

Permit Application for Management of Hazardous and Mixed Wastes

**Table 5-1. TRU Units included in the Oak Ridge National Laboratory Part A
Permit Application
for Management of Hazardous and Mixed Wastes**

Building No.	Facility Name	Radioactive Wastes Accepted^a
7855	Remote-Handled (RH) Transuranic (TRU) Retrievable Concrete Cask Storage Facility	Yes
7574	Nuclear Fuel Services, Inc. (NFS) TRU Storage Facility	Yes
7883	RH-TRU Storage Bunker	Yes
7879	TRU/Low Level Waste (LLW) Staging Facility	Yes
7823	Staging Facility for Contact-Handled (CH) TRU Waste	Yes
7884	(Proposed) RH-TRU Waste Storage Bunker	Yes
7572	CH-TRU Waste Storage Facility	Yes
7577	(Proposed) TRU Storage Facility	Yes
7824	Waste Examination and Assay Facility	Yes
7878	SWSA 6 Staging Facility	Yes
7580	(Proposed) Solid Low-Level Waste Staging Facility	Yes
7576	(Proposed) Bulk Contaminated Soil Storage Facility	Yes
7842	SWSA 6 Waste Storage Facility	Yes

^a Effective May 1991, all RCRA waste storage units may be used for hazardous/mixed wastes as generation/space requires..

SPECIFIC INFORMATION ON HAZARDOUS WASTE UNITS

Information on the specific hazardous waste units identified in Table 5-1 is provided in the following sections. The figures follow the unit descriptions.

RH-TRU Retrievable Concrete Cask Storage Facility, Building 7855

Building 7855 is a concrete block structure on a reinforced concrete slab with a reinforced concrete roof (Fig. 5-1). The unit is used to store concrete casks containing RH-TRU waste. The structure is primarily below grade, except for the southern side. The structure is divided into four bays by concrete block walls that extend from the floor to the roof. Each bay of the unit is approximately 15 ft by 45 ft. The building is approximately 60 ft by 45 ft. Some of the casks contain limited amounts of RCRA constituents, primarily lead and mercury.

NFS TRU Storage Facility, Building 7574

Building 7574 is constructed of metal siding and roof over a concrete pad. The metal Butler-type building has inside dimensions of approximately 83 ft by 50 ft (Fig. 5-2). This unit stores CH-TRU solid waste in DOT-approved drums (30- or 55-gal or overpack drums) and/or boxes. As space permits, LLW may also be stored in this unit. RCRA metals are the primary contaminants in the CH-TRU wastes.

RH-TRU Storage Bunker, Building 7883

Building 7883 is a concrete block structure on a reinforced concrete slab with a reinforced concrete roof (Fig. 5-3). The structure is primarily below grade, except for the bay access side. The structure is divided into four bays by concrete block walls that extend from the floor to the roof. Each bay of the unit is approximately 18 ft by 55 ft. Overall, the unit is approximately 72 ft by 55 ft. The unit is used to store concrete casks containing RH-TRU waste. Some of the casks may contain lead, mercury, or other RCRA metals and PCBs. Unused bays in this unit may at times be used to store solid low-level waste (SLLW).

TRU/LLW Staging Facility, Building 7879

Building 7879 is constructed of metal siding and roof with a rigid frame over a concrete pad. The metal Butler-type building has inside dimensions of approximately 50 ft by 83 ft (Fig. 5-4). The TRU/LLW Staging Facility stores solid CH-TRU waste contained in drums (30- or 55-gal or overpack drums) and/or metal boxes. Some of the containers store small amounts of lead, mercury, or other RCRA metals. Other RCRA wastes may include sludges, aerosol cans, etc. RCRA-regulated mixed waste is separated from waste that is radioactive only.

CH-TRU Waste Storage Facility, Building 7823

Building 7823 has dimensions of approximately 49 ft by 80 ft. It is a steel-framed building that is partially underground. Half sections of large corrugated metal pipe are used as siding (Fig. 5-5). The building has a concrete floor, wire fabric ceiling, and metal roof. Building 7823 is used to store LLW and CH-TRU waste containers (30- or 55-, or 85-gal or overpack drums, metal boxes, and/or concrete casks in metal overpacks), some of which may be RCRA regulated. It also stores radioactively contaminated LLW (non-RCRA).

(Proposed) RH-TRU Waste Storage Bunker, Building 7884

Building 7884 will be a concrete block structure on a reinforced concrete slab with a reinforced concrete roof (Fig. 5-6). The structure will be primarily below grade, except for the access side. Overall, the building's dimensions will be approximately 115 ft by 59 ft. The unit will be used to store concrete casks containing RH-TRU waste. Some of the casks may contain lead, mercury, or other RCRA metals that classify the waste as mixed waste. Unused bays in this unit may also be used to store SLLW, as needed.

CH-TRU Waste Storage Facility, Building 7572

This unit is constructed of a metal roof and walls over a concrete pad (Fig. 5-7). Overall dimensions are approximately 140 ft by 50 ft. This unit is used to store CH-TRU mixed waste or LLW. Wastes are stored in drums (30- or 55-gal or overpack drums) or metal boxes. Some of the drums or boxes may contain small amounts of lead, mercury, cadmium, or other RCRA wastes. Other RCRA wastes may include sludges, aerosol cans.

(Proposed) TRU Storage Facility, Building 7577

This proposed unit will be a Butler-type building consisting of a metal roof and side panels on a reinforced concrete pad. The unit will be divided into three bays (see Fig. 5-9). The overall building dimensions will be approximately 150 ft by 60 ft. This unit will be used to store CH-TRU mixed waste and LLW in drums or boxes.

Waste Examination and Assay Facility, Building 7824

This unit is constructed of metal walls and roof over a concrete pad. It is approximately 50 ft by 150 ft (Fig. 5-10). This unit temporarily stores CH-TRU and LLW removed from ORNL storage units or off-site facilities and conducts radiological assays and real-time radiography of the drummed wastes. The wastes are stored in DOT-approved containers (30- or 55-gal or overpack drums) or metal and wooden boxes. After assays are completed, wastes are moved to other RCRA or LLW storage units.

SWSA 6 Staging Facility, Building 7878

This building is constructed with metal walls and roof over a concrete pad approximately 40 ft by 80 ft (Fig. 5-11). Wastes are generally stored in DOT-approved containers (30- or 55-gal or overpack drums) or metal and wooden boxes. This unit is used to store containers of mixed waste consisting of hazardous and CH-TRU-radioactive components.

(Proposed) Solid Low-Level Waste Staging Facility, Building 7580

This building will consist of an approximately 50-ft by 80-ft reinforced concrete floor with metal walls and roofing (Fig. 5-12). Wastes will generally be stored in drums (30-gal or 55-gal or overpack drums) and boxes of varying dimensions. This proposed unit will provide interim storage and a staging area for containers of mixed CH-TRU and SLLW wastes.

(Proposed) Bulk Contaminated Soil Storage Facility, Building 7576

Building 7576 will be an approximately 50-ft by 100-ft metal structure over a reinforced concrete floor surrounded by a 6-in. concrete dike (Fig. 5-13). The proposed unit will store excavated soils from maintenance and construction activities at ORNL. The unit will store metal containers (drums or boxes) of CH-TRU or low-level contaminated soils that may also be co-contaminated with hazardous wastes.

SWSA 6 Waste Storage Facility, Building 7842

Building 7842 is a Butler-type rigid-frame construction with metal walls and roof constructed on a reinforced concrete floor (Fig. 5-14). Inside dimensions of the structure are 47 ft by 72 ft. This unit will be used for storage of solid CH-TRU radioactive mixed wastes, SLLW, and mixed wastes (primarily radioactive wastes with small amounts of RCRA metal contaminants). The wastes will be stored in 30- or 55-gal or overpack drums.

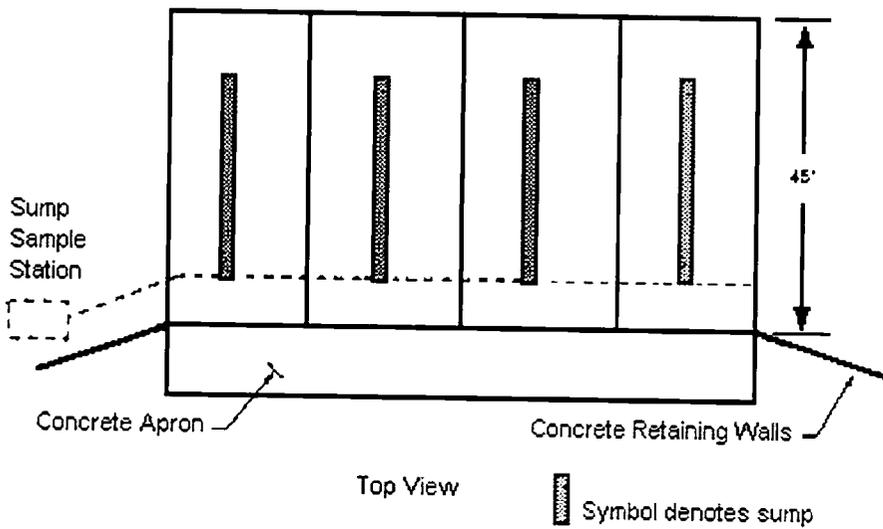
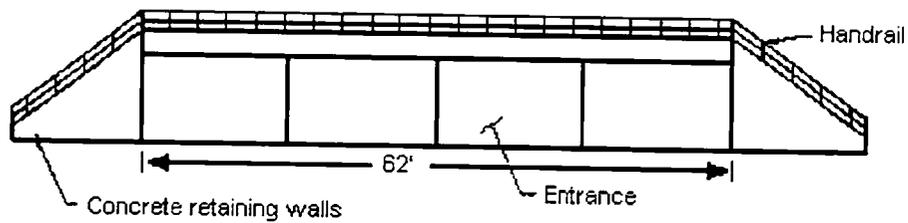


Fig. 5-1. RH-TRU Retrievable Concrete Cask Storage Facility, Building 7855.

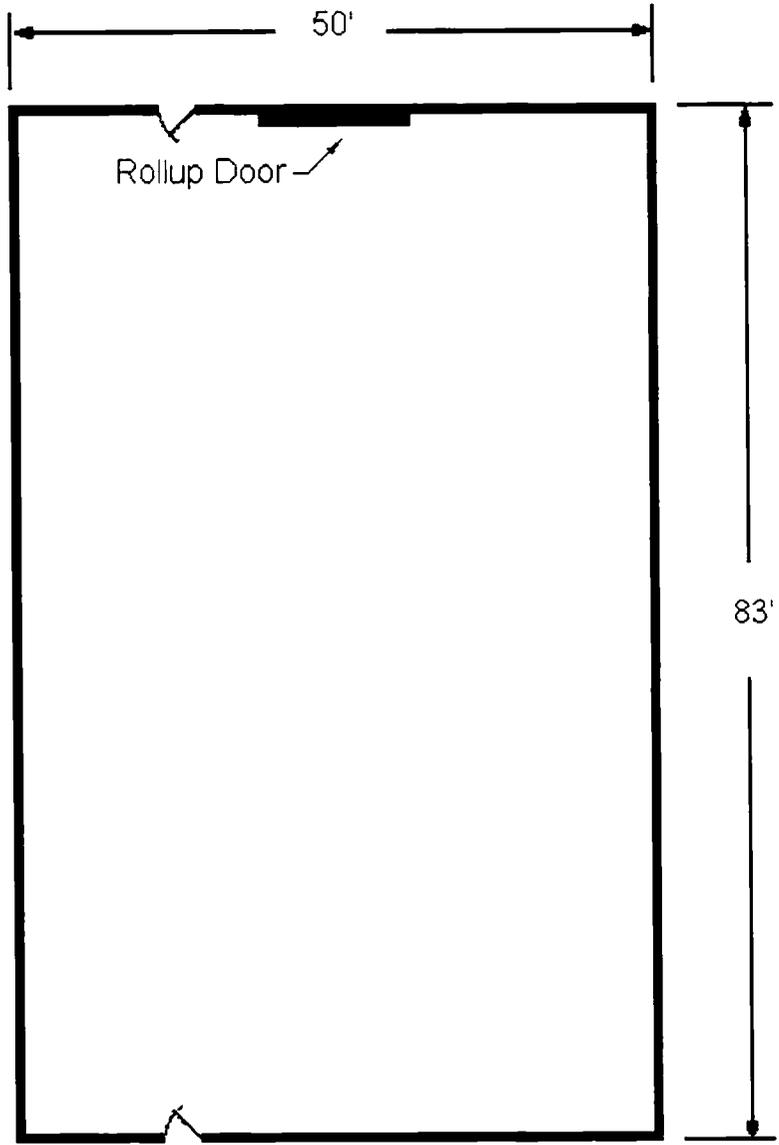


Fig. 5-2. NFS TRU Storage Facility. Building 7574.

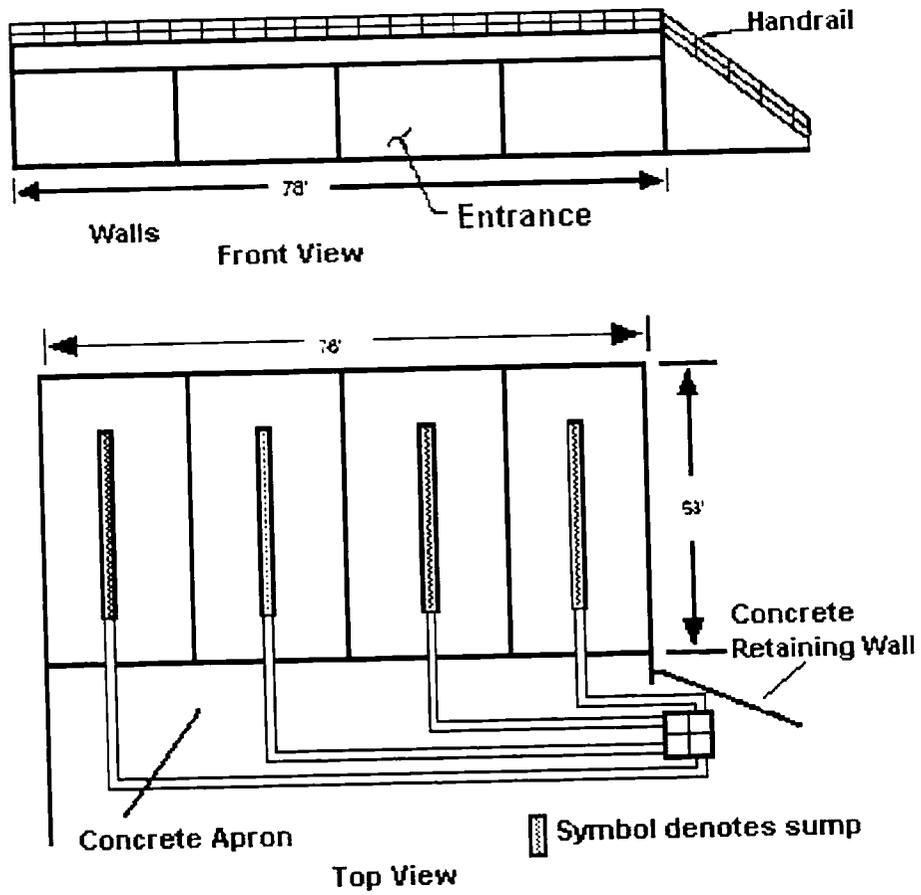
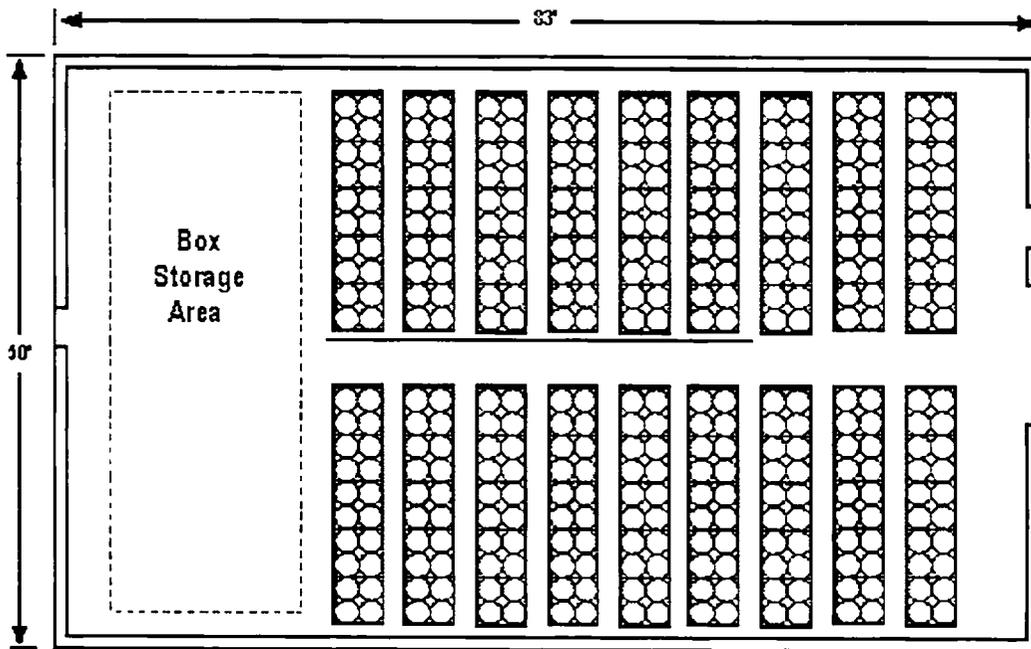


Fig. 5-3. RH-TRU Storage Bunker. Building 7883.



NOTE: Drums shown for illustrative purposes only.

Fig. 5-4. TRU/LLW Staging Facility. Building 7879.

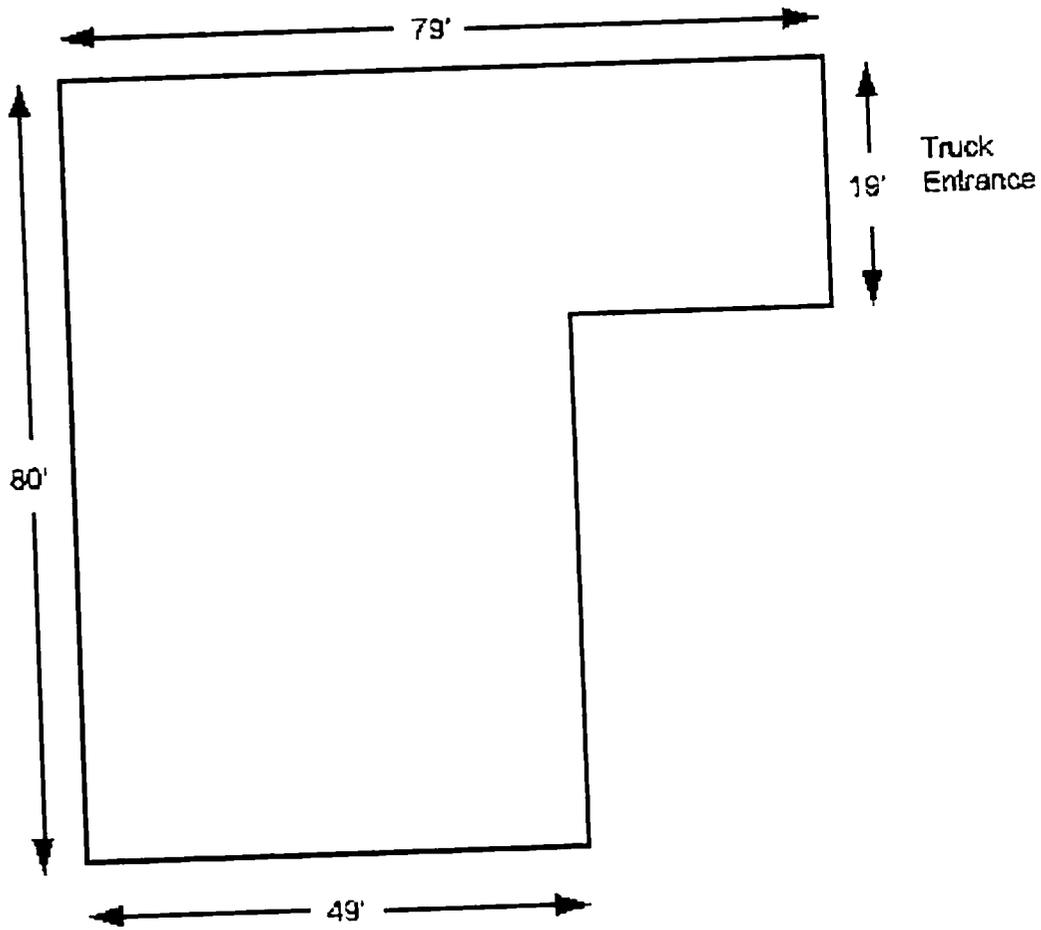
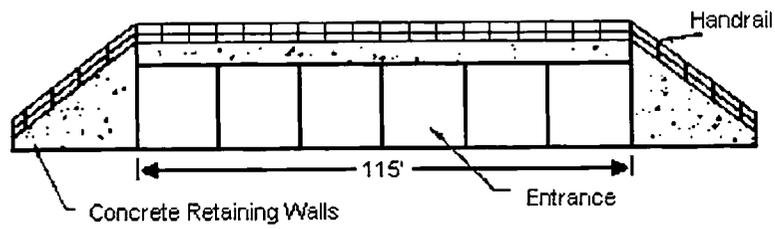
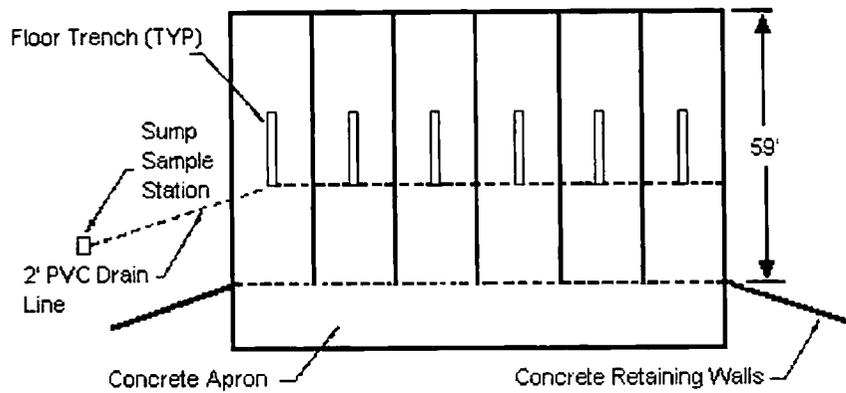


Fig. 5-5. Staging Facility for CH-TRU Waste, Building 7823.



Front View



Top View

Fig. 5-6. (Proposed) RH-TRU Waste Storage Bunker, Building 7884.

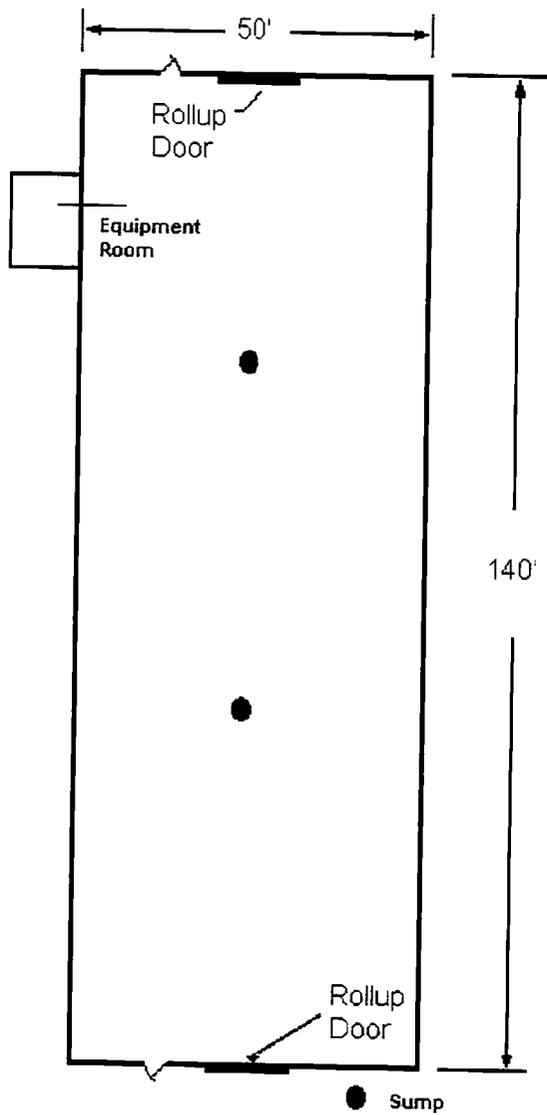


Fig. 5-7. CH-TRU Waste Storage Facility, Building 7572.

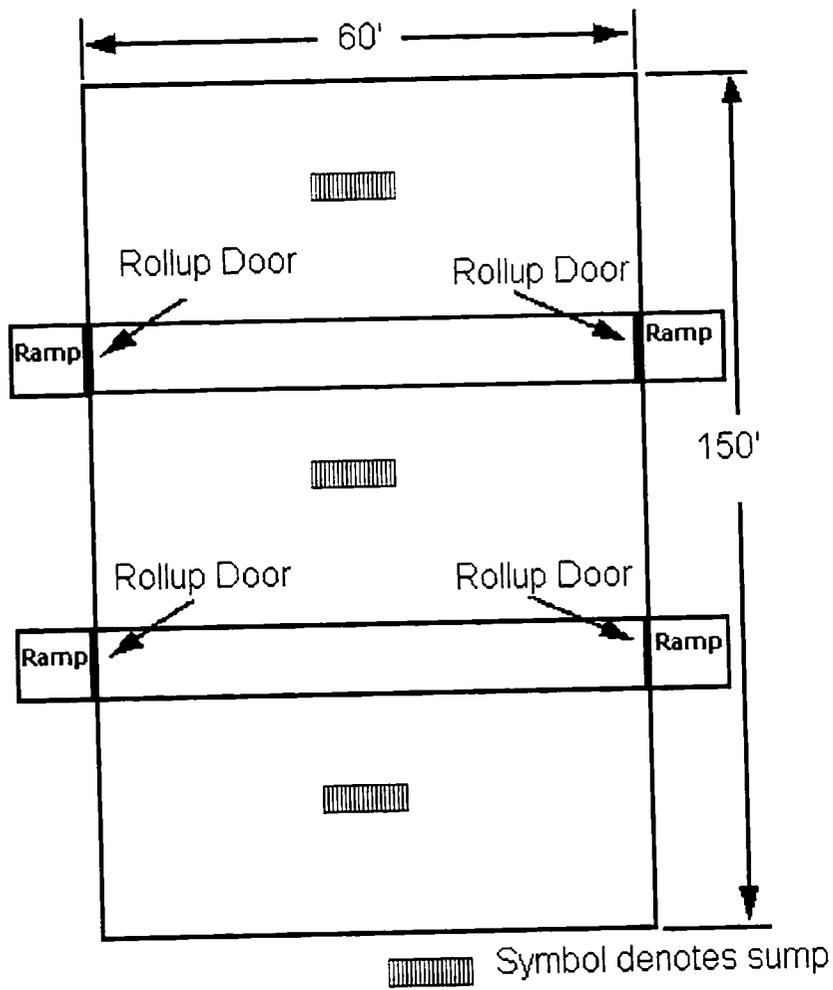


Fig. 5-8. (Proposed) TRU Storage Facility, Building 7577.

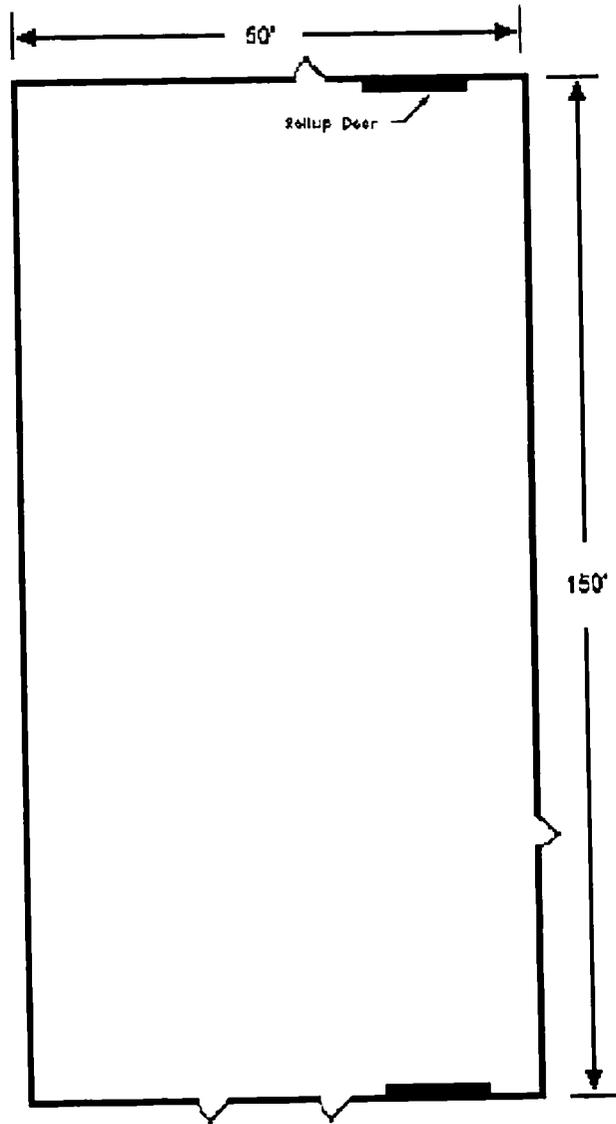


Fig. 5-9. Waste Examination and Assay Facility. Building 7824.

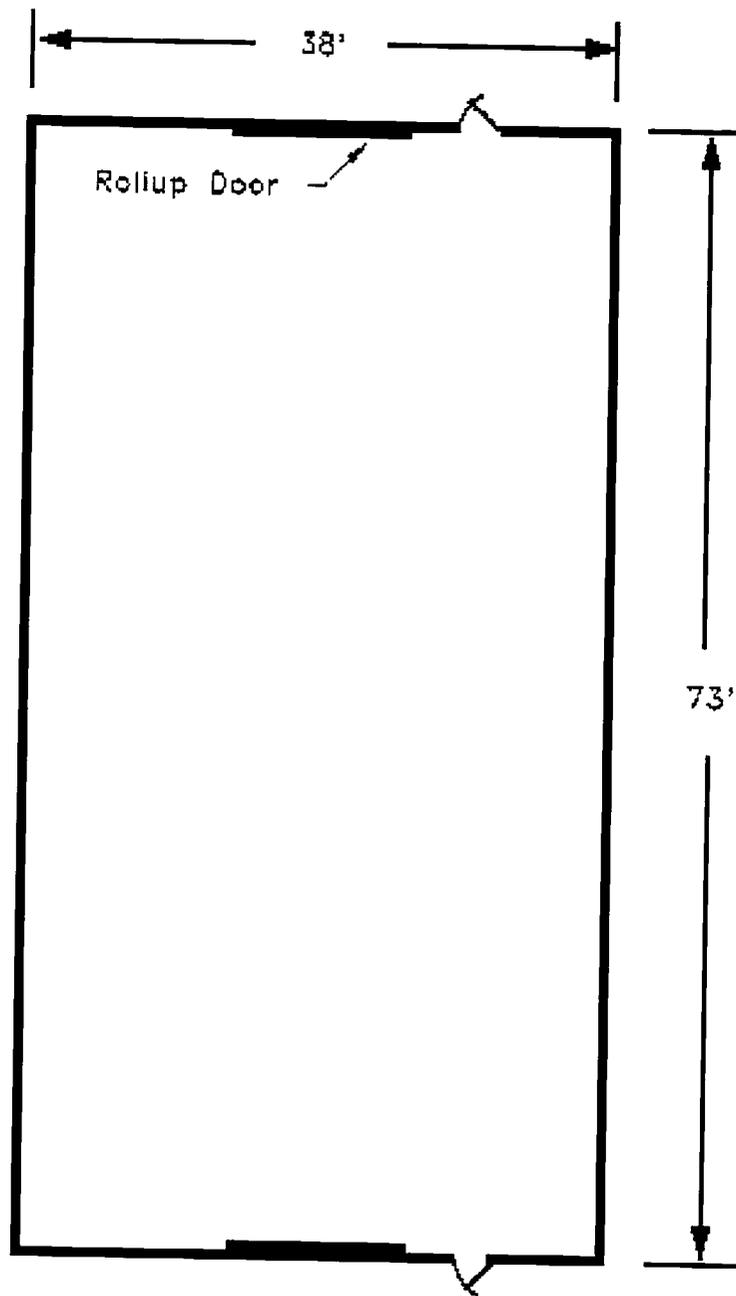


Fig. 5-10. SWSA 6 Staging Facility, Building 7878.

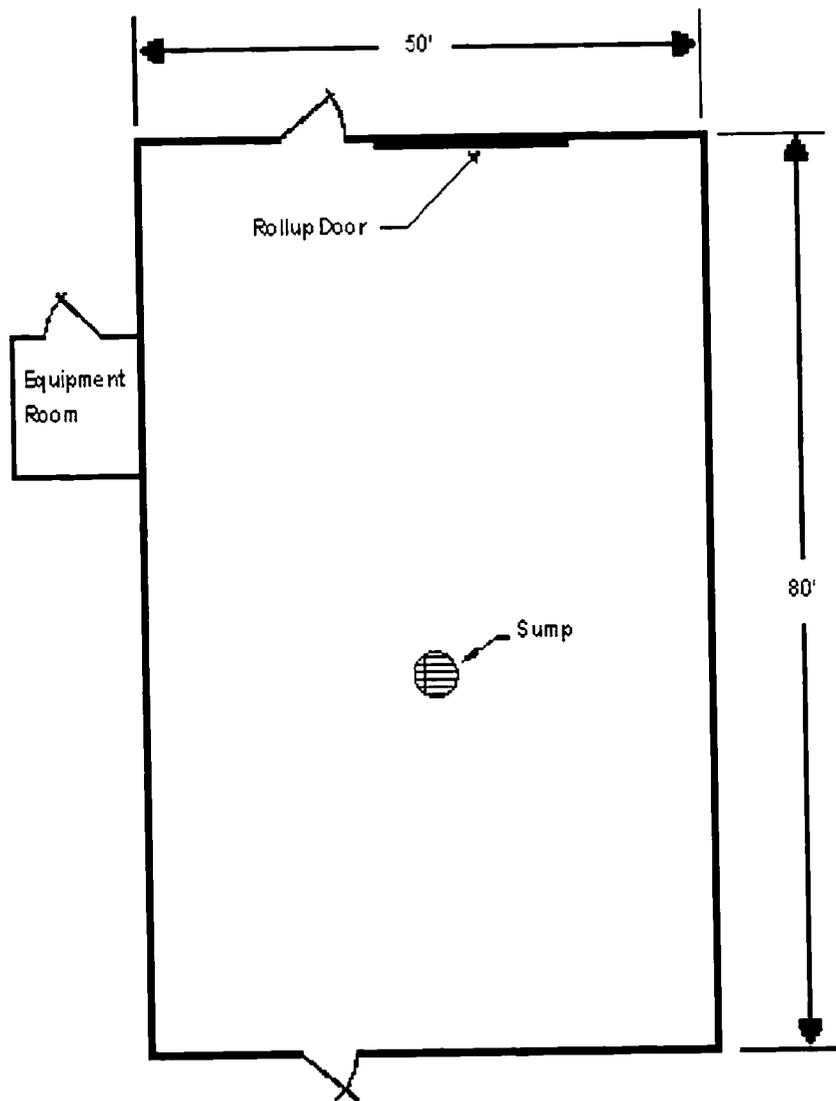


Fig. 5-11. (Proposed) Solid Low-Level Waste Staging Facility, Building 7580.

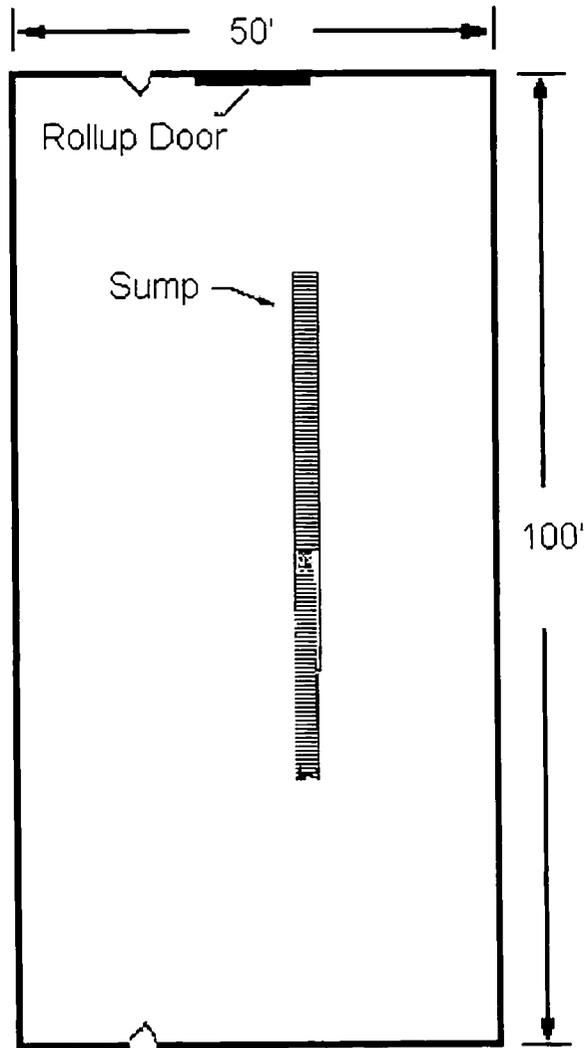


Fig. 5-12. (Proposed) Bulk Contamination Soil Storage Facility, Building 7576.

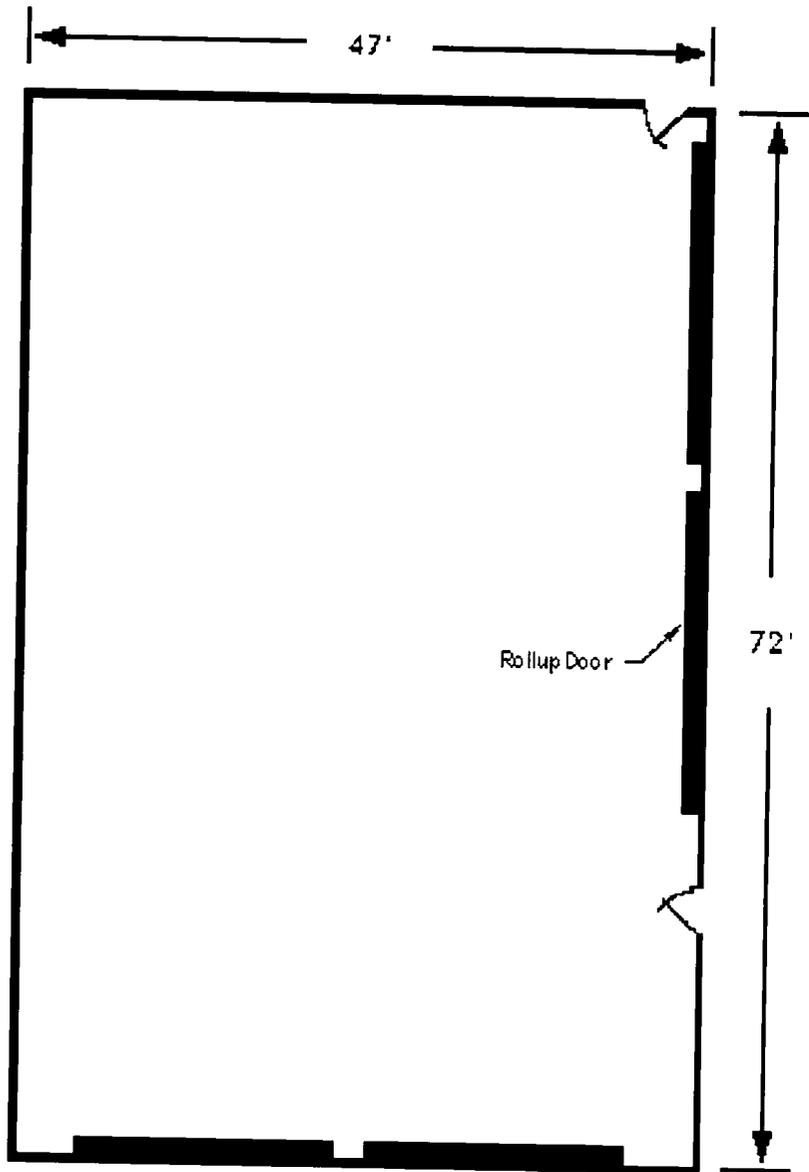


Fig. 5-13. SWSA 6 Waste Storage Facility, Building 7842.

APPENDIX 4-1

Job Description

Position: Waste Operations Manager

Examples of Required Skills:

1. Knowledge of hazardous and/or mixed waste operations and management.
2. Knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11).

Required Education:

1. College degree in engineering, chemistry, or a science-related field, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Provides technical input to Waste Operations (including DOE, ORNL, or other ORR contractors when applicable) on development of waste acceptance criteria, emergency response, and other tasks related to hazardous and/or mixed waste management.
2. Provides technical input and assistance to audit teams during assessments of hazardous waste operations at ORNL.
3. Assumes responsibility for the management of hazardous and/or mixed waste operations in accordance with current site, DOE, state, and other applicable policies, procedures, orders, and/or regulations. Waste operations activities typically include:
 - waste acceptance,
 - transportation (off-site and on-site),
 - handling, processing, and/or packaging/repackaging,
 - treatment,
 - storage, and/or
 - disposal.

Job Description

Position: Waste Operations Supervisor

Examples of Required Skills:

1. Experience in supervising personnel.
2. Knowledge of hazardous and/or mixed waste operations and management.
3. Knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR).

Required Education:

1. College degree in engineering, chemistry, or a science-related field, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Provides technical assistance, when applicable, on waste classification, characterization, and other waste acceptance functions/activities.
2. Prepares/provides input for development/revision of Waste Operations assessments, standard operating procedures, and/or waste management plans, when applicable.
3. Prepares and/or coordinates shipments of hazardous and/or mixed wastes.
4. Supervises/supports activities for the management of hazardous and/or mixed waste in accordance with current site, DOE, state, and other applicable policies, procedures, orders, and/or regulations. Waste operations activities typically include:
 - waste classification and/or acceptance,
 - recordkeeping,
 - transportation (off-site and on-site),
 - handling, processing, and/or packaging/repackaging,
 - treatment,
 - storage, and/or
 - disposal.
5. Interfaces with applicable organizations (i.e., P&E, Radiation Protection, Environmental Compliance, Industrial Hygiene, QA, etc.) concerning hazardous and/or mixed waste operations and/or waste acceptance.
6. Supervises/assists with spill response activities, when applicable.

7. Investigates, evaluates, and develops occurrence reports, when required.

Job Description

Position: Waste Operations Technical Staff

Examples of Required Skills:

1. Knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR), and/or DOE orders for mixed wastes, as appropriate.

Required Education:

1. College degree in engineering, chemistry, or a science-related field, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Provides technical assistance to generators on waste documentation, packaging, classification, characterization, and other waste acceptance functions/activities.
2. Prepares/provides input and guidance for development/revision of Waste Operations assessments; standard operating procedures; waste management plans, when applicable; and/or corrective actions.
3. Prepares/generates internal reports, such as inventory of hazardous/mixed wastes, wastes generated by division, and/or off-site shipping reports, when required.
4. Reviews Request for Disposal (RFD) formsets and performs QA/QC checks on RFDs and the waste tracking system.
5. Interfaces with applicable organizations (i.e., P&E, Radiation Protection, Environmental Compliance, Industrial Hygiene, QA, etc.) concerning hazardous and/or mixed waste operations.
6. Manages activities related to assigned facility(ies) (i.e., building maintenance, improvements, etc.), where applicable.
7. Assists with shipments of hazardous and/or mixed wastes.
8. Investigates, evaluates, and develops occurrence reports, when required.

Job Description

Position: Waste Operations Foreman

Examples of Required Skills:

1. Experience in handling/processing operations and knowledge of the hazards associated with hazardous and/or mixed wastes.
2. Basic knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR).

Required Education:

1. High school graduate and three to five years experience in hazardous and/or mixed waste operations, or
2. College degree¹ in a technical field pertinent to hazardous waste management operations, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Supervises and coordinates routine waste handling activities, including, but not limited to:
 - waste pickup from generator areas (i.e., review of waste disposal forms, waste segregation, and container labeling and packaging prior to pickup);
 - waste transport to the permitted waste storage units (i.e., use of proper transport vehicles, use of properly trained personnel for the transport of hazardous waste); and
 - proper waste segregation and storage activities based on waste classification.
2. Ensures RCRA inspections are performed as required and records (including unit operating records and inventory logbooks) are complete and up to date.
3. Assists in preparation of shipments of hazardous and/or mixed wastes including packaging, marking and labeling waste.
4. Assists in spill response, when necessary.

¹ Required only with certain specified duties. See Waste Operations Training Department records for details.

Job Description

Position: Waste Operations Technician/Chemical Operator

Examples of Required Skills:

1. Experience in handling/processing operations and knowledge of the hazards associated with hazardous and/or mixed wastes.
2. Familiarity with RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR).

Required Education:

1. Associate degree in a technical field pertinent to hazardous waste management operations, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Responsible for performing various job assignments associated with waste handling activities, including, but not limited to:
 - arranging or assisting with hazardous and/or mixed waste pickup from generator areas (i.e., verification of waste location, quantity, etc.);
 - packaging, labeling and marking waste and/or transport container(s) in accordance with applicable requirements;
 - coordinating crews for waste pick-up¹; and
 - determining waste storage location¹.
2. Ensures RCRA inspections are performed as required and records are complete and up to date.
3. Assists in segregation of wastes according to chemical classification.
4. Assists in the treatment of reactive wastes, when applicable¹.
5. May assist generators with proper requirements and waste acceptance criteria for waste packaging and disposal.
6. Participates as a spill responder² and performs associated cleanup activities.
7. Helps maintain waste storage units and equipment.

¹ Technician level duties.

² When applicable to individual employee.

Job Description

Position: Other Specialized Support

Examples of Required Skills:

1. Knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR).

Required Education:

1. Associate degree in a technical field pertinent to hazardous waste management operations, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Assists with classification of wastes.
2. Assists, as necessary, with shipment of hazardous wastes.
3. Assists with providing information for generators on chemical waste disposal problems.
4. Assists field operations in resolving classification questions.

Job Description

Position: Laborer/Truck Driver

Examples of Required Skills:

Physical ability to perform manual labor and familiarity with general chemical hazards.

Required Education:

High school education or equivalent work experience.

Examples of Job Duties:

Performs pickup and transport of hazardous and/or mixed wastes to storage units under WO supervision.

Job Description

Position: Forklift Operators

Examples of Required Skills:

Ability to operate heavy machinery and familiarity with general chemical hazards.

Required Education:

High school education or equivalent work experience.

Examples of Job Duties:

Operate forklift to move containers of waste.

APPENDIX 4-2 TRAINING CONTENT

General Employee Training

This course is provided to new employees and repeated for all employees on a biennial basis. It provides information on emergency alarms, emergency communications, basic spill or emergency response, basic radiation safety, and employee responsibilities.

Radiation Worker

This course instructs employees on how to work safely in radiological conditions while keeping exposures ALARA. Topics covered include sources and types of radiation, biological effects of ionizing radiation, dosimetry, ALARA, emergency preparedness, and protective clothing.

Hazardous Waste Operations Training

The curriculum involves an overview of the regulations and requirements of RCRA and emergency response and equipment. Topics are specific to job/tasks being performed and may include all or part of the following: regulatory overview; treatment, storage, disposal requirements; hazardous waste characterization; low-level waste; accumulation area requirements/forms; land disposal restrictions; emergency procedures, communication or alarm systems, responses to fires or explosions, response to hazardous material spills, and shutdown of operations.

24-Hour HAZWOPER Training

This training program describes the fundamentals of industrial hygiene so that employees can take part in their own safety and health protection. Names and telephone numbers of environmental safety and health support groups that can provide assistance are provided. The following topics are covered: overview of regulations, types of hazards, hazard control measures, toxicology, respiratory protection, personal protective equipment, monitoring, and emergency preparedness and response.

HAZWOPER Training for Managers/Supervisors

24-Hour HAZWOPER Training is a prerequisite for this course. This course provides additional information on selection of personal protective clothing and equipment, emergency response and community right-to-know, and legal aspects of supervising waste operations.

HAZWOPER Annual Refresher

This retraining course provides a basic review of health and safety hazards and describes methods to protect personnel from such hazards. The course includes health and physical hazards posed by chemicals, radiation, and confined spaces. Personal protective clothing and equipment, site characterization, site control, decontamination, and spill response are also covered. Any regulatory changes issued after the first course are highlighted.

Spill Response: Operations

This course provides basic training to employees who will encounter spills. It instructs them on how to respond initially to spills of hazardous materials and/or waste (awareness level) and how to properly contain spilled materials. Topics include identification of hazardous materials, chemistry and toxicology of hazardous materials, and basic emergency response.

Spill Response: Technician

This course trains employees on how to respond to and clean up spills of hazardous materials and/or wastes. Topics include incident analysis, emergency response planning, identification of hazardous materials, chemistry and toxicology of hazardous materials, hazard and risk assessment, incident management, personal protective equipment, and decontamination.

Spill Response: Specialist

This course provides additional training to spill response technicians to enable them to lead spill response teams and to respond to spills of extremely hazardous materials.

On-the-Job Operations

The on-the-job operations training focuses on specific on-the-job tasks associated with each job position. This training is frequently based on SOPs for a given activity or operation. Training includes, but is not limited to

- equipment usage and safety (forklifts, drum handling, vehicle loading and unloading, etc.);
- transportation safety (vehicle inspection, road testing, etc.); and
- hazardous waste operations (waste identification, handling, storage, packaging, transportation, facility operating procedures and inspections, and manifesting).