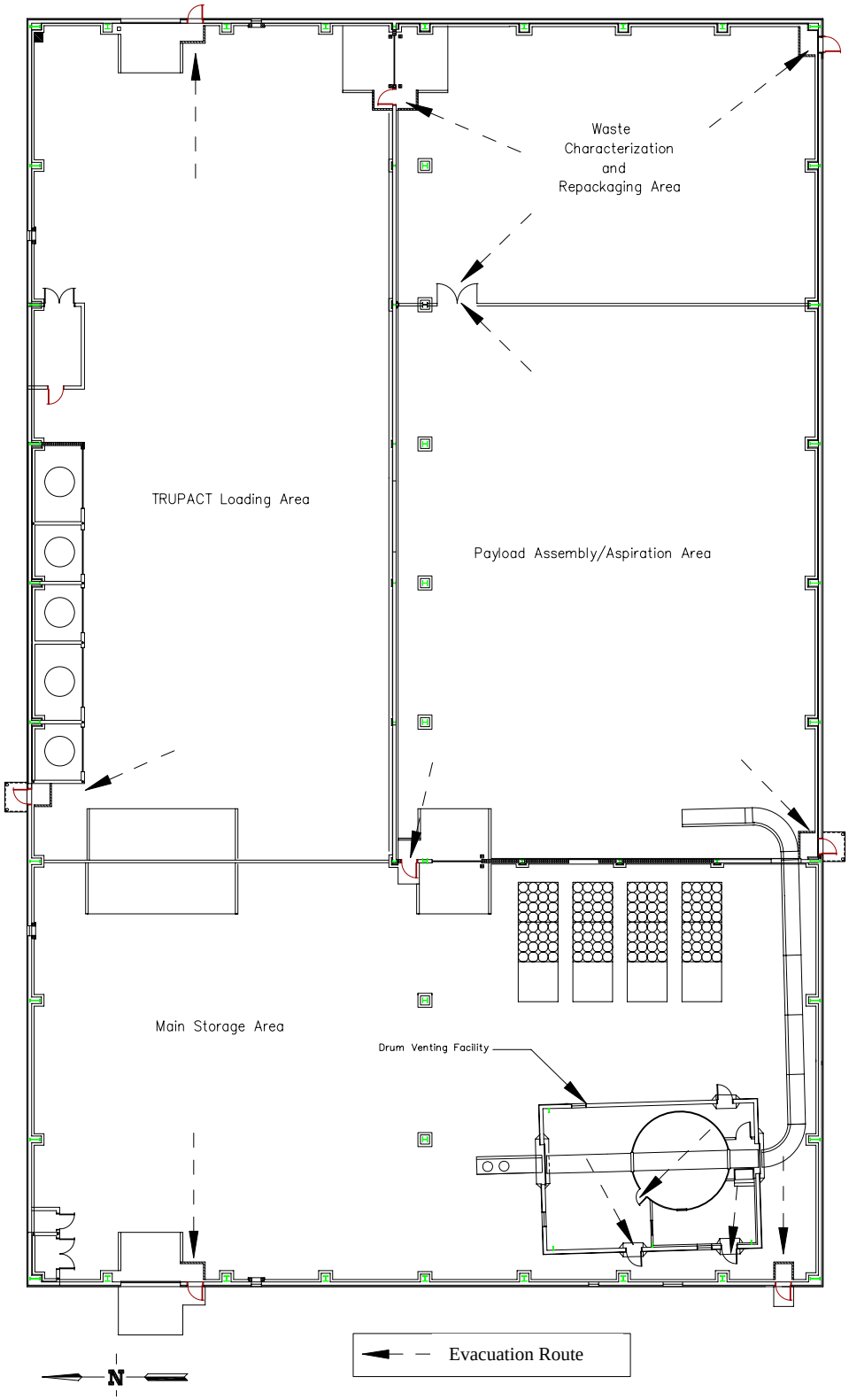


Exhibit G-4. Type I Module Evacuation Routes

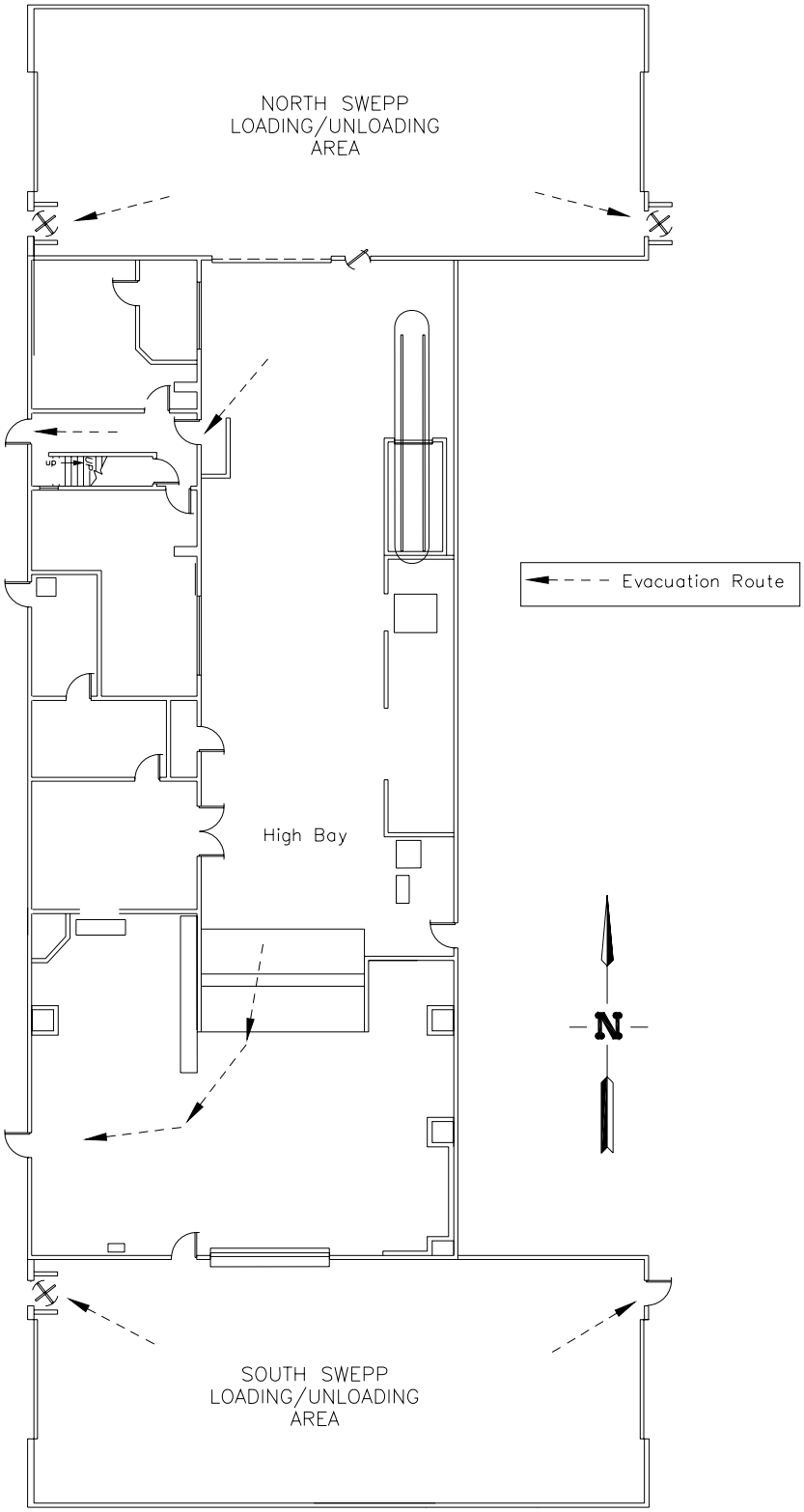


Exhibit G-5. SWEPP Evacuation Routes

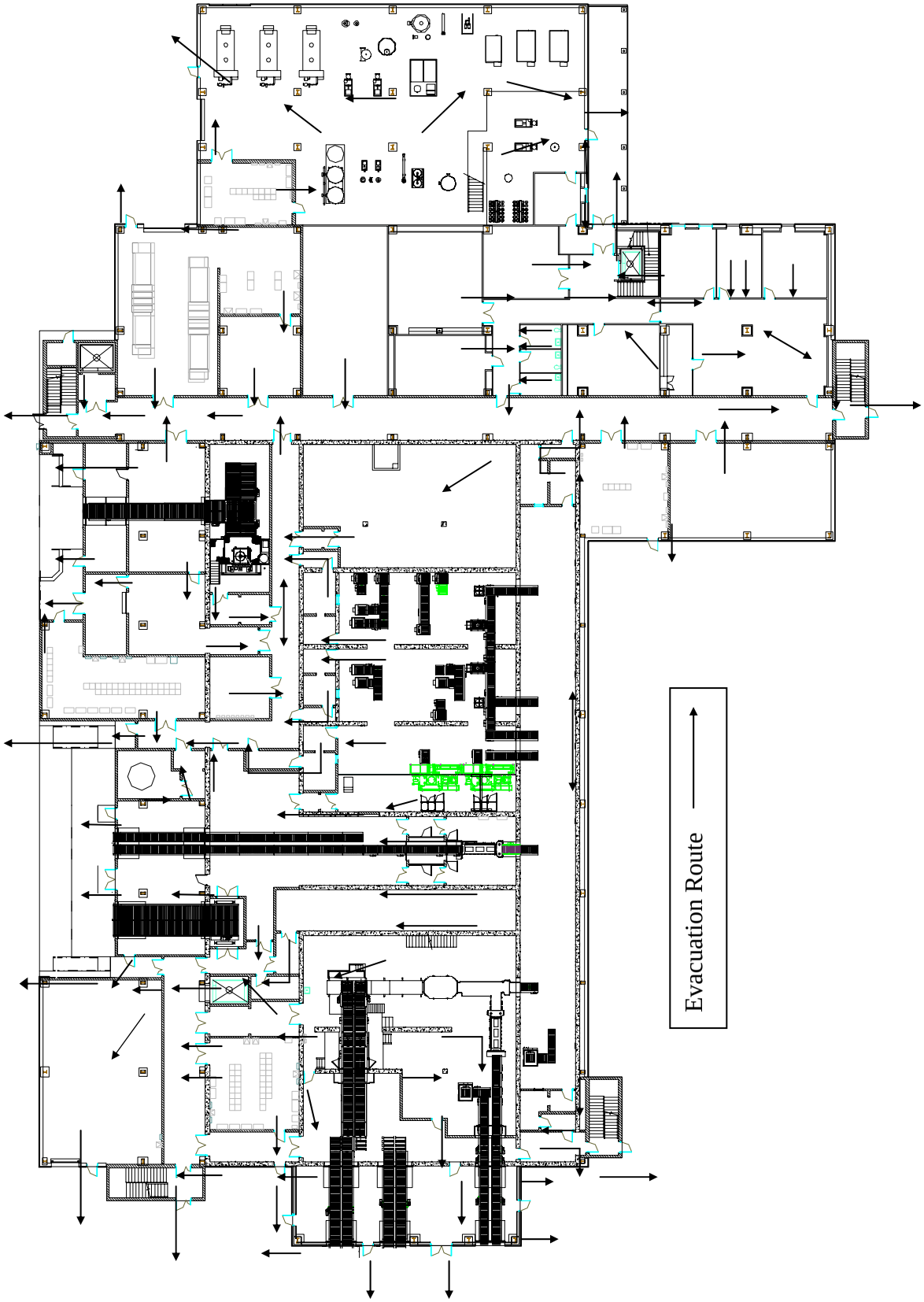


Exhibit G-6. WMF-676 First Floor Evacuation Routes

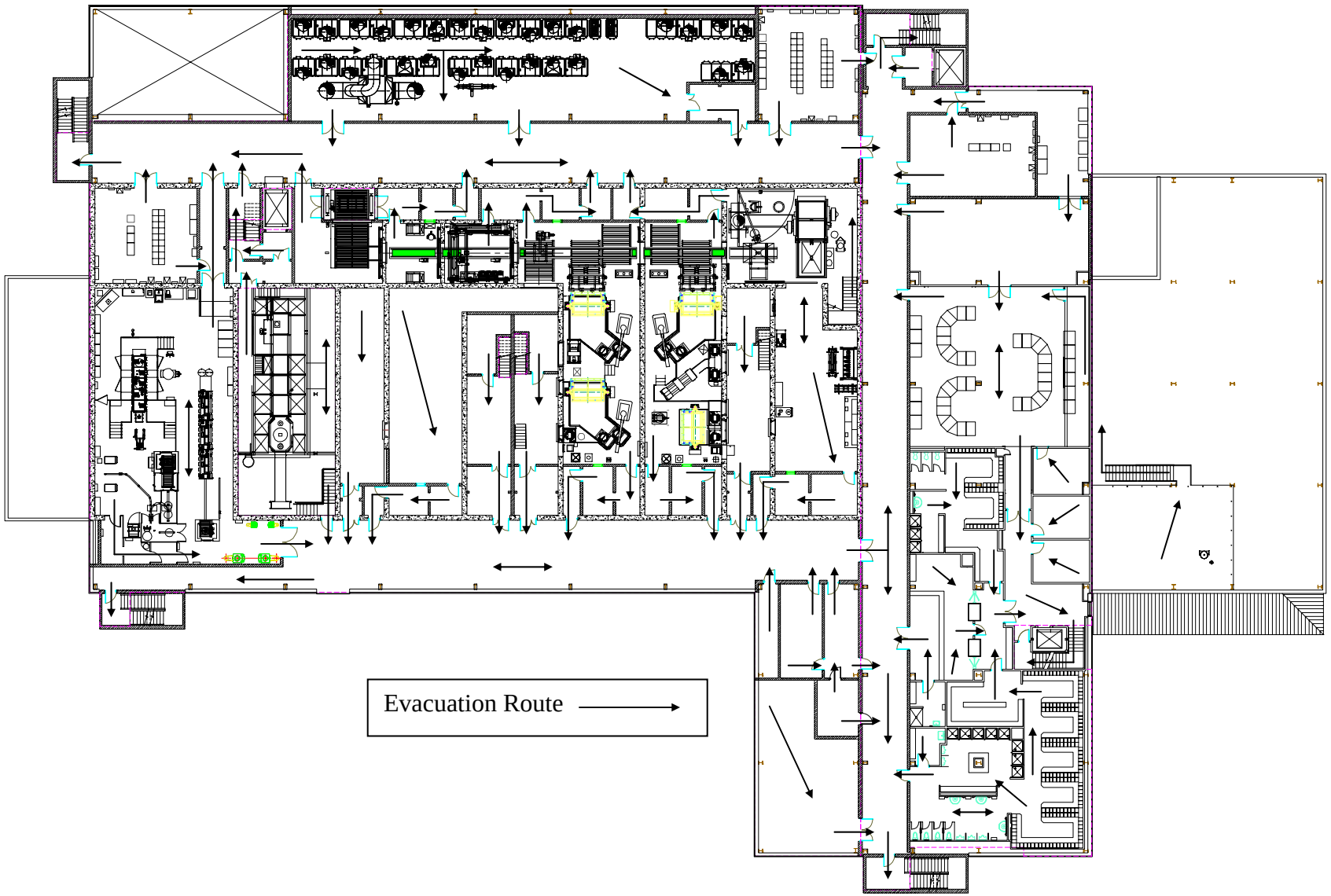


Exhibit G-7. WMF-676 Second Floor Evacuation Routes

Exhibit G-8. WMF-676 Penthouse/Roof Evacuation Routes

G-8 Required Reports [IDAPA 58.01.05.008; 40 CFR 264.56(j)]

Emergency logs and records are considered part of the Operating Record and are maintained per IDAPA 58.01.05.008 (40 CFR 264.73). Information is used to provide the details necessary to submit a written report on the incident, if necessary, to the Director of the Idaho DEQ and the EPA Regional Administrator within 15 days of the event.

Such reports include, at a minimum, the following:

- Name, address, and telephone number of the MWMU owner or operator;
- Name, address, and telephone number of the MWMU;
- Date, time, and type of incident (e.g., fire, explosion);
- Name and quantity of material(s) involved;
- Extent of any injuries, if any;
- Assessment of any actual or potential hazards to human health or the environment; and
- Estimated quantity and disposition of material recovered from the incident.

TABLE OF CONTENTS

ATTACHMENT 8

CLOSURE PLAN

I. CLOSURE PLAN.....1

I. Closure Requirements.....1

I. CLOSURE PLAN

I. Closure Requirements [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR Part 264, Subpart G and 270.14(B)(13)]

This Closure Plan, hereinafter referred to as the "Plan", specifies the performance standards and describes the process for final closure of the MWMUs. Upon termination of operations, the owner/operator shall willfully close the MWMUs in accordance with the applicable HWMA/RCRA closure requirements promulgated at IDAPA 58.01.05.008 (40 CFR Part 264, Subpart G). The activities and closure performance standards described herein apply only to wastes and waste constituents regulated under HWMA/RCRA. In this Plan, the term "decontamination" refers to the removal of HWMA/RCRA-regulated wastes and waste constituents. Standards and methods for management of residual radiological contamination, which is not HWMA/RCRA-regulated that may be present at the MWMUs and disposition of radiological contaminated government-furnished equipment, shall follow the DOE-ID requirements governing the management and disposal of radiological-contaminated materials.

This Plan satisfies the requirements of IDAPA 58.01.05.008 [40 CFR 264.112(a)] that waste management units have a written closure plan. Of the additional requirements at IDAPA 58.01.05.008 [40 CFR 264.111(c) (i.e., 40 CFR 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601 through 264.603 and 264.1102)], only those at IDAPA 58.01.05.008 (40 CFR 264.178 and 264.601) apply. Closure of the MWMUs in accordance with this Plan satisfies the requirements of IDAPA 58.01.05.008 (40 CFR 264.178).

Although closure under HWMA/RCRA is primarily concerned with the hazardous waste constituents in the MW managed at the MWMUs, closure is performed with full cognizance of the radiological component and the threat to human health and the environment engendered by that component. Closure will be performed to ensure the safety of personnel, as follows:

- Qualified AMWTP personnel supervise and perform closure activities in compliance with established safety procedures,
- Personnel are equipped with appropriate PPE and trained in applicable safety procedures, and

- The use of established radiological control procedures to ensure personnel and equipment are clean of radiological contamination before leaving any contaminated area.

While closure employs technologies to safeguard workers, treatment technologies that minimize the generation of aerosols and other particulates are preferentially selected.

Information specific to the closure of WMF-634 is presented in Attachment 8.A. The information pertaining to the closure of the Type II Modules, designated as WMF-628 through WMF-633, is presented in Attachment 8.B, the closure information pertaining to the Type I Module is presented in Attachment 8.C, the closure information pertaining to SWEPP is presented in Attachment 8.D, and the closure information pertaining to WMF-676 is presented in Attachment 8.E.

TABLE OF CONTENTS

ATTACHMENT 8.A

WMF-634 CLOSURE PLAN

I-1 Closure Plan 1
I-1a Partial Closure Activities 1
I-1b Closure Performance Standard 1
I-1c Maximum Waste Inventory 3
I-1d Disposal or Decontamination of Equipment, Structures, and Soils 3
I-1d(1) Sampling and Analysis 4
I-1d(2) Disposal of Equipment 4
I-1d(3) Equipment and Structures to be Reused 4
I-1d(4) WMF-634 Closure Procedures 5
I-1d(5) Order of Closure 7
I-1e Amendment of Plan 7
I-1f Schedule and Notification of Closure 8
I-2 Extensions for Closure Time 11
I-3 Certification of Closure 12
I-4 Post-Closure Requirements 13
I-5 Closure Financial Requirements 14
I-5a Closure Cost Estimates 14
I-5b Financial Assurance for Closure 14
I-5c Liability Requirements 14
I-5d Use of State Required Financial Mechanisms 14
I-5e State Assumption of Responsibility 14
I-6 Post-Closure Financial Requirements 15

LIST OF TABLES

Table I-1. Closure Performance Standards 9

Table I-2. Closure Schedule 10

I-1 Closure Plan [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.112(b) and 270.14(b)(13)]

This section of the Closure Plan hereinafter referred to as the "Plan", describes the closure process, standards, and activities to be employed during the closure of WMF-634. The design and operation of WMF-634 and the types of MW managed at WMF-634 are described in detail in Attachments 1, 1.A, and 2.

I-1a Partial Closure Activities [IDAPA 58.01.05.008; 40 CFR 264.112(b)(1 - 6)]

No specific plans presently exist for partial closure of WMF-634. If partial closure is considered in the future, the procedures for verification sampling, decontamination, and confirmatory sampling presented in the following sections would be applicable to such an approach. Containment enclosures, as described in Attachment 1.A, may be located within the MWMU. If a containment enclosure is closed prior to the closure of WMF-634, then all activities (e.g., sampling and analysis results, decontamination/reuse of equipment, characterization, etc.) associated with the closure of the containment enclosure will be documented in the Operating Record.

I-1b Closure Performance Standard [IDAPA 58.01.05.008; 40 CFR 264.111 and 264.112(b)(1) and (2)]

The HWMA/RCRA-regulated MWMUs will be closed in a manner such that:

- The need for post-closure maintenance is eliminated by controlling or eliminating the potential for escape of MW, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the environment;
- Closure activities generate a minimum amount of mixed or hazardous waste;
- Closure activities generate a minimum amount of non-HWMA/RCRA-regulated solid and radioactive waste;
- Hazardous waste is removed and managed in accordance with the applicable requirements of IDAPA 58.01.05.006 through 58.01.05.012 (40 CFR Parts 262 through 270); and
- Closure of the HWMA/RCRA-regulated MWMUs complies with all applicable state and federal requirements.

Performance Standard Description

1. **Equipment to be Reused or Salvaged:** Upon closure, the performance standard achieved for reusable structures and equipment from the closed MWMU will be the clean closure standard as verified by sampling and analysis of swipe or decontamination rinsate samples, as appropriate. Decontamination will be considered successful based on confirmatory sampling and analysis when the analytical results verify that the hazardous waste constituent(s) of concern in the samples is less than ten times the practical quantitation level, as defined in the appropriate procedure of SW-846.

2. **Equipment to be Disposed:** The visible surfaces of equipment, structures, etc., that are to be disposed will be decontaminated by an alternative treatment technology pursuant to IDAPA 58.01.05.011 (40 CFR 268.45) to achieve the clean debris surface standard. '"Clean debris surface" means that the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discoloration, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.' Equipment on which the contaminated surface is not readily visible (e.g., pipe) will be treated by an appropriate alternative treatment standard for hazardous debris (e.g., macroencapsulation) per IDAPA 58.01.05.011 (40 CFR 268.45), as based on Operating Records (including analytical data) for the waste treated by the equipment.

Newly-Generated HWMA/RCRA Wastes

HWMA/RCRA-regulated waste generated during closure will be classified as newly-generated waste, and will be managed as described in Section I-1d.

Safety Considerations

Although closure under HWMA/RCRA is primarily concerned with the hazardous waste constituents in MW, closure must be performed with full cognizance of the radiological component and the threat to human health and the environment engendered by that component. This Plan reflects the practical realities of performing work in an environment highly contaminated with TRU radionuclides. Closure will be performed to ensure the safety of personnel, as follows:

- Qualified personnel will supervise and perform closure activities in compliance with established safety procedures.
- Whenever practicable, closure activities will be performed remotely using manipulators, etc.
- Personnel will be equipped with appropriate PPE and be trained in comprehensive, applicable safety procedures.
- The use of established radiological control procedures to ensure personnel and equipment are radiologically decontaminated before leaving any radiologically contaminated area.

Although closure will employ technologies to safeguard workers (e.g., HEPA-filtered vacuum cleaners and portable containment), treatment technologies that minimize the generation of radioactive air-borne particles (dust) will be preferentially selected.

I-1c Maximum Waste Inventory [IDAPA 58.01.05.008; 40 CFR 264.112(b)(3)]

The estimated total maximum HWMA/RCRA-regulated waste inventory at WMF-634 is 4,661 m^3 (1,231,430 gal). HWMA/RCRA-regulated waste is stored in a variety of containers as described in Section D-1(a)(1) of Attachment 1.A. Details on the methods for removing, transporting, treating, storing or disposing of HWMA/RCRA-regulated waste are found in Section I-1d of this Plan. The AMWTP has the goal of disposing all waste at the WIPP or other off-Site disposal facility. Closure will not commence until all waste has been removed from WMF-634.

I-1d Disposal or Decontamination of Equipment, Structures, and Soils [IDAPA 58.01.05.008; 40 CFR 264.112(b)(4) and 264.114]

Because operational methods at the MWMUs place emphasis on the containment and timely response to spills, and because of the MWMUs design, releases to the environment are unlikely. Therefore, disposal of contaminated soils pursuant to this Plan is not anticipated. However, if soil contamination is found it shall be addressed under the direction of DOE-ID. The following subsections provide a description of the actions necessary to manage the disposal or cleaning/decontamination of equipment or structures contaminated with HWMA/RCRA – regulated waste or waste constituents. Before beginning closure activities, all waste will be

removed from the MWMU. The types of hazardous waste, if present, managed during closure are expected to have the same HWNs found in Table C-1 of Attachment 2.

I-1d(1) Sampling and Analysis

All sampling and analysis performed for closure is performed in accordance with the quality standards established in a Closure QAPjP, which will be submitted with the closure notification 45 days before closure of the MWMU begins. The Closure QAPjP will detail sampling and analysis procedures in accordance with *SW-846*, the ASTM Annual Book of ASTM Standards, or other EPA-approved methods.

I-1d(2) Disposal of Equipment

Typically, contaminated ancillary equipment from a MWMU, which is to be disposed, is decontaminated in accordance with the required treatment standards, or other technologies available and approved for such use at the time of closure, for hazardous debris [IDAPA 58.01.05.011 (40 CFR 268.45)] to attain the clean debris surface standard.

An assessment of the Operating Record will be conducted to determine the extent of potential contamination. Per this assessment, contaminated equipment will be decontaminated for all HWMA/RCRA-regulated hazardous constituents of concern that are present. The specific technology or technologies will be selected at the time of closure and during closure based upon the hazardous constituents of concern present, and the effectiveness of the selected technology in attaining the closure performance standard. Equipment for which the contaminated surface is not readily visible (e.g., pipe) will be treated by an appropriate alternative treatment standard for hazardous debris (e.g., macroencapsulation) per IDAPA 58.01.05.011 (40 CFR 268.45, Table 1) requirements.

Disposal of decontaminated equipment shall be in accordance with the applicable HWMA/RCRA requirements.

I-1d(3) Equipment and Structures to be Reused

To be protective of human health and the environment, ancillary equipment and structures designated for reuse are decontaminated to meet the clean closure performance

standard, as verified by sampling and analysis. An assessment of the Operating Record will be conducted to determine the extent of potential contamination. Contaminated equipment and structures are decontaminated to meet the clean closure standard as verified by confirmatory sampling and analysis as described in the Closure QAPjP. The following section provides additional details for closure.

I-1d(4) WMF-634 Closure Procedures

Ventilation systems are maintained during closure, as required, to provide contamination control. To control the spread of airborne and surface contamination, portable containment, such as tents or glove bags, may also be employed during closure.

Cleaning/Decontamination. The MWMUs are designed and constructed to prevent migration of MW constituents. Spills and leaks are cleaned up in a timely manner and documented appropriately. See Attachment 7 for additional information.

After operations cease and all remaining waste has been removed from the MWMU, surfaces used for storage of HWMA/RCRA-regulated waste containers shall be thoroughly cleaned. These surfaces are swept or vacuumed using vacuum cleaners equipped with HEPA filters, if required. Following cleaning, qualified personnel shall visually inspect the MWMU for stains or other signs of spills and/or leaks of waste constituents. Additionally, the Operating Record will be reviewed to determine if further cleaning and/or decontamination is required.

Any HWMA/RCRA-regulated waste residues generated during cleaning/decontamination are placed in approved containers and managed in accordance with the applicable HWMA/RCRA requirements.

Cleaning/Decontamination Verification. For ancillary equipment or structures to be reused, confirmatory sampling and analysis (as outlined in the Closure QAPjP) will follow cleaning/decontamination, until it is established that cleaning/decontamination procedures have removed hazardous constituents of concern to the clean closure standard. If verification testing detects hazardous constituents of concern above the clean closure standard, the contaminated equipment or structure is decontaminated again, followed by confirmatory sampling and analysis. Decontamination is achieved when analytical results verify that the clean closure

standard has been met. Once it has been established that the standard has been satisfied, the equipment or structure can be considered free of HWMA/RCRA-regulated hazardous constituents and released for reuse.

Cracked or Unsealed Surfaces. Surfaces used for storage of HWMA/RCRA-regulated constituents are inspected on a regular basis to identify structural problems that could result in migration of MW constituents. See Attachment 4 for additional information. If inspections during closure identify that surfaces used for storage are cracked or unsealed, the following steps are employed to meet the closure performance standard:

- Review the Operating Record to determine if HWMA/RCRA-regulated hazardous constituents of concern may be present,
- Decontaminate/remediate as appropriate for the HWMA/RCRA-regulated hazardous constituents of concern using a technology appropriate for the hazardous constituents of concern, and
- Sample and analyze decontaminated surfaces in accordance with the Closure QAPjP until the clean closure standard is achieved.

Decontamination materials and equipment. Spent decontamination materials (e.g., swabs, wipes, PPE, sampling equipment, HEPA vacuum cleaner filters) are characterized per process knowledge or sampled and analyzed in accordance with the Closure QAPjP. Based on the analytical results, the spent decontamination materials are placed in an appropriate container. All HWMA/RCRA-regulated wastes shall be placed in a compatible container that is labeled with a barcode identifier and managed in accordance with the applicable HWMA/RCRA requirements.

Equipment used for closure cleanup/decontamination is managed using the same procedures and standards as described previously in this section.

Any decontamination liquids are contained within the work area, then collected and characterized by process knowledge or in accordance with the Closure QAPjP. Spill booms, spill control pillows, swabs, or other absorbent material(s) may be used to contain the decontamination liquids and to facilitate removal. Spent decontamination materials and other wastes may be treated by an AMWTP technology (see discussion below for the order of closure),

or packaged for transport to another waste management unit. Following decontamination, the work area is sampled and analyzed, as required, in accordance with the Closure QAPjP.

I-1d(5) Order of Closure

To the extent practicable, closure activities associated with the closure of a MWMU are accomplished utilizing other HWMA/RCRA-permitted MWMUs at the AMWTP, including treatment or storage at other AMWTP waste management units. Decontamination activities are performed in a step-wise fashion to maximize the use of WMF-676 and thereby minimize the quantity of HWMA/RCRA-regulated decontamination wastes requiring subsequent management. The major steps in the closure of a MWMU include:

- Removal of waste inventory followed by treatment, to the extent practicable, at WMF-676;
- Cleaning/decontamination in accordance with this Plan;
- Inspection and verification in accordance with this Plan and the Closure QAPjP to assure that the clean closure and/or performance standards at IDAPA 58.01.05.008 (40 CFR 264.111) are satisfied;
- Management of HWMA/RCRA-regulated newly generated waste in accordance with this Plan and the Closure QAPjP; and
- Closure certification.

I-1e Amendment of Plan [IDAPA 58.01.05.008; 40 CFR 264.112(c)]

Amendments to this Plan will be in accordance with IDAPA 58.01.05.008 [40 CFR 264.112(c)]. A copy of the Plan and supporting documentation is maintained as part of the Operating Record. The Plan will be amended in the future:

- At the time of closure to address the schedule for closure, changes to regulatory standards for cleanup, sampling based on the Operating Record, decontamination methods/technologies to be employed, changes to how and where disposal of equipment and structures will take place, and other changes necessary to accomplish the closure performance standard specified at IDAPA 58.01.005.008 (40 CFR 264.111);
- If it becomes desirable or necessary to close the MWMU in advance of the schedule included in the Plan;

- Whenever changes in a MWMU's operating plans or design affects the Plan;
- If there is a change in the expected year of closure;
- If, when conducting closure activities, an unexpected event requires an amendment;
- If a change in HWMA/RCRA regulations require amending the Plan; or
- At the request of the Director.

The Permittee will submit a written notification that includes a copy of the amended Plan to the Director 60 days before a proposed change in the operation or design of the MWMU that affects the Plan; or no later than 60 days after an unexpected event occurs that affects the Plan; or no later than 30 days after an unexpected event occurs during closure.

I-1f Schedule and Notification of Closure [IDAPA 58.01.05.008; 40 CFR 264.112(b)(6) and (d)]

The AMWTP will complete its mission in approximately 2018. At that time, a decision will be made to either close the MWMU or continue its use. The following schedule assumes closure in 2019; if the decision is made to operate the MWMU beyond that date, this Plan will be amended as previously described. The Director will be notified at least 45 days before the planned start of closure activities. Refer to Table I-2 for a summary of the schedule calendar.

Table I-1. Closure Performance Standards

Closure Performance Standard	Attainment Strategy
The owner or operator must close the facility in a manner that: a) Minimizes the need for further maintenance.	Prior to closure, all HWMA/RCRA-regulated waste and waste constituents of concern will be removed from the MWMU. No waste will be accepted in the MWMU once closure has commenced.
b) Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous constituents, leachates, contaminated runoffs, or hazardous waste decomposition products to groundwater, surface water, or the atmosphere.	MWMU will be clean closed, which entails the removal of HWMA/RCRA-regulated wastes, waste constituents, and waste decomposition products, as well as the elimination of any source material that could generate contaminated leachates or runoff. In addition, pursuant to IDAPA 58.01.05.008 [40 CFR 264.110(b)] the HWMA/RCRA post-closure requirements at IDAPA 58.01.05.008 (40 CFR 264.116 through 40 CFR 264.120, and 40 CFR Part 264, Subpart H) are not applicable to the closure of a MWMU.
c) Complies with the closure requirements of IDAPA 58.01.05.008 (40 CFR Part 264, Subpart G), including but not limited to, the requirements of IDAPA 58.01.05.008 (40 CFR 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, and 264.1102).	The Plan describes the processes used to close a MWMU in accordance the IDAPA 58.01.05.008 (40 CFR Part 264, Subpart G) closure requirements. Of the additional requirements, only those at IDAPA 58.01.05.008 (40 CFR 264.178) apply. Closure of a MWMU in accordance with this Plan satisfies the requirements at IDAPA 58.01.05.008 (40 CFR 264.178).

Table I-2. Closure Schedule

Activity	Day
Notify the Director	45 days before closure initiation
Initiate closure activities	Day 0
Complete equipment decontamination	Day 100
Complete decontamination of affected surfaces	Day 140
Decontaminate tools, complete waste assessments, remove closure waste	Day 160
Verify closure performance standard has been met	Day 180
Inspect and certify closure	Day 180
Complete all closure activities	Day 180
Submit closure certification to the Director	By 60 days after closure

I-2 Extensions for Closure Time [IDAPA 58.01.05.008; 40 CFR 264.113(a) and (b)]

The schedule presented in Section I-1f and Table I-2 indicates closure of a MWMU occurring within the 180 days specified at IDAPA 58.01.05.008 (40 CFR 264.113). No extension is requested at this time. However, it is recognized that this schedule may be ambitious, and that an extension may be required. That determination will be made closer to the time of closure based on the operating history of a MWMU; or during closure based on how rapidly closure activities are being accomplished. If an extension becomes necessary in the future, it will be presented in the amended Plan (if based on operating history) or a request will be submitted at least 30 days before day 180 (if the need for an extension is identified during closure).

I-3 Certification of Closure [IDAPA 58.01.05.008; 40 CFR 264.115]

An independent Idaho-registered professional engineer will be present during critical closure activities and will certify that the closure has been performed in accordance with this Plan; thereby, satisfying the requirements at IDAPA 58.01.05.008 (40 CFR 264.111). The certification will be submitted for approval to the Director within 60 days of completion of closure. Upon Director approval, closure will be considered complete.

I-4 Post-Closure Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart G]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.110(b)] the HWMA/RCRA post-closure requirements at IDAPA 58.01.05.008 (40 CFR 264.116 through 40 CFR 264.120) are not applicable.

I-5 Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

I-5a Closure Cost Estimates [IDAPA 58.01.05.008; 40 CFR 264.142]

DOE-ID, the owner of WMF-634, as a federal government agency, is exempt from the closure cost estimate requirement, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5b Financial Assurance for Closure [IDAPA 58.01.05.008; 40 CFR 264.143]

DOE-ID, the owner of WMF-634, as a federal government agency, is exempt from providing a financial assurance mechanism for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5c Liability Requirements [IDAPA 58.01.05.008; 40 CFR 264.147 and 264.148]

DOE-ID, the owner of WMF-634, as a federal government agency, is exempt from the liability requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5d Use of State Required Financial Mechanisms [IDAPA 58.01.05.008; 40 CFR 264.149]

DOE-ID, the owner of WMF-634, as a federal government agency, is exempt from the state required financial mechanism requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5e State Assumption of Responsibility [IDAPA 58.01.05.008; 40 CFR 264.150]

DOE-ID, the owner of WMF-634, as a federal government agency, is exempt from the state assumption of responsibility requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-6 Post-Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.140(b)], the HWMA/RCRA post-closure financial requirements at IDAPA 58.01.05.008 (40 CFR 264.144 and 264.145) are not applicable to WMF-634.

TABLE OF CONTENTS

ATTACHMENT 8.B

TYPE II MODULES CLOSURE PLAN

I-1 Closure Plan 1
I-1a Partial Closure Activities 1
I-1b Closure Performance Standard 1
I-1c Maximum Waste Inventory 1
I-1d Disposal or Decontamination of Equipment, Structures, and Soils 2
I-1e Amendment of Plan 2
I-1f Schedule and Notification of Closure 2
I-2 Extensions for Closure Time 3
I-3 Certification of Closure 4
I-4 Post-Closure Requirements 5
I-5 Closure Financial Requirements 6
I-5a Closure Cost Estimates 6
I-5b Financial Assurance for Closure 6
I-5c Liability Requirements 6
I-5d Use of State Required Financial Mechanisms 6
I-5e State Assumption of Responsibility 6
I-6 Post-Closure Financial Requirements 7

I-1 Closure Plan [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.112(b) and 270.14(b)(13)]

This section of the Closure Plan, hereinafter referred to as the "Plan," describes the closure process, standards, and activities to be employed during the closure of the Type II Modules designated as WMF-628 through WMF-633. The design and operation of the Type II Modules and the types of MW managed at the Type II Modules are described in detail in Attachments 1, 1.B, 1.E, and 2.

I-1a Partial Closure Activities [IDAPA 58.01.05.008; 40 CFR 264.112(b)(1 - 6)]

No specific plans presently exist for partial closure of the Type II Modules. If partial closure were to be considered in the future, the procedures for verification sampling, decontamination, and confirmatory sampling presented in the following sections would be applicable to such an approach.

I-1b Closure Performance Standard [IDAPA 58.01.05.008; 40 CFR 264.111 and 264.112(b)(1) and 264.112(b)(2)]

For information pertaining to Closure Performance Standard, see Section I-1b of Attachment 8.A.

I-1c Maximum Waste Inventory [IDAPA 58.01.05.008; 40 CFR 264.112(b)(3)]

The estimated total maximum HWMA/RCRA-regulated waste inventory at each Type II Module (WMF-629 through WMF-633) is 8,176 m^3 (2,159,985 gal) and the maximum waste inventory in WMF-628 is 4,192 m^3 (1,107,290 gal). HWMA/RCRA-regulated waste is stored in a variety of containers as described in Section D-1(a)(1) of Attachment 1.B. Details on the methods for removing, transporting, treating, storing or disposing of HWMA/RCRA-regulated waste are found in Section I-1c of Attachment 8.A. The AMWTP has the goal of disposing all waste at the WIPP or other off-Site disposal facility. Closure will not commence until all waste has been removed from the Type II Modules.

I-1d Disposal or Decontamination of Equipment, Structures, and Soils [IDAPA 58.01.05.008; 40 CFR 264.112(b)(4) and 264.114]

For information pertaining to disposal or decontamination of equipment, structures, and soils, see Section I-1d of Attachment 8.A.

I-1e Amendment of Plan [IDAPA 58.01.05.008; 40 CFR 264.112(c)]

For information pertaining to amendment of plan, see Section I-1e of Attachment 8.A.

I-1f Schedule and Notification of Closure [IDAPA 58.01.05.008; 40 CFR 264.112(b)(6) and (d)]

For information pertaining to schedule and notification of closure, see Section I-1f of Attachment 8.A.

I-2 Extensions for Closure Time [IDAPA 58.01.05.008; 40 CFR 264.113(a) and (b)]

For information pertaining to extensions for closure time, see Section I-2 of Attachment 8.A.

I-3 Certification of Closure [IDAPA 58.01.05.008; 40 CFR 264.115]

For information pertaining to certification of closure, see Section I-3 of Attachment 8.A.

I-4 Post-Closure Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart G]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.110(b)] the HWMA/RCRA post-closure requirements at IDAPA 58.01.05.008 (40 CFR 264.116 through 40 CFR 264.120) are not applicable.

I-5 Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

I-5a Closure Cost Estimates [IDAPA 58.01.05.008; 40 CFR 264.142]

DOE-ID, the owner of the Type II Modules designated as WMF-628 through WMF-633, as a federal government agency, is exempt from the closure cost estimate requirement, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5b Financial Assurance for Closure [IDAPA 58.01.05.008; 40 CFR 264.143]

DOE-ID, the owner of the Type II Modules designated as WMF-628 through WMF-633, as a federal government agency, is exempt from providing a financial assurance mechanism for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5c Liability Requirements [IDAPA 58.01.05.008; 40 CFR 264.147 and 264.148]

DOE-ID, the owner of the Type II Modules designated as WMF-628 through WMF-633, as a federal government agency, is exempt from the liability requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5d Use of State Required Financial Mechanisms [IDAPA 58.01.05.008; 40 CFR 264.149]

DOE-ID, the owner of the Type II Modules designated as WMF-628 through WMF-633, as a federal government agency, is exempt from the state required financial mechanism requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5e State Assumption of Responsibility [IDAPA 58.01.05.008; 40 CFR 264.150]

DOE-ID, the owner of the Type II Modules designated as WMF-628 through WMF-633, as a federal government agency, is exempt from the state assumption of responsibility requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-6 Post-Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.140(b)], the HWMA/RCRA post-closure financial requirements at IDAPA 58.01.05.008 (40 CFR 264.144 and 264.145) are not applicable.

TABLE OF CONTENTS

ATTACHMENT 8.C

TYPE I MODULE CLOSURE PLAN

I-1 Closure Plan 1
I-1a Partial Closure Activities 1
I-1b Closure Performance Standard 1
I-1c Maximum Waste Inventory 1
I-1d Disposal or Decontamination of Equipment, Structures, and Soils 2
I-1e Amendment of Plan 2
I-1f Schedule and Notification of Closure 2
I-2 Extensions for Closure Time 3
I-3 Certification of Closure 4
I-4 Post-Closure Requirements 5
I-5 Closure Financial Requirements 6
I-5a Closure Cost Estimates 6
I-5b Financial Assurance for Closure 6
I-5c Liability Requirements 6
I-5d Use of State Required Financial Mechanisms 6
I-5e State Assumption of Responsibility 6
I-6 Post-Closure Financial Requirements 7

I-1 Closure Plan [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.112(b) and 270.14(b)(13)]

This section of the Closure Plan, hereinafter referred to as the "Plan," describes the closure process, standards, and activities to be employed during the closure of the Type I Module. The design and operation of the Type I Module and the types of MW managed at the Type I Module are described in detail in Attachments 1, 1.C, and 2.

I-1a Partial Closure Activities [IDAPA 58.01.05.008; 40 CFR 264.112(b)(1 - 6)]

No specific plans presently exist for partial closure of the Type I Module. If partial closure were to be considered in the future, the procedures for verification sampling, decontamination, and confirmatory sampling presented in the following sections would be applicable to such an approach.

I-1b Closure Performance Standard [IDAPA 58.01.05.008; 40 CFR 264.111 and 264.112(b)(1) and (2)]

For information pertaining to Closure Performance Standard, see Section I-1b of Attachment 8.A.

I-1c Maximum Waste Inventory [IDAPA 58.01.05.008; 40 CFR 264.112(b)(3)]

The estimated total maximum HWMA/RCRA-regulated waste inventory at the Type I Module is 2,529 m^3 (667,979 gal). HWMA/RCRA-regulated waste is stored in a variety of containers as described in Section D-1(a)(1) of Attachment 1.C. Details on the methods for removing, transporting, treating, storing or disposing of HWMA/RCRA-regulated waste are found in Section I-1c of Attachment 8.A. The AMWTP has the goal of disposing all waste at the WIPP or other off-Site disposal facility. Closure will not commence until all waste has been removed from WMF-635.

I-1d Disposal or Decontamination of Equipment, Structures, and Soils [IDAPA 58.01.05.008; 40 CFR 264.112(b)(4) and 264.114]

For information pertaining to disposal or decontamination of equipment, structures, and soils, see Section I-1d of Attachment 8.A.

I-1e Amendment of Plan [IDAPA 58.01.05.008; 40 CFR 264.112(c)]

For information pertaining to amendment of plan, see Section I-1e of Attachment 8.A.

I-1f Schedule and Notification of Closure [IDAPA 58.01.05.008; 40 CFR 264.112(b)(6) and (d)]

For information pertaining to schedule and notification of closure, see Section I-1f of Attachment 8.A.

I-2 Extensions for Closure Time [IDAPA 58.01.05.008; 40 CFR 264.113(a) and (b)]

For information pertaining to extensions for closure time, see Section I-2 of Attachment 8.A.

I-3 Certification of Closure [IDAPA 58.01.05.008; 40 CFR 264.115]

For information pertaining to certification of closure, see Section I-3 of Attachment 8.A.

I-4 Post-Closure Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart G]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.110(b)] the HWMA/RCRA post-closure requirements at IDAPA 58.01.05.008 (40 CFR 264.116 through 40 CFR 264.120) are not applicable.

I-5 Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

I-5a Closure Cost Estimates [IDAPA 58.01.05.008; 40 CFR 264.142]

DOE-ID, the owner of the Type I Module, as a federal government agency, is exempt from the closure cost estimate requirement, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5b Financial Assurance for Closure [IDAPA 58.01.05.008; 40 CFR 264.143]

DOE-ID, the owner of the Type I Module, as a federal government agency, is exempt from providing a financial assurance mechanism for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5c Liability Requirements [IDAPA 58.01.05.008; 40 CFR 264.147 and 264.148]

DOE-ID, the owner of the Type I Module, as a federal government agency, is exempt from the liability requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5d Use of State Required Financial Mechanisms [IDAPA 58.01.05.008; 40 CFR 264.149]

DOE-ID, the owner of the Type I Module, as a federal government agency, is exempt from the state required financial mechanism requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5e State Assumption of Responsibility [IDAPA 58.01.05.008; 40 CFR 264.150]

DOE-ID, the owner of the Type I Module, as a federal government agency, is exempt from the state assumption of responsibility requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-6 Post-Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.140(b)], the HWMA/RCRA post-closure financial requirements at IDAPA 58.01.05.008 (40 CFR 264.144 and 264.145) are not applicable.

TABLE OF CONTENTS

ATTACHMENT 8.D

SWEPP CLOSURE PLAN

I-1 Closure Plan 1
I-1a Partial Closure Activities 1
I-1b Closure Performance Standard 1
I-1c Maximum Waste Inventory 1
I-1d Disposal or Decontamination of Equipment, Structures, and Soils 2
I-1e Amendment of Plan 2
I-1f Schedule and Notification of Closure 2
I-2 Extensions for Closure Time 3
I-3 Certification of Closure 4
I-4 Post-Closure Requirements 5
I-5 Closure Financial Requirements 6
I-5a Closure Cost Estimates 6
I-5b Financial Assurance for Closure 6
I-5c Liability Requirements 6
I-5d Use of State Required Financial Mechanisms 6
I-5e State Assumption of Responsibility 6
I-6 Post-Closure Financial Requirements 7

I-1 Closure Plan [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.112(b) 270.14(b)(13)]

This section of the Closure Plan, hereinafter referred to as the "Plan," describes the closure process, standards, and activities to be employed during the closure of SWEPP. The design and operation of SWEPP and the types of MW managed at SWEPP are described in detail in Attachments 1, 1.D, and 2.

I-1a Partial Closure Activities [IDAPA 58.01.05.008; 40 CFR 264.112(b)(1 - 6)]

No specific plans presently exist for partial closure of SWEPP. If partial closure were to be considered in the future, the procedures for verification sampling, decontamination, and confirmatory sampling presented in the following sections would be applicable to such an approach.

I-1b Closure Performance Standard [IDAPA 58.01.05.008; 40 CFR 264.111 and 264.112(b)(1) and (2)]

For information pertaining to Closure Performance Standard, see Section I-1b of Attachment 8.A.

I-1c Maximum Waste Inventory [IDAPA 58.01.05.008; 40 CFR 264.112(b)(3)]

The estimated total maximum HWMA/RCRA-regulated waste inventory at SWEPP is 108 m^3 (28,380 gal). HWMA/RCRA-regulated waste is stored in a variety of containers as described in Section D-1(a)(1) of Attachment 1.D. Details on the methods for removing, transporting, treating, storing or disposing of HWMA/RCRA-regulated waste are found in Section I-1c of Attachment 8.A. The AMWTP has the goal of disposing all waste at the WIPP or other off-Site disposal facility. Closure will not commence until all waste has been removed from WMF-610.

I-1d Disposal or Decontamination of Equipment, Structures, and Soils [IDAPA 58.01.05.008; 40 CFR 264.112(b)(4) and 264.114]

For information pertaining to disposal or decontamination of equipment, structures, and soils, see Section I-1d of Attachment 8.A.

I-1e Amendment of Plan [IDAPA 58.01.05.008; 40 CFR 264.112(c)]

For information pertaining to amendment of plan, see Section I-1e of Attachment 8.A.

I-1f Schedule and Notification of Closure [IDAPA 58.01.05.008; 40 CFR 264.112(b)(6) and (d)]

For information pertaining to schedule and notification of closure, see Section I-1f of Attachment 8.A.

I-2 Extensions for Closure Time [IDAPA 58.01.05.008; 40 CFR 264.113(a) and (b)]

For information pertaining to extensions for closure time, see Section I-2 of Attachment 8.A.

I-3 Certification of Closure [IDAPA 58.01.05.008; 40 CFR 264.115]

For information pertaining to certification of closure, see Section I-3 of Attachment 8.A.

I-4 Post-Closure Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart G]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.110(b)] the HWMA/RCRA post-closure requirements at IDAPA 58.01.05.008 (40 CFR 264.116 through 40 CFR 264.120) are not applicable.

I-5 Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

I-5a Closure Cost Estimates [IDAPA 58.01.05.008; 40 CFR 264.142]

DOE-ID, the owner of SWEPP, as a federal government agency, is exempt from the closure cost estimate requirement, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5b Financial Assurance for Closure [IDAPA 58.01.05.008; 40 CFR 264.143]

DOE-ID, the owner of SWEPP, as a federal government agency, is exempt from providing a financial assurance mechanism for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5c Liability Requirements [IDAPA 58.01.05.008; 40 CFR 264.147 and 264.148]

DOE-ID, the owner of SWEPP, as a federal government agency, is exempt from the liability requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5d Use of State Required Financial Mechanisms [IDAPA 58.01.05.008; 40 CFR 264.149]

DOE-ID, the owner of SWEPP, as a federal government agency, is exempt from the state required financial mechanism requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5e State Assumption of Responsibility [IDAPA 58.01.05.008; 40 CFR 264.150]

DOE-ID, the owner of SWEPP, as a federal government agency, is exempt from the state assumption of responsibility requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-6 Post-Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.140(b)], the HWMA/RCRA post-closure financial requirements at IDAPA 58.01.05.008 (40 CFR 264.144 and 264.145) are not applicable.

TABLE OF CONTENTS

ATTACHMENT 8.E

WMF-676 CLOSURE PLAN

I-1 Closure Plan 1
I-1a Partial Closure Activities 1
I-1b Closure Performance Standard 1
I-1c Maximum Waste Inventory 1
I-1d Disposal or Decontamination of Equipment, Structures, and Soils 2
I-1e Amendment of Plan 2
I-1f Schedule and Notification of Closure 2
I-2 Extensions for Closure Time 3
I-3 Certification of Closure 4
I-4 Post-Closure Requirements 5
I-5 Closure Financial Requirements 6
I-5a Closure Cost Estimates 6
I-5b Financial Assurance for Closure 6
I-5c Liability Requirements 6
I-5d Use of State Required Financial Mechanisms 6
I-5e State Assumption of Responsibility 6
I-6 Post-Closure Financial Requirements 7

I-1 Closure Plan [IDAPA 58.01.05.008 and 58.01.05.012; 40 CFR 264.112(b) 270.14(b)(13)]

This section of the Closure Plan, hereinafter referred to as the "Plan," describes the closure process, standards, and activities to be employed during the closure of WMF-676. The design and operation of WMF-676 and the types of MW managed at WMF-676 are described in detail in Attachments 1, 1.F, 1.F.i, 1.F.ii, 1.F.iii, 1.F.iv, and 2.

I-1a Partial Closure Activities [IDAPA 58.01.05.008; 40 CFR 264.112(b)(1 - 6)]

No specific plans presently exist for partial closure of WMF-676. If partial closure were to be considered in the future, the procedures for verification sampling, decontamination, and confirmatory sampling presented in the following sections would be applicable to such an approach.

I-1b Closure Performance Standard [IDAPA 58.01.05.008; 40 CFR 264.111 and 264.112(b)(1) and (2)]

For information pertaining to Closure Performance Standard, see Section I-1b of Attachment 8.A.

I-1c Maximum Waste Inventory [IDAPA 58.01.05.008; 40 CFR 264.112(b)(3)]

The estimated total maximum HWMA/RCRA-regulated waste inventory at WMF-676 is 345.5 m^3 (91,268 gal). HWMA/RCRA-regulated waste is stored in a variety of containers as described in Section D-1(a)(1) of Attachment 1.F. Details on the methods for removing, transporting, treating, storing or disposing of HWMA/RCRA-regulated waste are found in Section I-1c of Attachment 8.A. The AMWTP has the goal of disposing all waste at the WIPP or other off-Site disposal facility. Closure will not commence until all waste has been removed from WMF-676.

I-1d Disposal or Decontamination of Equipment, Structures, and Soils [IDAPA 58.01.05.008; 40 CFR 264.112(b)(4) and 264.114]

For information pertaining to disposal or decontamination of equipment, structures, and soils, see Section I-1d of Attachment 8.A.

I-1e Amendment of Plan [IDAPA 58.01.05.008; 40 CFR 264.112(c)]

For information pertaining to amendment of plan, see Section I-1e of Attachment 8.A.

I-1f Schedule and Notification of Closure [IDAPA 58.01.05.008; 40 CFR 264.112(b)(6) and (d)]

For information pertaining to schedule and notification of closure, see Section I-1f of Attachment 8.A.

I-2 Extensions for Closure Time [IDAPA 58.01.05.008; 40 CFR 264.113(a) and (b)]

For information pertaining to extensions for closure time, see Section I-2 of Attachment 8.A.

I-3 Certification of Closure [IDAPA 58.01.05.008; 40 CFR 264.115]

For information pertaining to certification of closure, see Section I-3 of Attachment 8.A.

I-4 Post-Closure Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart G]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.110(b)] the HWMA/RCRA post-closure requirements at IDAPA 58.01.05.008 (40 CFR 264.116 through 40 CFR 264.120) are not applicable.

I-5 Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

I-5a Closure Cost Estimates [IDAPA 58.01.05.008; 40 CFR 264.142]

DOE-ID, the owner of WMF-676, as a federal government agency, is exempt from the closure cost estimate requirement, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5b Financial Assurance for Closure [IDAPA 58.01.05.008; 40 CFR 264.143]

DOE-ID, the owner of WMF-676, as a federal government agency, is exempt from providing a financial assurance mechanism for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5c Liability Requirements [IDAPA 58.01.05.008; 40 CFR 264.147 and 264.148]

DOE-ID, the owner of WMF-676, as a federal government agency, is exempt from the liability requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5d Use of State Required Financial Mechanisms [IDAPA 58.01.05.008; 40 CFR 264.149]

DOE-ID, the owner of WMF-676, as a federal government agency, is exempt from the state required financial mechanism requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-5e State Assumption of Responsibility [IDAPA 58.01.05.008; 40 CFR 264.150]

DOE-ID, the owner of WMF-676, as a federal government agency, is exempt from the state assumption of responsibility requirements for closure, in accordance with IDAPA 58.01.05.008 [40 CFR 264.140(c)].

I-6 Post-Closure Financial Requirements [IDAPA 58.01.05.008; 40 CFR Part 264, Subpart H]

Pursuant to IDAPA 58.01.05.008 [40 CFR 264.140(b)], the HWMA/RCRA post-closure financial requirements at IDAPA 58.01.05.008 (40 CFR 264.144 and 264.145) are not applicable.