



**California Environmental Protection Agency
Department of Toxic Substances Control**

RCRA HAZARDOUS WASTE FACILITY PERMIT

Facility Name: Lawrence Livermore National
Laboratory
7000 East Avenue
Livermore, California 94550

Owner Name: U.S. Department of Energy
P.O. Box 808, L-293
Livermore, California 94550

Operator Name: Lawrence Livermore National
Security, LLC.
P.O. Box 808, L-001
Livermore, California 94550

EPA ID Number: CA2 890 012 584

Effective Date: **April 18, 2016**

Expiration Date: **April 17, 2026**

Pursuant to California Health and Safety Code section 25200, this Resource Conservation and Recovery Act (RCRA) equivalent Hazardous Waste Facility Permit is hereby issued to: U.S. Department of Energy (DOE) and Lawrence Livermore National Security, LLC.

The issuance of this Permit is subject to the terms and conditions set for in Attachment A and Part "B" Application (Operation Plan) dated July 2015. The Attachment A consists of 111 Pages.

//Original signed by://

Lori Koch, P.E.
Supervising Hazardous Substances Engineer I
Office of Permitting

Date: March 10, 2016

LAWRENCE LIVERMORE NATIONAL LABORATORY
7000 East Avenue
Livermore, California 94550

RCRA HAZARDOUS WASTE FACILITY PERMIT

ATTACHMENT "A"

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Part I. DEFINITIONS

All terms used in this Permit shall have the same meaning as those terms have in the California Health and Safety Code, Division 20, Chapter 6.5, and California Code of Regulations, title 22, division 4.5, unless expressly provided otherwise by this Permit.

1. **“DTSC”** as used in this Permit means the California Department of Toxic Substances Control.
2. **“Facility”** as used in this Permit means all contiguous land and structures, other appurtenances, and improvements on the land used for the treatment, transfer, storage, resource recovery, and disposal or recycling of hazardous waste. A hazardous waste facility may consist of one or more treatment, transfer, storage, resource recovery, disposal or recycling operational units or combinations of these units.

For the purpose of implementing corrective action under California Code of Regulations, title 22, division 4.5, a hazardous waste facility includes all contiguous property under the control of the owner or operator required to implement corrective action.

3. **“Permittees”** as used in this Permit means the Owner and Operator.
4. **“RCRA”** as used in this Permit means the Resource Conservation and Recovery Act (42 U.S.C. §6901 et seq.).
5. **“RCRA hazardous waste”** as used in this Permit has the same definition as in Health and Safety Code section 25120.2.
6. **“Mixed Waste”** as used in this permit is defined as any waste containing both a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) and source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954.
7. **“STP”** as used herein shall refer to the Site Treatment Plan for Lawrence Livermore National Laboratory, prepared pursuant to the Federal Facility Compliance Act by the U.S. Department of Energy, dated February 1997.

Part II. DESCRIPTION OF THE FACILITY AND OWNERSHIP

1. Owner of Facility

United States Department of Energy
P.O. Box 808, L-293
Livermore, California 94551

2. Owner of Real Property

United States Department of Energy
P.O. Box 808, L-293
Livermore, California 94551

3. Operator

Lawrence Livermore National Security, LLC.
P.O. Box 808, L-293
Livermore, California 94550

4. Location

Lawrence Livermore National Laboratory (LLNL) is located at 7000 East Avenue in Livermore, Alameda County. The parcel number is 99A-1475-5-7. (See Figure 1 and Figure 2)

5. Description of Facility Operations

When it was established in 1952, LLNL's primary mission was conducting research on nuclear weapons. Since then, other major programs have been added and removed to meet national needs including magnetic fusion energy, laser fusion and laser isotope separation, biomedical and environmental sciences, and applied energy technology. These programs require research in physics, chemistry, materials science, computer science and technology, biological sciences, and engineering. These programs generate hazardous and mixed waste. LLNL treats and stores these wastes in tanks and containers before sending them for final treatment or disposal at an authorized TSDF. The Facility also has the capability to macro-encapsulate containers with specific waste streams in order to meet Land Disposal Requirements (LDR).

6. Facility History

On May 16, 1983, DTSC granted an Interim Status Document to U.S. Department of Energy as the operator of the Lawrence Livermore National Laboratory facility authorizing the management of hazardous waste. On

November 19, 1999, DTSC issued a Resource Conservation and Recovery Act (RCRA) equivalent Permit for the Lawrence Livermore National Laboratory to be operated by the U.S. Department of Energy and the University of California Regents which allowed the continued management of hazardous waste activities with an expiration date of November 19, 2009. The Permit was modified on October 1, 2007 to reflect a single Operator, Lawrence Livermore National Security, LLC. The Permit has also been modified and updated many times since it was issued to ensure that it remained current and enforceable.

The Lawrence Livermore National Security, LLC., and the U.S. Department of Energy submitted a timely renewal RCRA hazardous waste facility permit application on April 23, 2009. By law, the Lawrence Livermore National Security, LLC., is allowed to operate under the conditions of the current permit until a final decision is made on the 2009 permit application.

7. Facility Size and Type for Fee Purposes

This Permit is categorized as a small treatment facility and a large storage facility pursuant to Health and Safety Code section 25205.1(j) and 25205.(c) respectively for purposes of Health and Safety Code section 25205.2 and 25205.19.

8. Closure Cost Estimate

LLNL is owned by the federal government and is exempt from the requirements to provide a closure cost estimate and financial assurance mechanisms for closure in accordance with California Code of Regulations, title 22, section 66264.140(c).

Part III. GENERAL CONDITIONS

1. Permit Application Documents

The permit application consisting of the Part "A" and Part "B" Application (Operation Plan) titled "Part A Permit Application and Part B Permit Application for Hazardous Waste Treatment and Storage Facilities LLNL, Livermore Site", dated October 2014 is hereinafter referred to as the "Permit Application" and is hereby made a part of this Permit by reference.

2. Effect of Permit

- (a) The Permittees shall comply with the terms and conditions of this Permit and the provisions of the Health and Safety Code and California Code of Regulations (Cal. Code Regs.), title 22, division 4.5. The issuance of this Permit by DTSC does not release the Permittees from any liability or duty imposed by federal or state statutes or regulations or local ordinances, except the obligation to obtain this Permit. The Permittees shall obtain the permits required by other governmental agencies, including but not limited to, those required by the applicable land use planning, zoning, hazardous waste, air quality, water quality, and solid waste management laws for the construction and/or operation of the Facility.
- (b) The Permittees are permitted to store and treat hazardous wastes in accordance with the terms and conditions of this Permit. Any management of hazardous wastes not specifically authorized in this Permit is strictly prohibited.
- (c) Compliance with the terms and conditions of this Permit does not constitute a defense to any action brought under any other law governing protection of public health or the environment, including, but not limited to, one brought for any imminent and substantial endangerment to human health or the environment.
- (d) DTSC's issuance of this Permit does not prevent DTSC from adopting or amending regulations that impose additional or more stringent requirements than those in existence at the time this Permit is issued and does not prevent the enforcement of these requirements against the Permittees.
- (e) Failure to comply with any term or condition set forth in the Permit in the time or manner specified herein will subject the Permittees to possible enforcement action including but not limited to penalties pursuant to Health and Safety Code section 25187.

- (f) Failure to submit any information required in connection with the Permit, or falsification or misrepresentation of any submitted information is grounds for revocation of this Permit (Cal. Code Regs., tit. 22, §66270.43)
- (g) In case of conflicts between the Operation Plan and the Permit, the Permit conditions take precedence.
- (h) This Permit includes and incorporates by reference any conditions of waste discharge requirements issued to the Facility by the State Water Resources Control Board or any of the California Regional Water Quality Control Boards and any conditions imposed pursuant to section 13227 of the Water Code.

3. Compliance with California Environmental Quality Act (CEQA)

DTSC performed an analysis using a *California Environmental Quality Act, Guidelines Sections 15162, 15163 and 15164 Environmental Document Analysis* and determined that an Addendum to the previous Initial Study/Negative Declaration issued in 1999 was the appropriate environmental document to prepare for consideration of approval for the project

4. Annual Hazardous Waste Reduction and Minimization Certification

The Permittees shall certify annually that it has a hazardous waste reduction and minimization program and method in place and shall keep the annual certification as part of its Operating Record in accordance with California Code of Regulations, title 22, section 66264.73(b)(9).

5. Access

- (a) DTSC, its contractors, employees, agents, and/or any United States Environmental Protection Agency representatives are authorized to enter and freely move about the Facility for the purposes of interviewing Facility personnel and contractors; inspecting records, operating logs, and contracts relating to the Facility; reviewing progress of the Permittees in carrying out the terms of Part VI of the Permit; conducting such testing, sampling, or monitoring as DTSC deems necessary; using a camera, sound recording, or other documentary-type equipment; verifying the reports and data submitted to DTSC by the Permittees; or confirming any other aspect of compliance with this Permit, Health and Safety Code, division 20, chapter 6.5, and California Code of Regulations, title 22, division 4.5. The Permittees shall provide DTSC and its representatives access at all reasonable times to the Facility and any other property to which access is required for implementation of any provision of this Permit, Health and Safety Code, division 20 chapter 6.5, and California

Code of Regulations, title 22, division 4.5, and shall allow such persons to inspect and copy all records, files, photographs, documents, including all sampling and monitoring data, that pertain to work undertaken pursuant to the entire Permit or undertake any other activity necessary to determine compliance with applicable requirements.

- (b) Nothing in this Permit shall limit or otherwise affect DTSC's right to access and entry pursuant to any applicable State or Federal laws and regulations.

PART IV. PERMITTED UNITS AND ACTIVITIES

This Permit authorizes operation only of the units and activities listed below. The Permittees shall not treat, store or otherwise manage hazardous waste in any unit other than those specified in this Part IV. Any modifications to a unit or activity authorized by this Permit require the written approval of DTSC in accordance with the permit modification procedures set forth in California Code of Regulations, title 22, division 4.5.

UNIT #1:

UNIT NAME:

Area 625 Tank Trailer Storage Unit

LOCATION:

See Figure 5

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used for the storage of hazardous waste in DOT-compliant containers such as drums on a flatbed truck, tank trailer, vacuum truck, etc.

PHYSICAL DESCRIPTION:

This Unit is a trailer loading dock and consists of an open air recessed concrete secondary containment structure designed for the storage of a 5,000-gallon tank trailer, vacuum truck, or flatbed trailer. The top of the Unit is flush with the local grade level. It has a 90 feet x 9 feet storage footprint. Approximately 50 feet of the trailer bay is 4 feet below grade.

The base, including the ramp and walls of the Unit, is constructed of an 8-inch thick reinforced concrete, and is designed for 250 pounds per square foot (psf) live load. The concrete slab is underlain by 8 inches of class 2 aggregate, compacted to 95% relative density. All concrete surfaces exposed to the weather are epoxy coated, providing a water-tight, chemical-resistant surface suitable for waste storage. Removable guardrails surround the Unit on three sides (See Figure 6).

MAXIMUM CAPACITY:

The maximum permitted storage capacity is 5,000 gallons. (See Table 1)

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #2:

UNIT NAME:

Area 625 Container Storage Unit

LOCATION:

See Figure 5

ACTIVITY TYPE:

Storage in container (S01)

ACTIVITY DESCRIPTION:

This Unit is used for the storage of hazardous or mixed waste that does not contain free liquids in containers.

PHYSICAL DESCRIPTION:

This Unit consists of an asphalt pad with two fabric structures that cover most of the storage area and provide protection from precipitation. The North structure is 100 feet long by 30 feet wide. The South structure is 100 feet long by 50 feet wide (See Figure 7).

MAXIMUM CAPACITY:

The maximum permitted capacity is 38,400 cubic feet. (See Table 1)

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #3:

UNIT NAME:

Building 625 Container Storage Unit

LOCATION:

See Figure 5

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used to store hazardous wastes and mixed waste in containers.

PHYSICAL DESCRIPTION:

This Unit is a 4,800 square foot metal framed structure with corrugated metal sides and roof. The floor is epoxy coated. The inside area is enclosed by an 18 inch wide, 6 inch high concrete berm. A one foot high concrete berm bisects the containment area to provide two separate containment cells (West and East cells) which are each 59 feet by 39 feet (See Figure 8).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #4:

UNIT NAME:

Building 693 Container Storage Unit

LOCATION:

This Unit is located in the south area of the Decontamination and Waste Treatment Facility (DWTF), east from Building 695 (See Figure 9).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used for the storage hazardous and mixed waste in containers.

PHYSICAL DESCRIPTION:

This Unit is a steel structure building with a coated concrete floor. There are five (5) individual rooms. Each room has separate containment capacity which allows for the segregation of incompatible wastes if needed.

Room 1014 is located on the northern end of Building 693 (See Figure 10) and is a rectangular room 30 feet wide by 60 feet long sloped to a containment trench. An

epoxy-coated trench, 56 feet long x 2 feet wide and 2 feet long, runs length-wise, approximately 8 feet from the south wall of the room. The trench has a containment volume of 1,675 gallons. If filled, the trench will flow through chemical-resistant piping plumbed to a 20,000-gallon fiberglass-reinforced plastic underground containment tank (See Figure 11).

The remaining four rooms 1000, 1004, 1008, and 1012 are located south of Room 1014 and each slopes to a sump in the center of each of their respective room. Rooms 1000 and 1012 have a width of 28.8 feet and a length of 77.8 feet. Rooms 1004 and 1008 have a width of 29.0 feet and a length of 77.8 feet. The sump in each room is centrally located and measure two feet wide by two feet long by two feet deep (See Figure 10).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #5:

UNIT NAME:

Building 693 Freezer Unit

LOCATION:

This Unit is located in the northwest corner of Building 693 in the DWTF complex. (See Figure 9)

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit provides cold storage for hazardous waste, mixed waste, and radioactive waste in small containers. This Unit is also used for the storage of biological waste including animal carcasses that may have hazardous waste constituents and/or mixed waste. The standard operating temperature for this Unit is zero to twenty degrees Fahrenheit. The freezer temperature is low enough to maintain animal carcasses and most biological wastes in a frozen state, not requiring secondary containment. Wastes with a depressed freezing point will be managed in the 16-gauge stainless steel secondary containment pan.

PHYSICAL DESCRIPTION:

This Unit is a covered walk-in freezer approximately 10 feet wide by 12 feet long by 9 feet high located under a 30 feet by 20 feet canopied area. The fabricated rectangular stainless steel secondary containment pan is 2.8 feet long by 2.8 feet wide with four 0.58 feet stainless walls bead welded together forming a leak-tight and corrosion-resistant containment unit (See Figure 12). The unit has shelves where hazardous and/or mixed waste that does not contain free liquids as well as non-hazardous waste will be stored in containers for disposal at an authorized facility.

MAXIMUM CAPACITY:

The maximum permitted storage capacity is 30 gallons of hazardous and/or mixed waste that contain free liquids and 250 cubic feet of hazardous and/or mixed waste that does not contain free liquids stored in containers. (See Table 1)

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall place all containers holding liquid hazardous waste in the secondary containment pan.

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #6:

UNIT NAME:

DWTF Roll-Off Bin Storage Unit

LOCATION:

This Unit is located on the east side of the DWTF, south of Building 696 and north of Building 693 (See Figure 9).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is a concrete surface, primarily used to store bins that contain empty and crushed containers and other solid debris. Drums may also be stored in this area. To prevent contact with run-on, containers shall be kept sealed and elevated. The roll-off bins are constructed of steel and may vary in sizes. The bins are lined with plastic and equipped with lids that can be secured. When full, the bins are shipped to an authorized disposal facility. The Unit can store a maximum of two Roll-off bins, when available, as well as other size containers.

PHYSICAL DESCRIPTION:

This Unit is a 30 feet wide by 30 feet long concrete surface (See Figure 13).

MAXIMUM CAPACITY:

The maximum permitted storage is 2,160 cubic feet.

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

The Permittees shall not store hazardous waste that contains free liquids in this Unit.

UNIT #7:

UNIT NAME:

Building 695 Airlock Container Storage Unit

LOCATION:

The Unit is located in Building 695 of the DWTF complex and occupies Room 1027 and 1028 (See Figure 14).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used for the storage of hazardous waste in containers. Hazardous waste assigned for treatment is transported in a container to this Unit for storage. This area is also used for treatment using any of four miscellaneous treatment units (Evaporators Unit, Centrifuge Unit, Wastewater Filtration Unit, and Drum Rinsing Unit), depending on the type of treatment required as specified in the operations plan.

PHYSICAL DESCRIPTION:

This Unit consists of Room 1027 and 1028 within Building 695. Room 1027 is a 40 feet by 60 feet room that slopes from the northeast corner to the west with a decrease in elevation of 4 inches to a trench running along the west wall of the building. A 16 inch thick wall with a roll up door and a standard doorway separates Room 1027 from Room 1028-1029 (See Figure 15).

Room 1028-1029 is nominally 122 feet by 88 feet, with 10,500 square feet of floor surface. The floor surface for Room 1028-1029 is sloped 4 inches from east to west to a 2 feet by 2.3 feet by 180 feet long containment trench running along the west wall of the building. The containment trench is sloped to a centrally located sump in room 1028. Nine 5,000-gallon above-ground waste treatment tanks are located in Room 1029 (discussed in Unit # 13 of this Permit). Three or four miscellaneous treatment units (Evaporators, Centrifuge, Wastewater Filtration, and Drum Rinsing) are placed in Room 1028 when in use (See Figure 15).

MAXIMUM CAPACITY:

The maximum storage capacity is 12,000 gallons. (See Table 1)

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #8:

UNIT NAME:

Building 695 Reactive Waste Storage Unit

LOCATION:

This Unit is located in the northeastern corner of Building 695 in the DWTF Complex (See Figure 14).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used for storage of reactive hazardous waste in containers.

PHYSICAL DESCRIPTION:

This Unit consists of four rooms (Rooms 1019 to 1022) within Building 695. Rooms 1019 to 1022 are nominally 11 feet wide by 18 feet long with a design live load for the secondary containment floor of 250 psf to accommodate heavy equipment, including forklifts. The foundation of the floor consists of 6-mil polyethylene liner underlain by approximately two inches of sand and four inches of well-graded gravel. Each of the rooms consists of an 8-inch thick, reinforced concrete slab-on-grade sloped to a centrally located trench measuring 9.3 feet long by 3 feet wide by 3 feet deep with a containment capacity of 630 gallons. In the event that a secondary containment sump or trench is filled due to a release, the excess volume will gravity flow via chemical resistant FRP pipe into a 20,000 gallon FRP underground tank (See Figure 11). The

containment tank is outfitted with an electronic liquid level/leak detection monitor connected to a control panel located on the south wall of Building 696 (See Figure 16).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall store incompatible wastes in separate rooms.

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #9:

UNIT NAME:

Building 696 – Rooms 1010 and 1011 Storage Unit

LOCATION:

This Unit is located in the east end of Building 696 (See Figure 17).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used for storage of hazardous waste and mixed waste in containers.

PHYSICAL DESCRIPTION:

Room 1010 and 1011 are each nominally 81 feet long by 60 feet wide, or 4,860 square feet. The floor in each room slopes 8 inches from the south side of the room to the containment trench running along the north wall. The containment trench is 59 feet long, 2.5 feet wide with a minimum depth of 3 feet. The containment trench is sloped to a 6.25 cubic foot sump which allows for collection and removal of spilled materials in the containment area. (See Figure 18)

The piping that allows for interconnection to the other rooms of Building 696 is capped to allow for the segregation of incompatible waste.

Both rooms are constructed with an 8-inch thick reinforced concrete slab-on-grade floor system. The design live load for the secondary containment floor is 250 pounds per square foot (psf) to accommodate waste handling equipment and management of waste in portable tanks. The foundation below the concrete floor consists of 6-mil polyethylene liner underlain by approximately two inches of sand and four inches of well-graded gravel. The sand and gravel foundation was installed according to ASTM 1557 to provide a minimum of 90% of the maximum density for the necessary structural support.

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #10:

UNIT NAME:

Building 696 – Rooms 1001, 1007, 1008, and 1009 Storage Unit

LOCATION:

This Unit is located in the west end of Building 696 (See Figure 17).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used for storage of hazardous waste and mixed waste in containers.

PHYSICAL DESCRIPTION:

This Unit consists of four rooms within Building 696 that have coated concrete floors, all are separated by walls and slope to the north. The containment trench running the inside length of the north wall of the building passes through rooms 1001 and 1009. An 8-inch pipe in the wall separating room 1001 and room 1009 connects the trench in both rooms. The containment trench is covered by heavy duty steel grating allowing for visual inspection and access for waste removal and cleanup if necessary. All four rooms are constructed with an 8-inch thick reinforced concrete slab-on-grade floor system. The design live load for the secondary containment floor is 250 psf to accommodate waste handling equipment and management of waste in portable tanks. The foundation below the concrete floor consists of 6-mil polyethylene liner underlain by approximately two inches of sand and four inches of well-graded gravel. The sand and gravel foundation was installed according to ASTM 1557 to provide a minimum of 90% of the maximum density for the necessary structural support.

Room 1001 is nominally 81 feet long by 44 feet wide and slopes 8 inches to the north to a containment trench that runs along the north wall of the building. Room 1001 has a floor surface of 3564 square feet. The containment trench is 42 feet long and 2.5 feet wide with a minimum depth of 3 feet. The containment trench slopes down to a 6.25 cubic foot sump that provides complete drainage of the containment area and provides for removal of spilled materials (See Figure 19).

Room 1007 is nominally 24 feet wide by 31 feet long with 720 square feet of floor surface. In the event of a spill, liquid will flow north through the rollup door into the Room 1009 containment trench (See Figure 19).

Room 1008 is nominally 33 feet long by 19 feet wide with 630 square feet of floor surface. In the event of a spill, liquid will flow north through the doorways into the Room 1009 containment trench (See Figure 19).

Room 1009 is the largest room with an L-shape configuration and a surface area of 5324 square feet. It nominally measures 82 feet on the north wall and 62 feet on the west wall. The distance from the south entrance of this room to the rollup door and doorways of Rooms 1007 and 1008 respectively is 31 feet. Room 1009 is designed to drain spilled materials to the containment trench located along the north wall of the building. The containment trench is sloped to a 6.25 cubic foot sump, located in the middle of the trench, to allow drainage and removal of accumulated spilled materials (See Figure 19).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #11:

UNIT NAME:

DWTF Portable Tank Storage Pad

LOCATION:

This Unit is located in the northeast corner of the DWTF complex (See Figure 9).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used to store hazardous waste and mixed waste in containers ranging in size from 330 gallons to 5,000 gallons. Waste managed in this Unit is typically stored in portable tanks and tanker trailers. Containers are elevated by pallets, skids, or trailers.

PHYSICAL DESCRIPTION:

This Unit is nominally 60-feet wide by 70-feet long with 4,120 square feet surface area and consists of 12-inch thick reinforce slab-on-grade concrete that slopes approximately 27 inches down to the north wall. This Unit is also surrounded on three sides by 8-inch thick reinforced coated concrete walls and slopes, from south to north, providing 4.9 inches of fall for every 10 feet of pad surface. The concrete slab is coated and is underlain with 6 inches of Class 2 aggregate base. The gravel layers are compacted to provide the required structural support.

Additionally, to allow the pad to drain, the north side is also sloped from east to west to a 6 cubic foot sump that forms the low point in this Unit. The Unit is protected from run-on by a small asphalt berm at the south end of the unit (See Figure 20).

MAXIMUM CAPACITY:

The maximum permitted storage capacity is 22,000 gallons. (See Table 1)

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #12:

UNIT NAME:

DWTF Container Storage Unit

LOCATION:

This Unit is located adjacent to Building 695 at the west end of the DWTF complex (See Figure 9).

ACTIVITY TYPE:

Storage in containers (S01)

ACTIVITY DESCRIPTION:

This Unit is used for the storage of hazardous and/or mixed waste that does not contain free liquids in containers.

PHYSICAL DESCRIPTION:

This Unit consists of an asphalt surface measuring 110 feet long by 90 feet wide. The surface has a slight slope towards the north side (See Figure 21).

MAXIMUM CAPACITY:

The maximum permitted storage capacity is 23,900 cubic feet. (See Table 1)

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall not store hazardous and/or mixed waste that contains free liquids in this Unit.
2. Within 30 days after the effective date of this Permit, the Permittees shall mark the boundary of this Unit.

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 28.5.

UNIT #13:

UNIT NAME:

Building 695 Tank Farm

LOCATION:

This Unit is located in Room 1029 within Building 695 of the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Storage and treatment in tanks (T01)

ACTIVITY DESCRIPTION:

The Unit is used for the treatment and storage of hazardous waste and mixed waste in tanks. The majority of wastes processed through the Unit are aqueous based liquids that contain dilute concentrations of acids, bases, metal salts, and small amounts of organic compounds. The tanks are filled on a batch basis when waste is transported to the Tank Farm in containers ranging from small jugs to 5000-gallon tank trailers.

The liquid waste may be unloaded into a receiving tank via the waste transfer system which consists of two individual transfer lines to transfer untreated waste and treated effluent between waste containers, treatment systems (Units #14, #15, #18, and #21), and this Unit. Once the waste enters the waste transfer lines, valves can be operated to route the waste to the appropriate tank(s), in which treatment occurs. Small quantities of ignitable and reactive wastes may be processed in this Unit by following the approved process as explained in Volume 1, section 6.3 of the Operation Plan.

Should ignitable or reactive waste be handled in this Unit, the operator follows special precautions by isolating the waste from ignition sources, evaluating waste characterization information to ensure compatibility with materials of construction and tank contents, ensuring that the tanks are thoroughly rinsed to eliminate the potential for undesired reactions, treating the waste expeditiously in controllable small batches, and ensuring that the tank contents are well mixed during the blending process and when adding chemical reagents. In addition, incompatible wastes are not placed in the same tank unless the radioactive and hazardous waste management process engineer or chemist has approved the process to be implemented. All treatment processes are approved by appropriate facility supervisor.

Once wastes are consolidated in the appropriate tank within this Unit, chemical treatment of the waste is performed. The reagents added to the waste for the chemical treatment are dependent on the constituents and whether the solution will undergo

further treatment by evaporation or filtration. The reagents are stored in six tanks located outside of Building 695 and are not part of this Unit. These reagents include sodium hydroxide, sulfuric acid, hydrogen peroxide, ferric sulfate, and a polyelectrolyte polymer. All reagent lines include metering pumps for controlled addition of the chemicals to the Tank Farm. A programmable logic controller (PLC) system is used to control valves, pumps, and mixers associated with this Unit.

Once the chemical treatment is completed, the waste can be further treated by filtration (Unit #21) and/or evaporation (Unit #14). After filtration and/or evaporation, the waste and effluents are sent in containers for further treatment in other miscellaneous units within LLNL, for disposal to an authorized TSDF, or, if analysis allows, are sent to the sanitary sewer in accordance to the Clean Water Act.

PHYSICAL DESCRIPTION:

This Unit consists of nine 5,000-gallon, above-ground closed-top storage/treatment tanks located in Room 1029. The tanks are constructed of fiberglass-reinforced plastic (Hetron 922 or equivalent). Each tank is cylindrical with a conical bottom and a domed roof. Each tank has an inside diameter of 8.0 feet and sidewall thickness ranging from 0.315 to 0.415 inches. The tanks have a specified design pressure and temperature of 10 pounds per square inch gauge (psig) and 150 °F accordingly. A variable-speed, top-entering mixer is permanently mounted in each tank to support blending operations and chemical reactions. In addition each tank is equipped with a sampling valve and a pressure relief valve. The pressure relief valve is located at the roof of the tank and will open if the pressure exceeds 10 psig. The tanks are vented through a closed-vent system to an off-gas air emission control device.

The Unit sits on an 8-inch thick reinforced concrete pad with a design load of 250 pounds per square feet and sloped towards a trench conforming to ASTM C150 standards for 8-inch, thick slab-on-grade flooring. The foundation for the floor consists of 6-mil polyethylene liner underlain by approximately two inches of sand and four inches of well-graded gravel and was installed according to ASTM 1557 standards to provide a minimum of 90% of the maximum density for the necessary structural support. The polyethylene liner prevents moisture from migrating into the containment flooring.

This Unit also has two individual transfer lines, constructed of stainless steel, to move waste and clean effluent to and from the Tank Farm that run in parallel along the western wall of Building 695 between this Unit and Room 1027. Waste that enters the transfer lines can be routed to any one of the nine tanks by opening and closing valves automatically controlled by a programmable logic controller (PLC). The PLC also controls high-level alarms and has an automatic feed shut-off to prevent overflow.

In addition, this Unit has a chemical feed system that is separate from the waste transfer lines and is also controlled by the PLC. The chemical feed system includes a dedicated metering pump and feed line for each of the five chemical reagents (See Figure 22).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

AIR EMISSION STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, articles 27 and 28.5.

UNIT-SPECIFIC SPECIAL CONDITION:

1. After storing or treating mixed waste, radiologic decontamination shall be performed before storing or treating hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operation Plan.

UNIT #14:

UNIT NAME:

Building 695 Evaporators Unit

LOCATION:

This Unit is located in Room 1028 within Building 695 (See Figure 14)

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

This Unit consists of two evaporators, a CalFran Evaporator (Model STU5000) and a ISA evaporator. Each is used for the treatment of mixed and hazardous waste. A vacuum is pulled on the evaporator body through the vacuum pump and separator. This air is then discharged into the ventilation system of Building 695. Waste is fed by vacuum to outer chambers that contain sealed coils. A closed loop refrigeration cycle is used to produce evaporation at vacuum by discharging from a compressor into coils. Compression coils heat the wastewater in the outer chambers to boil the water. Once the refrigerant leaves the heating coils, it goes through a series of expansion valves, then into coils that cool and condense the evaporated wastewater. The wastewater is then discharged into another portable tank or into a tank in Unit # 13 for further treatment.

PHYSICAL DESCRIPTION:

The CalFran evaporator consists of two identical, but independent and separately operable, modules residing on a single skid. Each module consists of two evaporator chambers, a distillate condenser, a refrigeration loop, and a vacuum system. External condensers for the refrigeration loop were installed outside of Building 695 to allow the heat from the compressor to be exhausted to the atmosphere. Refrigerant only (no hazardous waste or mixed waste) flows through these outdoor condensers (See Figure 23).

The ISA evaporator is similar to the CalFran model but is an integrated Unit as opposed to two individual units. The ISA evaporator has no external cooling condensers to eliminate waste heat. This Unit uses re-circulating water to remove waste heat generated during its operation (See Figure 23).

Both evaporators reside on skid-mounted platforms with fork-lift pockets to allow each piece of equipment to be moved within the miscellaneous Unit boundary. Each skid platform is approximately 12 feet wide by 15 feet long.

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall operate this Unit within the boundaries of Unit #7.
2. The Unit shall be decontaminated between treatments of incompatible waste streams.
3. After treating mixed waste, radiologic decontamination shall be performed before treating hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operation Plan.

AIR EMISSION STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 27.

UNIT #15:

UNIT NAME:

Building 695 Centrifuge Unit

LOCATION:

This Unit is located in Room 1028 within Building 695 of the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

The purpose of the centrifuge is to selectively separate heterogeneous liquid/liquid or liquid/solid solutions into different phases or a single phase with stratified layers based on difference in their respective densities. By attaining separated phases that are more homogeneous than the original waste stream, subsequent treatment operations, if required, will be more effective. One goal of the centrifugation process is to reduce the volume of mixed waste by isolating radioactive and/or hazardous waste constituents into one of the separated phases thus allowing the other phases to be managed as non-radioactive and/or non-hazardous materials. This process may also be used to isolate hard-to-treat constituents to achieve cost savings by reducing the amount of waste required to be subsequently treated using specialized and expensive processes.

PHYSICAL DESCRIPTION:

Feed enters the centrifuge from the Tank Farm (Unit #13) or a portable container. The centrifuge is a two-phase or three-phase separator. The centrifuge spins and the densest material (usually water) is driven to the outer periphery and is continuously discharged from the centrifuge. The densest material is periodically ejected with water pressure. The solids, along with some liquid, are discharged to a drum. The Unit consists of a centrifuge that sits on a special pallet in order to be moved using a fork lift. It has two entry lines one for water and another for the feed coming from the Tank Farm. The Unit has three exit ports, two at the top of the column and one and the bottom. (See Figure 24)

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall operate this Unit within the boundaries of Unit #7.
2. When not in use and prior to storing, the Permittees shall decontaminate this Unit.
3. The Unit shall be decontaminated between treatments of incompatible waste streams.
4. After treating mixed waste, radiologic decontamination shall be performed before treating hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operation Plan.

UNIT #16:

UNIT NAME:

Building 695 Solidification Unit

LOCATION:

This Unit is located in Room 1038 within Building 695 of the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

This Unit is used to produce solidified waste that will meet regulatory requirements for off-site land disposal and have long-term leach-resistant characteristics. The uniform and thorough mixing of waste and selected solidification agents is intended to eliminate free liquids and immobilize waste constituents, thus preventing the formation of toxic leachates.

Feed is introduced into a 55-gallon drum through pumping or scooping. Reagent is also added, if needed, into the drum through pumping and solid solidification media is added by scooping. The drum is strapped into place and the mixing blades are placed into the waste and media by hydraulically lowering the hood assembly on to the open-topped drum. The mixer is turned on and allowed to mix. Once complete mixing is visually observed through the hood, the mixing blades are lifted out hydraulically and are scraped off into the waste drum.

PHYSICAL DESCRIPTION:

This Unit is a mixer with a worm drive and motor on top. The Unit has a hood that comes down hydraulically to meet the container. Two mixing blades are used to perform the mixing in the drum. A hydraulic lift located in the back of the Unit is used to lower and lift the worm drive and motor assembly and the drum hood. (See Figure 25)

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. Prior to solidifying a waste stream that is incompatible with the one previously solidified, the Permittees shall decontaminate the parts of the unit that will come in contact with the hazardous waste.
2. After solidifying mixed waste, radiologic decontamination shall be performed on the parts of the unit that came into contact with the mixed waste before solidifying hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operations Plan.

UNIT #17:

UNIT NAME:

Building 695 Shredding Unit

LOCATION:

This Unit is located in Room 1039 within Building 695 of the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

This Unit performs size reduction operations on wastes amenable to this type of treatment. The Unit employs low-speed, high-shear cutting methods to reduce the size of debris by ripping, shearing, and tearing. This Unit may also be used to process non-debris and/or non-hazardous waste materials.

Solid mixed waste and hazardous waste (e.g., debris, filters, and empty containers) can be placed into a drum to be hydraulically lifted to the shredder, or a scaffold can be set up and waste can be directly placed into the hopper. The hopper is then hydraulically closed and waste is shredded through low-speed high-shear counter-rotating teeth. The waste is periodically driven towards the cutting teeth by use of a ram. The shredded material then falls into a box below the cutting teeth. The box of shredded material is removed and may be sent directly for disposal but generally will be washed using the Debris Washer prior to disposal.

PHYSICAL DESCRIPTION:

The Unit consists of a hydraulic lifter, hopper, ram, and cutters. The hydraulic lifter is used to lift a container in order to dump its contents into the hopper. The hopper is the receptacle part where the waste rests prior to being sheered into smaller pieces by the cutters. The cutters are powered by a hydraulic power unit that is located in room 1040. The ram serves as a cover and sits on top of the hopper to prevent waste from exiting the hopper during shredding operation (See Figure 26).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall manage all residues from processing non-hazardous waste or material as hazardous waste unless this Unit is decontaminated prior to treatment of such waste.
2. After shredding mixed waste, radiologic decontamination shall be performed before shredding hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operations Plan.

UNIT #18:

UNIT NAME:

Building 695 Drum Rinsing Unit

LOCATION:

This Unit is located in Room 1027 or 1028 within Building 695 of the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

This Unit serves as the entry point for addition of most liquid waste in containers of 55-gallon drums or less into the Tank Farm (Unit #13). The contents from containers are dumped into the pan and the empty containers are rinsed and decontaminated. The waste and rinsate are allowed to accumulate in the pan until the pan is full. The content is then pumped to the Tank Farm. As the pan becomes empty, it is rinsed. The rinsate then flows through to the Tank Farm. Rinsing is performed by either of two pressurized hot water units or hoses connected to domestic/utility water lines.

This Unit is also used as the catch basin for specialized debris washing or decontamination activities. Contaminated equipment is placed inside the pan and then washed (decontaminated).

PHYSICAL DESCRIPTION:

The overall dimensions of this Unit are approximately 10 feet long by 5 feet wide by 4.5 feet deep with a capacity of approximately 700 gallons. The bottom of the pan is sloped towards a 2-inch drain that is connected to a pump. This Unit has forklift pockets so that the Unit can be moved (See Figure 27).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall operate this Unit within the boundaries of Unit #7.
2. When not in use and prior to storing, the Permittees shall decontaminate this Unit. .

3. The Unit shall be decontaminated between treatments of incompatible waste streams.
4. After treating mixed waste, radiologic decontamination shall be performed before treating hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operation Plan.

UNIT #19:

UNIT NAME:

Building 695 Debris Washer Unit

LOCATION:

This Unit is located in Room 1036 within Building 695 of the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

This Unit uses high pressure/high temperature water washing and spraying as a means of chemical extraction. The water may also contain dilute concentrations of surfactants, detergents, acids or bases. The debris is then allowed to dry. Dry debris is then transferred into a standard waste box and prepared for off-site disposal as non-hazardous waste. Wastewater generated during the washing process is collected and managed as required by regulations.

Waste is sorted to ensure it is amenable to debris washing. Once sorted, debris is fed to a box equipped with a perforated flat plate equipped with a funneled bottom. Solution, usually heated water from the pressure washer, is delivered through a lid on the top of the funneled box. The box is raised so that the funneled bottom can be equipped with a segment of pipe to deliver spent rinse into a portable container. Washed debris is then allowed to dry by ventilation through the process off-gas system, then through building ventilation. Once dry, the funneled box is then tipped and the debris is delivered to a disposal box for disposal as non-hazardous or, if it contains radioactive contaminants, it will be disposed of meeting land disposal restrictions and Department of Energy disposal criteria.

PHYSICAL DESCRIPTION:

The Unit consists of an aluminum box covered by an aluminum lid that contains the pressure washers. The aluminum box has a perforated flat plate equipped with a funneled bottom. The funneled bottom can be equipped with a segment of pipe to deliver spent rinse into a portable container (See Figure 28).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Unit shall be operated with adequate secondary containment in compliance with the California Code of Regulations, title 22, section 66264.175.
2. The Permittees shall decontaminate this Unit if the next waste stream to be treated is incompatible with the previous waste stream in compliance with 66264.172 and 66264.177 of the California Code of Regulations, title 22.
3. After treating mixed waste, radiologic decontamination shall be performed before treating hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operation Plan.

UNIT #20:

UNIT NAME:

Building 695 Small Scale Treatment Unit

LOCATION:

This Unit is located in Rooms 1017, 1023, and 1025 within Building 695 of the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

This Unit is used to carry out several small scale treatment methods including chemical, physical separation, physical removal, decontamination, and cleaning processes. Waste treatment conducted under this Unit is performed using similar methods and with the same or equivalent abatement devices as those used in their large-scale analogues within the Units authorized above in this Permit.

Wastes come into Room 1017, 1023, or 1025 in small quantities with a wide variety of characteristics. These wastes can be considered reactive in that they are water reactive and pyrophoric. Other wastes may share the same characteristics as wastes treated in other miscellaneous Units, but are small enough in quantity to treat through bench-scale operations. Fume hood and glove box exhaust goes through a process off-gas system prior to going through main building ventilation. Occasionally, hazardous and mixed wastes may need further treatment and are typically put in a container and/or pumped into the Tank Farm (Unit #13).

PHYSICAL DESCRIPTION:

The Unit consists of Rooms 1017, 1023, and 1025 and the equipment in these rooms (See Figure 29). The rooms consist of an 8-inch thick, reinforced concrete slab-on-grade. The design live load for the secondary containment floor is 250 psf. The foundation for the floor consists of 6-mil polyethylene liner underlain by approximately two inches of sand and four inches of well-graded gravel. The polyethylene liner prevents moisture from migrating into the containment flooring.

Room 1017, also known as the Small Scale Treatment Laboratory, includes the benches, fume hoods, and laboratory equipment located in that room. The room is nominally 32 feet long and 25 feet wide (See Figure 30).

Room 1023, also known as the Reactive Waste Processing Room, is a rectangular room, nominally 70 feet long by 13 feet wide, connected to the 695 Storage Yard by two hallways (See Figure 29). Room 1023 includes the Inert Atmosphere Glove Box, Radioisotope Glove Box, and Multihazard Glove Box (See Figure 31). The room, including hallways, provide greater than 1,100 square feet of floor surface. The halls and room are sloped to a sump measuring 2 feet long, 2 feet wide and 2 feet deep. The room, corridors, and sump are epoxy coated. The sump, located on the west side of the wall in Room 1023 will overflow via a chemical-resistant piping to the 20,000-gallon below grade containment tank (See Figure 11).

Room 1025, also known as the Reactive Waste Cell, is located in the northeast corner of Building 695. The room is 21 feet long and 14 feet wide and contains a small walk-in hood (See Figure 32). The flooring in Room 1025 is sloped to a sump measuring 2 feet long, 2 feet wide and 2 feet deep located in the southwest corner of the room. The sump drains to the 20,000 gallon below grade containment tank (See Figure 29).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall only treat compatible hazardous waste.
2. The Permittees shall decontaminate this Unit if the waste to be treated is incompatible with the previously treated waste.
3. After treating mixed waste, radiologic decontamination shall be performed before treating hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operation Plan.

AIR EMISSIONS STANDARDS:

This Unit is subject to the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14, article 27.

UNIT #21:

UNIT NAME:

Building 695 Wastewater Filtration Unit

LOCATION:

This Unit is located in Room 1028 within Building 695 in the DWTF complex (See Figure 14).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

The Unit is used to separate contaminated water from the solid hazardous waste by pulling the contaminated liquid through the diatomaceous earth filter cake. The spent diatomaceous earth is consolidated in a container (drum) for off-site disposal at either a commercial or DOE disposal site if it meets waste acceptance criteria. Some spent diatomaceous earth must be stabilized in the Solidification Unit prior to disposal. The remaining waste water may meet sanitary sewer disposal criteria or may need further treatment.

Waste enters this Unit from the Tank Farm (Unit 13) or a portable container. A filter cake is made prior to feeding waste to this Unit. This is done by mixing diatomaceous earth and city water into a filter cake preparation tank, creating a vacuum on the filter drum and delivering the mixed slurry into the basin below the filter drum. Once the cake is built up on the drum, waste is delivered into the filter basin. Liquid is sent through the filter cake on the drum, depositing solids and precipitates onto the filter cake. The filter cake is slowly cut off from the rotating filter renewing its surface to prevent clogging. The effluent is then delivered to the Tank Farm or a portable container for further treatment or authorized disposal under the Clean Water Act. The spent filter cake is cut off and is deposited into a drum and consolidated to other containers for disposal, or is treated in the Solidification Unit to meet land disposal restriction or other waste disposal criteria for commercial or DOE disposal.

PHYSICAL DESCRIPTION:

This Unit consists of a rotary vacuum drum filter in a filter basin and sits on a skid mounted platform. It is built by Dorr-Oliver Manufacturing (See Figure 33).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

UNIT-SPECIFIC SPECIAL CONDITION:

1. The Permittees shall only operate this Unit within the boundaries of Unit # 7
2. The Unit shall be decontaminated between treatments of incompatible waste streams.
3. After treating mixed waste, radiologic decontamination shall be performed before treating hazardous waste, in accordance with the decontamination procedures specified in section 6.2 of the Operation Plan

UNIT #22:

UNIT NAME:

Building 696 Drum/Container Crushing Unit

LOCATION:

This Unit is located in Room 1009 within Building 696 of the DWTF complex (See Figure 19).

ACTIVITY TYPE:

Treatment in miscellaneous unit (X99)

ACTIVITY DESCRIPTION:

An empty container is placed into the compactor by hand. The compactor uses a hydraulic ram to flatten the containers. The crushed container is then removed by hand. The compactor can handle containers up to 85 gallons in size.

PHYSICAL DESCRIPTION:

This Unit consists of a drum crushing unit (compactor) that uses a hydraulic ram and has a metal protective door (See Figure 34).

MAXIMUM CAPACITY:

See Table 1

WASTE TYPES:

See Table 2

HAZARDOUS WASTE CODES:

See Table 3

PART V. SPECIAL CONDITIONS

1. PERMITTED UNITS AUTHORIZED FOR DELAYED CLOSURE

The following units are located in Area 612 (See Figure 3 and Figure 4) and have been converted to 90-day generator accumulation areas. Once the units stop receiving hazardous waste or non-hazardous waste, as applicable, the Permittees shall close these units in accordance with closure requirements for permitted units in the California Code of Regulations, title 22, Chapter 14, Article 7 or request a Class 3 modification to include such areas as permitted units to the permit.

Unit Name	Envirostor Sequence No. (Internal Use Only)
Area 612 Portable Tanks Storage Unit	4
Building 612 Container Storage Unit	25
Building 612 Lab Packing Unit	58
Building 612 Size Reduction Unit	42
Area 612-2 Container Storage Unit	39
Area 612-4 Receiving, Segregation, and Container Storage Unit	59
Area 612-5 Container Storage Unit	40
Building 614 East Cells Container Storage Unit	28
Building 614 West Cells Container Storage Unit	29

2. The Permittees shall not accept any off-site hazardous or mixed wastes generated by commercial or government facilities other than Lawrence Livermore National Laboratory Site 300, EPA ID No. CA2890090002.
3. All containers used for the management of hazardous waste shall not be stacked more than two containers high.
4. The Permittees may manage wastes and materials not regulated by DTSC in the permitted hazardous waste management units, including radioactive materials, provided that the Permittees ensure that the storage and treatment of such wastes and materials does not interfere with the storage and treatment activities of the hazardous waste streams permitted hereunder or result in their radiologic contamination, and that the management of such non-regulated wastes and materials is in full compliance with all applicable Federal and State laws and

regulations. Additionally, any such non-regulated wastes and materials that are stored in a permitted hazardous waste storage unit shall be subject to any condition of this Permit for which application of the condition to the non-regulated waste or material is necessary to protect human health or safety or the environment (e.g., unit capacity limitations, aisle space requirements, container stacking requirements and waste compatibility requirements).

5. For the purpose of compliance with the permitted maximum capacity limitations, all containers in the permitted units are assumed to be full, and all hazardous waste that is stored or located in an authorized unit shall be included in the calculation for that unit, including any hazardous waste that is subject to generator accumulation time limits pursuant to California Code of Regulations, title 22, section 66262.34.
6. Reactive liquid waste (i.e., waste identified as D003) that is incompatible shall be stored in separate secondary containment areas according to the general compatibility guidance provided in the California Code of Regulations, title 22, Chapter 24, Appendix V.
7. Incompatible hazardous waste that does not contain free liquids may be stored in the same containment area if kept separate by a distance of at least 2.5 feet.
8. Upon receipt and acceptance of a container of hazardous or mixed waste at a hazardous waste management unit, the Permittees shall mark its date of acceptance on the container and maintain its original generator information until such time as new information becomes available as a result of waste analysis or the waste is treated onsite or shipped from the Permittee's hazardous waste management unit to an off-site treatment and/or disposal facility.
9. The Permittees shall mark each lab-packed container (lab-pack) with the earliest date of acceptance of any original container to be placed into the lab-pack.
10. Each lab-pack shall be labeled or marked clearly. Additionally, each lab-pack shall be labeled with the content, quantities, and physical state of the wastes inside the lab-pack, and a statement or statements which call attention to the particular hazardous properties of the wastes. If there is insufficient space on the label for a full description of the content, quantities, and physical state of the lab-pack, a reference to these items on a packing slip is acceptable. The packing slip shall be attached to the lab-pack until it is shipped to an authorized treatment, storage, and/or disposal facility.
11. The Permittees shall not dispose of any waste at the facility.
12. The Permittees are authorized to store hazardous waste, including mixed wastes not incorporated into the Site Treatment Plan (STP) that is incorporated by

reference and attached to Compliance Order, HWCA 96/97-5002, 2/7/97, in the permitted storage units up to a maximum of one calendar year from date of first acceptance at any of the hazardous waste management units.

13. The Permittees are authorized to store mixed waste which has been incorporated into the STP in the permitted storage units up to a maximum of one calendar year from the date of DOE's respective notice to DTSC pursuant to Section 2.7.1 of the STP.
14. In the event of any cracks, leaking, or visible damage to a containment pallet, the containment pallet shall be replaced within one (1) working day.
15. Only employees of the Permittees who are trained to operate a permitted unit and/or perform a permitted activity may independently operate the unit and/or perform the activity.
16. All portable permitted miscellaneous units shall be chemically and radiologically decontaminated prior to transporting such unit for storage and shall be stored within the boundary of a permitted unit.

Part VI. CORRECTIVE ACTION

1. The Permittees are required to conduct corrective action at the facility pursuant to Health and Safety Code sections 25200.10 and 25187.

On June 29, 1992 the United States Department of Energy (DOE) signed a Federal Facility Agreement (FFA) under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) with the United States Environmental Protection Agency, the California Department of Toxic Substances Control, and the San Francisco Bay Regional Water Quality Control Board, in the matter of LLNL. Section VII of the FFA, "Statutory Compliance/RCRA-CERCLA Integration," states that the parties intend to integrate DOE's CERCLA response obligations and RCRA corrective action obligations which relate to the release of hazardous substances, hazardous wastes, pollutants, or contaminants.

As stated in the FFA, the parties intend that remedial action selected, implemented and completed under this Agreement shall be deemed by the parties to be protective of human health and the environment such that remediation or releases covered by the FFA shall obviate the need for further corrective action under RCRA with respect to those releases.

A RCRA Facility Assessment (RFA) was completed at the facility in order to identify Solid Waste Management Units (SWMUs) and Areas of Concern (AOC) at the facility. The Permittees shall notify the DTSC in writing of any newly-identified SWMU(s), not specifically identified during the RFA, discovered during the course of groundwater monitoring, field investigations, environmental audits, maintenance, or other means, no later than 30 calendar days after discovery.

2. To the extent that work being performed pursuant to Part VI of the Permit must be done property not owned or controlled by the Permittees, the Permittees shall use its best efforts to obtain access agreements necessary to complete work required by this Part of the Permit from the present owner(s) of such property within 30 days of approval of any workplan for which access is required. "Best efforts" as used in this paragraph shall include, at a minimum, a certified letter from the Permittees to the present owner(s) of such property requesting access agreements(s) to allow the Permittees and DTSC and its authorized representatives access to such property and the payment of reasonable sums of money in consideration of granting access. The Permittees shall provide DTSC with a copy of any access agreements(s). In the event that agreements for the access are not obtained within 30 days of approval of any workplan for which access is required, or of the date that the need for access becomes known to the Permittees, the Permittees shall notify DTSC in writing within fourteen days thereafter regarding both efforts undertaken to obtain access and its failure to

obtain such agreements. In the event DTSC obtains access, the Permittees shall undertake approved work on such property. If there is any conflict between this permit condition on access and the access requirements in any agreement entered into between DTSC and the Permittees, this permit condition on access shall govern.

3. Nothing in Part VI of the Permit shall be construed to limit or otherwise affect the Permittees' liability and obligation to perform corrective action including corrective action beyond the facility boundary, notwithstanding the lack of access. DTSC may determine that additional on-site measures must be taken to address releases beyond the Facility boundary in access to off-site areas cannot be obtained.
4. In the event the Permittees identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous constituents the Permittees shall notify DTSC orally within 24 hours of discovery and notify DTSC in writing within 10 days of such discovery summarizing the findings including the immediacy and magnitude of any potential threat to human health and/or the environment.
5. DTSC may require the Permittees to investigate, mitigate, and/or take other applicable actions to address any immediate or potential threats to human health and/or the environment and newly identified SWMUs or releases of hazardous or mixed waste and/or hazardous or radioactive constituents.

TABLES

Table 1. Unit Storage and Treatment Capacity

Unit	Unit Description	Storage Capacity	Treatment Capacity
1	Area 625 Tank Trailer Storage Unit	5,000 Gallons	N/A
2	Area 625 Container Storage Unit	38,400 Cubic Feet	N/A
3	Building 625 Container Storage Unit	(East Cell) 21,208 Gallons	N/A
		(West Cell) 21,208 Gallons	N/A
4	Building 693 Container Storage Unit	(Room 1000) 35,640 Gallons	N/A
		(Room 1004) 34,980 Gallons	N/A
		(Room 1008) 34,980 Gallons	N/A
		(Room 1012) 35,640 Gallons	N/A
		(Room 1014) 22,890 Gallons	N/A
5	Building 693 Freezer Unit	30 Gallons and 250 cubic feet (See Unit 5 for explanation)	N/A
6	DWTF Roll-Off Bin Area	2,160 Cubic Feet	N/A
7	Building 695 Airlock Container Storage Unit	12,000 Gallons	N/A
8	Building 695 Reactive Waste Storage Unit	12,400 Gallons	N/A
9	Building 696 Rooms 1010 and 1011 Storage Unit	(Room 1010) 67,849 Gallons	N/A
		(Room 1011) 67,849 Gallons	N/A
10	Building 696 Rooms 1001, 1007, 1008, 1009 Storage Unit	37,403 Gallons	N/A
11	DWTF Portable Tanks Storage Unit	22,000 Gallons	N/A

12	DWTF Container Storage Unit	23,900 Cubic Feet	N/A
13	Building 695 Tank Farm	45,000 Gallons	5,000 Gallons per tank at any one time, up to 325,000 Gallons per year
14	Evaporators Unit	(Cal-Fran Evaporator) N/A	Included in Building 695 Tank Farm Unit (Unit 13) Treatment Capacity
		(ISA Evaporator) N/A	Included in Building 695 Tank Farm Unit (Unit 13) Treatment Capacity
15	Centrifuge Unit	N/A	Included in Building 695 Tank Farm Unit (Unit 13) Treatment Capacity
16	Solidification Unit	N/A	One 55-gallon drum at any one time, up to 115 Short Tons per year.
17	Shredding Unit	N/A	One 55-drum at any one time, up to 183 Short Tons per year
18	Drum Rinsing Unit	N/A	700 Gallons at any one time
19	Debris Washer Unit	N/A	45 Short Tons per year
20	Building 695 Small Scale Treatment Unit	N/A	55 gallons per day or 0.23 Short Tons per day
21	Waste Water Filtration Unit	N/A	Included in Building 695 Tank Farm Unit (Unit 13) Treatment Capacity
22	Building 696 Drum/Container Crushing Unit	N/A	600 Short Tons per year

Table 2. Units and Form Codes

Unit	Form Codes (See Table 3)
1	W101, W103, W105, W107, W110, W113, W119, W200, W202, W203, W204, W205, W206, W209, W210, W211, W219, W312, W316, W503, W504, W505, W506, W512, W519, W603, W604, W606, W609
2	W002, W301, W303, W304, W307, W309, W310, W319, W320, W403, W406, W409
3	All form codes in Table 3
4	All form codes in Table 3
5	All form codes in Table 3
6	W002, W301, W303, W304, W307, W309, W310, W319, W320, W403, W406, W409
7	All form codes in Table 3
8	All form codes in Table 3
9	All form codes in Table 3
10	All form codes in Table 3
11	W101, W103, W105, W107, W110, W113, W119, W200, W202, W203, W204, W205, W206, W209, W210, W211, W219, W312, W316, W503, W504, W505, W506, W512, W519, W603, W604, W606, W609
12	W002, W301, W303, W304, W307, W309, W310, W319, W320, W403, W406, W409
13	W101, W103, W105, W107, W110, W113, W119, W200, W202, W203, W204, W205, W206, W209, W210, W211, W219, W312, W316, W503, W504, W505, W506, W512, W519, W603, W604, W606, W609
14	W113
15	W113
16	All form codes in Table 3, excluding W801
17	W002, W307, W319, W409
18	All form codes in table 3 excluding 801
19	W002, W307, W319, W409
20	All form codes in table 3
21	W113
22	W002, W307, W319, W409

Table 3. Form Codes and Waste Codes

Form Codes	Form Code Description	Typical Waste Streams	EPA ID Code	CA ID Code
Mixed Media/Debris/Devices - Waste that is a mixture of organic and inorganic wastes, liquid and solids wastes, or devices that are not easily categorized				
W001	Lab packs from any source not containing acute hazardous waste	Lab packed surplus, expired, or damaged packages of laboratory chemicals and discarded aerosol cans received from research and maintenance activities.	All EPA Codes Excluding P-Code Wastes	All California Waste Codes
W002	Contaminated debris; paper, clothing, rags, wood, empty fiber or plastic containers, glass, piping, other solids (usually from construction, demolition, cleaning, or remediation)	Lab packed or bulk debris, asbestos materials, empty aerosol cans, batteries, capacitors, and other scrap equipment from research and maintenance activities.	All EPA codes, generally excluding D001 through D003 and F003	All California Waste Codes, primarily 151, 181, 272, 352, 511, 512, 513
W004	Lab packs from any source containing acute hazardous waste	Lab Packed materials containing acute and/or extremely hazardous waste.	All EPA Codes	All California Waste Codes

W301	Contaminated Soil (usually from spill cleanup, demolition, or remediation) See also W512	Soil from cleanup activities, surface spills and subsurface soil investigations. These wastes may include concrete debris, crank case oil, hydraulic fluid, gasoline, diesel and plastic sheeting.	D004 through D011, D039, D040	181, 521, 551, 611
		Soil or sand contaminated with organic compounds generated from drilling operations, research and cleanup operations including floor repair, soil sampling, oil shale distillation, and trash cleanup. Wastes may include concrete and soil contaminated with spent oil shale/oil.		
		Low-level radioactive soil generated from cleanup activities. This soil may be contaminated with uranium, solvents, and metals.		
		Soil cuttings or sand contaminated with inorganics generated from subsurface exploratory investigations. This soil may include concrete debris; soil may be contaminated with low-level radioactivity, lead, and/or mercury.		
		Soil and/or sand contaminated with toxic inorganic compounds generated by bead blasting and subsurface investigations.		

<p>W309</p>	<p>Batteries, battery parts, cores, casings (lead-acid or other types)</p>	<p>Discarded batteries from the battery shop and other locations. Wastes may include lithium, lead-acid, nickel-cadmium, mercury, and alkaline batteries. Most batteries are spent or damaged and may have been drained.</p>	<p>D002, D004 through D011</p>	<p>141, 551</p>
<p>W310</p>	<p>Filters, solid absorbents, ion exchange resins and spent carbon (usually from production, intermittent processes, or remediation)</p>	<p>Spent HEPA filters and absorbents generated by research activities and facility maintenance. Wastes may contain low-level radioactivity, solvents, lead, beryllium, and/or cadmium.</p>	<p>D004 through D011, D039, D040</p>	<p>172, 181, 551, 591</p>
<p>Spent filters and absorbents from research activities and facility maintenance, including machine shop and instrument maintenance and cleanup. Waste may include paper, Dryorb, chemical wipes, cleaning pads, rags, silica gel, oil filters, and molecular sieves.</p>				
<p>Spent filters and absorbents from spill cleanup activities and maintenance operations. Wastes may include rags, chemical wipes, Dryorb, kitty litter, and vermiculite.</p>				
<p>Discarded expired products or chemicals containing spent carbon generated from dry ink developers and ribbons. Wastes may include graphite powder and carbon black.</p>				
<p>Spent granular carbon from ground water remediation.</p>				
<p>Low-level radioactive activated charcoal or carbon from research activities.</p>				

W320	Electrical devices (lamps, fluorescent lamps, or thermostats usually containing mercury, CRTs containing lead; etc.)	Discarded fluorescent lighting tubes and lighting ballasts.	D004 through D011	181
W512	Sediment or lagoon drag out, drilling or other muds (wet or muddy soils); see also W301	Sediment of lagoon drag out contaminated with organics and/or inorganics from maintenance activities. Wastes may contain radioactive constituents.	D004 through D011, D039, D040	521, 551
	Drilling mud from sub-surface investigations. Wastes may include mud, dirt, possible organic and/or inorganic contaminants, and low-level radioactivity.			
W801	Compressed gases of any type	Inorganic gases from research activities. Wastes may include diborane, hydrogen sulfide, fluorine, nitrogen dioxide, sulfur dioxide, and decaborane. Wastes may be reactive.	D001, D003	551
	Organic gases from research activities, including laser experiments, welding, and disposal of excess lab materials. Wastes may include alkanes and alkenes.			
<p>Inorganic Liquids - Waste that is primarily inorganic and highly fluid (e.g. aqueous), with low suspended inorganic solids and low organic content.</p>				

W101	Very dilute aqueous waste containing more than 99% water (land disposal restriction defined wastewater that is not exempt under NPDES or POTW discharge)	Low-level radioactive wastewater with solvents from sludge removal. Wastes may include lead, mercury, silver, benzene, carbon tetrachloride, chloroform, dichloroethane, dichloroethylene, TCEs, and other spent halogenated degreasing solvents.	All EPA codes, generally excluding D001 through D003 and F003	123, 131, 132, 134, 135, 551
		Waste water with low concentrations of ignitable and or halogenated solvents resulting from metal forming processes. Waste may include ethylenes and acetone.		
		Low-level radioactive coolant wash waters with low level concentrations of organic compounds, metals and/or other toxic materials generated from operations such as machining. Wash waters may contain beryllium.		
		Wastewater with low concentrations of organic compounds, metals and/or toxic materials from operations such as machining, electronics fabrication, printing, and silk-screening. Wastes may include paint spray booth rinse water, coolants, antifreeze mixtures, and steam cleaning water.		
		Wastewater with low concentrations of organic compounds, metals and/or other toxic materials generated from research and maintenance activities, cleanup of chemical spills, equipment decontamination, and leaky drums. Wastes may include coolants, peroxide or bleach solutions, antifreeze mixtures, paint spray booth rinse water, and steam cleaning water.		

W103	Spent concentrated acid (5% or more)	Low-level radioactive acidic solutions and rinse waters with metals generated from research activities including electroplating and metal finishing operations. Wastes may include plating baths, chromic acid mixtures and nitric acid solutions from bright dip tanks, with at least one or more of the following metals: chromium, copper, aluminum, nickel, zinc, cadmium, lead or beryllium.	D002, D004 - D011	551, 791, 792
		Acidic solutions and rinse waters with metals generated from research activities including: printed circuit board fabrication, copper vapor laser cleaning, electroplating, etching and metal finishing operations. Wastes may include spent battery acid, plating baths, ferric chloride etching rinse water, chromic acid, plating baths, ferric chloride etching rinse water, chromic acid mixtures and nitric acid solutions from bright dip tanks, with at least one or more of the following metals: chromium, copper, aluminum, nickel, zinc, cadmium, or lead.		
		Spent acids with less than regulated levels of metals from research and maintenance activities; may contain radioactive constituents.		
		Acidic solutions and waste waters from spill cleanup of spent acid with metals from electroplating processes.		

W105	Acid aqueous wastes less than 5% acid (diluted but pH<2)	Radioactive acidic rinse waters from research activities or research-related production operations, including; laser window cleaning, metal finishing operations, printed circuit board manufacturing, and laboratory glassware cleanup operations. Wastes may include reactive anions (azide, bromate, chlorate, cyanide, fluoride, and sulfide anions).	D002	551, 791
		Acidic aqueous rinse waters from research activities or research related production operations, including: laser window cleaning, metal finishing operations, printed circuit board manufacturing, and laboratory glassware cleanup operations. Wastes may include nitric, acetic, sulfuric, hydrofluoric, hydrochloric, and phosphoric acids.		
		Radioactive corrosive spent acid with less than regulated levels of metals from laboratory research cleanup.		
		Acidic aqueous solutions from spill cleanup of acidic aqueous wastes from laboratory wastes spent stripping and cleaning bath solutions from electroplating operations.		
		Acid aqueous waste including acids, which are unstable at room temperature (i.e. white fuming nitric acid).		

W107	Aqueous waste containing cyanides (generally caustic)	Caustic solutions and rinse wasters with metals and cyanides generated from research activities including: printed circuit board fabrication, printing press operations, electroplating, etching, and other metal finishing operations. Wastes may include spent Oakite, DuPont-brand Riston-2000, and sodium hydroxide with cyanide, gold, silver, aluminum, or potassium hexacyanoferrate.	D002, D003	122, 131, 551
		Caustic solutions with cyanides but no metals from research and maintenance activities. Wastes may contain radioactive constituents.		
W110	Caustic aqueous waste without cyanides (pH>12.5)	Spent caustic waste from research and maintenance activities; may contain radioactive constituents.	D002	122, 551
		Caustic aqueous rinse waters from research activities or research-related production operations including: silk screening, metal finishing, printed circuit board fabrication, photographic processing and blue print operations. Wastes may include Oakite, peroxide-bleach solutions, and soap rinse waters. Waste may contain radioactive constituents.		
		Spent caustic inorganic aqueous waste from laboratory cleanup spill residues. Waste may contain radioactive constituents.		
		Corrosive inorganic aqueous solutions of spent caustic materials from cleaning and degreasing operations.		

W113	Other aqueous waste or wastewater (fluid but not sludge)	Aqueous waste with reactive sulfides from research and maintenance activities.	All EPA codes generally D001, D002	132, 551
		Reactive or polymerizable inorganic aqueous liquids generated from research and maintenance activities.		
		Wastewater with high dissolved solids from cleanup of chemical spills and leaky drums. Wastes may include rainwater from the hazardous waste and heavy equipment storage yards, spill cleanup mop water, and retention tank water. These waters may contain acids, Freon, oil, soap, and/or diesel fuel.		
		Low-level radioactive inorganic solutions which may include high dissolved solids from inorganic biomedical solutions, cyanide analysis waste, weak acid and caustics, rinse waters, machine or shop waste coolants and soapy rinse water.		
		Low-level radioactive aqueous waste waters with low dissolved solids generated from research activities including metal finishing, machine coolant replacement and water jet cutting.		
		Aqueous waste wasters with low dissolved solids, including rinse waters from the following operations: copper vapor laser operation, metal finishing, machine coolant replacement, waster jet cutting, printed circuit board fabrication, and equipment cleaning.		

		<p>Aqueous waste water feed and effluent associated with wastewater treatment through evaporation (including brine rinse waters), filtration, and centrifugation, debris washing, container rinsing.</p> <p>Inorganic scrubber water from air pollution control device.</p> <p>Leachate from wastewater treatment and maintenance activities. Wastes may contain radioactive constituents.</p>		
W117	Waste liquid mercury (metallic)	<p>Decommissioned electrical equipment (containing liquid mercury) used in research activities. Wastes may include ignitrons and thermostats.</p> <p>Mercury liquid waste from laboratory and shop cleanup, clean out of sink traps, and collection of excess electron tubes and mercury switches.</p> <p>Tritiated liquid mercury from research and maintenance activities.</p>	D009	551, 725
W119	Other inorganic liquid	<p>Inorganic liquids containing chromium and/or silver, and inorganic non-aqueous liquids generated from research activities. Waste may be ignitable and/or toxic.</p> <p>Inorganic liquids from spill cleanup of listed non-aqueous wastes.</p> <p>Low-level radioactive D-38 turnings, chips, sludge in water.</p>	All EPA codes	135, 551
Organic Liquids - Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content.				
W200	Still bottoms in liquid from (fluid but not sludge)	Still bottoms of halogenated and/or non-halogenated solvents or other organic liquid from research or maintenance activities.	D001, F002	251, 551

W202	Concentrated halogenated (e.g., chlorinated) solvent	Low-level radioactive waste with PCBs and/or halogenated solvents from laboratory research activities. Wastes may include organic fluids and water.	F002	211, 551
		Halogenated solvents from lab operations such as cleaning, degreasing, and electronic manufacturing. Wastes may include chlorinated and fluorinated solvents such as Freon, TCE, PCE, DCE, and TCA.		
		Spill cleanup of aqueous halogenated solvents.		
		Radioactive halogenated solvents generated from cleaning tanks and equipment and operating research laboratories and machining shops. Wastes may include TCE and TCA, and may contain transuranic activity.		
		Spent halogenated solvents from the decommissioning of degreasing process equipment. Wastes may be ignitable.		
		Spill cleanup from PCB-contaminated equipment.		
W203	Concentrated non-halogenated (e.g., non-chlorinated) solvent	Low-level radioactive non-halogenated solvents generated from laboratory research and machine shop operations. Wastes may include isopropyl alcohol, benzene, tributyl phosphate, and methyl isobutyl ketone.	D001, F003, F004, F005	212, 213, 551

		<p>Non-halogenated solvents from research activities including equipment cleaning and maintenance operations, electroplating and metal finishing, and hydraulic fluid replacement. Wastes may include acetone, ethers, toluene, xylene, other ethylene glycol tetrahydrofuran, MEK and alcohols. Many of these wastes may be characteristically ignitable.</p>		
		<p>Aqueous non-halogenated solvents from remediation activities and discontinued use of process equipment.</p>		
W204	Concentrated halogenated/non-halogenated solvent mixture	<p>Low-level radioactive aqueous solution of halogenated/non-halogenated solvents from research activities including equipment cleaning and maintenance operations. Wastes may include spent halogenated solvents (e.g. TCE and chloroform) and PCBs.</p>	D001, F001 through F005	214, 551
		<p>Halogenated/non-halogenated solvent mixture from cleaning and degreasing operations. Wastes may include tetrachloroethylene, methylene chloride, chlorobenzene, acetone, and isobutanol.</p>		
		<p>Aqueous solution of halogenated/non-halogenated solvent mixture waste from laboratory cleaning and degreasing activities. Wastes may include spent halogenated wastes and oxygenated and hydrocarbon solvents. Wastes may be ignitable.</p>		

		Halogenated/non-halogenated solvent mixture from cleaning and degreasing operations. Wastes may include tetrachloroethylene, methylene chloride, chlorobenzene, acetone, and isobutanol. Wastes may be ignitable.		
W205	Oil-water emulsion of mixture (fluid but not sludge)	Oil-water emulsion or mixture from flush rinsing wastes and cleanup of oil spills.	F001 through F005	221, 222, 551
		Oil-water emulsion or mixture from separation processes such as centrifugation.		
		Rinse and surface runoff waters that are potentially contaminated with oil. Wastes may include steam-cleaning water from washing of vehicles and machine parts, motor oil, hydraulic oil, and soaps.		
		Aqueous oil-water emulsion. Wastes may also include barium, chromium, lead, benzene, dichloroethylene, tetrachloroethylene, and trichloroethylene. Wastes may be ignitable.		
		Low-level radioactive D-38 turnings, chips, sludge in aqueous-based solution (e.g., Trim-Sol)		
W206	Waste Oil	Low-level radioactive waste oils generated from laboratory research and machine shop operations. Wastes may include hydraulic and vacuum pump oils, uranium, beryllium, mercury, and/or solvents.	F001 through F005	221, 551

		<p>Waste oils from oil changes, drainage of transformers and non-PCB capacitors, and disposal of excess or expired products. Wastes may include transformer oil, motor oil, vacuum pump oil, and waste oils from non-PCB capacitors.</p>		
		<p>Low-level radioactive waste oil from cleanup of oil spills. Wastes may include cadmium, lead, silver, halogenated and non-halogenated solvents.</p>		
		<p>Oil from separation processes such as centrifugation</p>		
		<p>Oil drained from decommissioned electrical transformers. Wastes may include cadmium, lead, silver, and halogenated and non-halogenated solvents. Wastes may be ignitable.</p>		
W209	<p>Paint, ink, lacquer, or varnish (fluid - not dried out or sludge)</p>	<p>Organic paint, ink, lacquer, or varnish waste generated from activities including equipment cleanup; the disposal of excess and waste paint; and laser printer, copier and graphic production.</p>	D001	291, 343, 551
		<p>Organic paint, ink, lacquer, or varnish wastes which may include lacquer thinner. Waste may be ignitable.</p>		
W210	<p>Reactive or polymerizable organic liquids and adhesives (fluid but not sludge)</p>	<p>Adhesives or epoxies generated by general carpentry, floor tile installation, and other craft activities. Wastes may include empty containers with adhesive or epoxy residues and excess product collected during cleanup.</p>	D001, D003	271, 272, 281, 551
		<p>Aqueous waste of adhesives or epoxies from routine cleanup of spills.</p>		

		<p>Adhesives or epoxies, polymeric resin wastes from aged or surplus ignitable organics contaminated with low-level radioactivity.</p>		
		<p>Reactive or polymerizable organic liquids generated from research activities. Wastes may include peroxides, polymeric hardeners, catalysts, and uncured monomers.</p>		
		<p>Wastes generated from spill cleanup or reactive or polymerizable organic liquids.</p>		
W211	Paint thinner or petroleum distillates	<p>Organic paint thinner or petroleum distillates from activities including the cleanup of painting equipment and machine parts found in laboratories and shops. Wastes may include paint thinner, kerosene, mineral spirits, lacquer thinner, Stoddard solvent, gasoline and diesel fuel.</p>	D001, F003, F004, F005	211, 212, 213, 214, 331, 343
		<p>Wastes generated from the cleanup of underground storage tanks containing ignitable petroleum distillates.</p>		
W219	Other organic liquid	<p>Low-level radioactive concentrated aqueous solution of other organics, including spent process liquid, ignitable wastes, and spent halogenated solvents.</p>	D001, F001 through F005, but includes U001-U411 residues	343, 551
		<p>Concentrated aqueous solution of other (non-solvent) organics including spent process liquids, ignitable wastes, and spent halogenated materials from research activities and surface preparation operations.</p>		

		<p>Concentrated aqueous solution of other (non-solvent) organics from surface preparation activities. Waste may be ignitable.</p> <p>Low-level radioactive waste (containing H-3, C-14, P-32, S-35, and/or uranium) from laboratory and machine shop operations. Wastes may include oil, alcohols, kerosene, acetic acid, benzene, and scintillation gels and cocktails from tritium analysis.</p> <p>Organic liquids received from document reproduction and print shop activities. Wastes may include activators, photocopier toners, and dispersants. Most items in this category are excess or out-of-date copy machine, printer, and print shop chemicals.</p> <p>Wastes generated from spill cleanup or decommissioned document production equipment containing organic liquids, which may be ignitable and/or reactive.</p>		
Inorganic Solids - Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable.				
W303	Ash (from any type of burning of hazardous waste)	Ash from any type of burning of hazardous waste.	D004 through D011	551, 571
W304	Slags, drosses, and other solid thermal residues	Dry ashes, slag, or thermal residue generated from laboratory research and gun testing activities. Wastes may include debris from target tanks, gun soot, solidified ash, and coal ash.	D004 through D011	171, 172
		Residue from explosive waste treatment.		

W307	Metal scale, filings and scrap (including metal drums)	Low-level (potentially) radioactive inorganic scrap metal generated from remodeling, laboratory cleanup, and machine shop operations, including metal shavings, source material, and old equipment (scrap metal/pipes/lead bricks and uranium beds).	D004 through D011	172, 181, 511, 512, 513, 551
		Scrap metal from research and maintenance including metal finishing, cleanup, equipment, construction, electroplating, and demolition (pipes, tanks, pumps, tools, fuses, stainless steel vessel, duct work, hardware, lead bricks and oil drained transformers).		
		Low-level radioactive lead pieces and bricks contaminated with depleted uranium and/or beryllium during off-site explosion and/or projective research activities.		
		Empty or crushed metal drums or containers from research activities, including packaging, print processing, and shop wastes. Wastes may include empty cans, drums, bottles, boxes, and other containers. Most containers are empty, but may contain chemical residues or residue from biodegradable steam cleaning soap. Waste may contain radioactive constituents.		
		Removal of discontinued process equipment, e.g., retention tanks.		
W312	Cyanide or metal cyanide bearing solids, salts or chemicals	Metal-cyanide salts and/or chemical waste from research and maintenance activities. Wastes may contain radioactive constituents.	D003, D004 through D011	181, 551

		Reactive-cyanide salts and/or chemical waste from research and maintenance activities. Wastes may contain radioactive constituents.		
W316	Metal salts or chemicals not containing cyanides	Reactive salts/chemicals that are from waste operations including unused/excess chemicals from printing and metal finishing and reactive laboratory chemicals (e.g., phosphorous, titanium tetrachloride, sodium, and lithium hydride).	D004 through D011	181, 551
		Inorganic reactive metals and salts from the decommissioning of process equipment.		
		Salt brine from evaporation process equipment.		
		Inorganic metal and salts from research activities, including machine shop operations, laboratory cleanup, collection of out-of-date or excess products, laser operations, and tooling replacement. Wastes may include ferric salts and alloys, oxide powders, and other salts and alloys.		
		Depleted uranium hydride powder generated by research activities. This waste contains low-level radioactivity and is potentially ignitable and reactive.		
W319	Other inorganic solids	Asbestos and asbestos-contaminated material generated from abatement activities.	D004 through D011, but includes U001 through	181, 551
		Wastes from laboratory cleanups and building renovation including pipe logging, floor tiles, rock and tar paper, transit siding and pipe, blackboards and fiberglass.		

		<p>Reactive sulfide salts and/or chemical waste from research and maintenance activities. Wastes may contain radioactive constituents.</p>	<p>U411 residues</p>		
		<p>Low-level radioactive inorganic trash generated by research and laboratory cleanup activities. Wastes may include pipettes, funnels, beakers, gloves, paper, filters, plastics, sponges, floor dry, and other lab trash. Wastes may be contaminated with beryllium, lead, and/or low-level radioactive materials.</p>			
		<p>Waste inorganic trash from research and cleanup activities, including printing press, laser, battery shop, and building maintenance operations. Wastes may include metal, glass, filters, paper, work clothes, rubber materials, and other laboratory wastes.</p>			
		<p>Waste inorganic solids from equipment decommissioning and spill cleanup activities. Wastes may include gloves, wipes, plastic sheeting, rags, Drysorb, soot, acids, mercury (broken thermometers), antifreeze, and debris from gun tank experiments.</p>			
		<p>Filter cake and stabilized waste, which may contain low-level radioactivity, generated from rotary drum vacuum filtration or solidification processes, which may contain non-halogenated and halogenated solvents and metals (arsenic, cadmium, barium, lead, chromium, mercury, and silver).</p>			

Organic Solids - Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable

W401	Pesticide solids (used or discarded - not contaminated soils - W301)	Discarded out-of-date halogenated and/or non-halogenated pesticide solids.	D012 through D016	232, 551
W403	Solid resins, plastics or polymerized organics	<p>Waste solid resins or polymerized organics from research activities, which may be contaminated with low-level radioactivity. Wastes may be corrosive and/or reactive.</p> <p>Waste solid resins or polymerized organics from document reproduction and print shop activities. Waste may include curing agents, toner, and dry film photopolymers.</p>	D039, D040	272, 551
W405	Explosives and reactive organic solids	Reactive organic solids generated from laboratory research and maintenance activities including the collection of excess products. Wastes may include RTV (room temperature vulcanizing) catalysts.	Not Accepted	352, 551
W406	Dried paint (paint chips, filters, air filters, other)	Waste solids that contain construction debris that have dried paint, paint chips from surface preparation (e.g., for repainting), space heater furnace filters, and paint spray booth filters.	D004 through D011, F001 through F005	291, 331, 551

W409	Other organic solids	<p>Halogenated and/or non-halogenated organic solids, which may contain metals, non-halogenated solvents, halogenated solvents, and/or low-level radioactivity generated from the following activities: laboratory waste removal, decommissioning of laboratory process equipment, filter replacement, battery replacement, and sludge removal. Waste may include barium, cadmium, lead, selenium, chloroform, non-halogenated solvents, and spent halogenated solvents. Wastes may be ignitable and corrosive.</p>	D001 through D011, F001 through F005, but includes U001 through U411 residues	352, 551
		<p>Halogenated and/or non-halogenated solids from laboratory waste and disposal of clothing and personal protective equipment. Wastes may be contaminated with low-level radioactivity and non-halogenated solvents. Wastes may be ignitable.</p>		
		<p>Electrical, vacuum and machining equipment from research and maintenance operations which may contain low-level radioactivity and PCB-laden oils. Wastes may include decommissioned transformers, capacitors, power supplies, voltage regulators, and milling machines.</p>		
<p>Inorganic Sludge - Waste that is primarily inorganic, with moderate-to-high water content and low organic content; mostly pumpable.</p>				
W501	Lime and/or metal hydroxide sludge and solids	Lime sludge with or without metals generated from plant maintenance activities	D002	411, 421, 551

	with not cyanides (not contaminated muds - W512)	Low-level radioactive lime sludge with or without metals generated from plant maintenance activities.		
W503	Gypsum sludge from wastewater treatment or air pollution control	Low-level radioactive wastewater treatment sludge with toxic organics, from sludge removal processes. Wastes include spent halogenated and non-halogenated solvents.	D002, D004 through D011	411, 581
		Air pollution control device sludge from waste treatment and maintenance activities. Waste may contain radioactive constituents.		
W504	Other sludge from wastewater treatment or air pollution control	Waste sludge that may contain low-level radioactivity, from the cleanup of basins and sumps. Wastes may contain oils, solvents, lead, mercury, chromium, and/or traces of cyanide.	D004 through D011, D039, D040	491, 551, 581
		Chlorine or other brine sludge from waste treatment or maintenance activities.		
		Other air pollution control device sludge from waste treatment and maintenance activities. Wastes may contain radioactive constituents.		
W505	Metal bearing sludge (including plating sludge) not containing cyanides	Untreated plating sludge without cyanides from research and maintenance activities. Wastes may contain radioactive constituents.	D004 through D011, D039, D040, F006	491, 551
		Degreasing sludge with metal scale or filings from sludge removal process. Waste may include spent halogenated solvents and low-level radioactivity.		
W506	Cyanide-bearing sludge (not contaminated soils - W512)	Untreated plating sludge with cyanides from laboratory waste water treatments. Wastes may include cyanide and lead.	D003, D004 through	491, 551

		Other sludge with cyanides from research and maintenance activities. Wastes may contain radioactive constituents.	D011, F006	
W519	Other inorganic sludge (not contaminated muds - W512)	Wastewater treatment sludge with reactive sulfides from research activities.	D004 through D011, D039, D040, but includes U001 through U411 residues	491, 551
		Sludge with other reactives from research and maintenance activities. Wastes may contain radioactive constituents.		
		Low-level radioactive inorganic sludge from cleaning out bulking tanks and from water jet cuttings. Wastes may include aqua-sorb, kerosene, abrasive garnet, metals, chloro-solvents, and biowaste.		
		Other inorganic sludge from sludge removal and separation processes, cleaning and degreasing operations, surface coating/preparation or other surface processes. Wastes may include halogenated solvents, non-halogenated solvents, and metals (barium, cadmium, chromium, lead, mercury, silver).		
		Waste inorganic sludge from spill cleanup activities. Wastes may include pigs, wipes, and Dryorb.		
Organic Sludge - Waste that is primarily organic with low-to-moderate inorganic solids content and water content; pumpable				
W603	Oily sludge (not contaminated muds - W512)	Oily sludge from maintenance operations including steam cleaning, roofing, car washing and cleanup of processing equipment. Wastes may include oil, asphalt, and other sump wastes.	F001 through F005	223, 551
		Oil sludge from separation processes such as centrifugation.		

		Wastes from spill cleanup of oily sludge		
W604	Paint or ink sludge, still bottoms in sludge form (not contaminated muds - W512)	Organic paint/ink sludge from cleanup or research activities including silk screening, product cleanup, cold vaporization, and Xerox copying. Wastes may include paint solids with Dryorb, sludge from spent photo-fixers, Xerox waste sludge, and film development evaporator bottoms.	D001	461, 551
W606	Resins, tars, polymer or tarry sludge (not contaminated muds - W512)	Resins, tars or tarry sludge. Wastes may be ignitable.	D001	272, 551
		Tarry residues or sludge from surplus, off-specification organics. Wastes may be ignitable.		
		Reactive or polymerizable organics from research or maintenance activities.		
W609	Other organic sludge	Treated biological sludge from research or maintenance activities.	D001, but includes U001 through U411 residues	491, 551
		Sewage or other untreated biological sludge from research or maintenance activities.		
		Sludge containing metal fines and heavy dense organic material from separation processes such as centrifugation.		
		Other organic sludge, from sludge removal and sludge dewatering. Wastes may include lead, spent halogenated solvents and low-level radioactivity.		

**Table 4. Envirostor Sequence Unit Number
 (For DTSC Internal Use Only)**

Permit Unit Number	Unit Name	Envirostor Sequence Unit Number
1	Area 625 Tank Trailer Storage Unit	5
2	Area 625 Container Storage Unit	41
3	Building 625 Container Storage Unit	30
4	Building 693 Container Storage Unit	31 and 43
5	Building 693 Freezer Unit	44
6	DWTF Roll-Off Bin Storage Unit	45
7	Building 695 Airlock Container Storage Unit	53
8	Building 695 Reactive Waste Storage Unit	54
9	Building 696 Rooms 1010 and 1011 Storage Unit	38
10	Building 696 Rooms 1001, 1007, 1008, and 1009	75
11	DWTF Portable Tank Storage Pad	55
12	DWTF Container Storage Unit	No Envirostor Number
13	Tank Farm	46
14	Evaporators Unit	No Envirostor Number
15	Centrifuge Unit	47
16	Solidification Unit	48
17	Building 695 Shredding Unit	49
18	Drum Rinsing unit	51
19	Debris Washer Unit	52
20	Building 695 Small Scale Treatment Unit	57
21	Wastewater Filtration Unit	50
22	Building 696 Drum/Container Crushing Unit	26

FIGURES

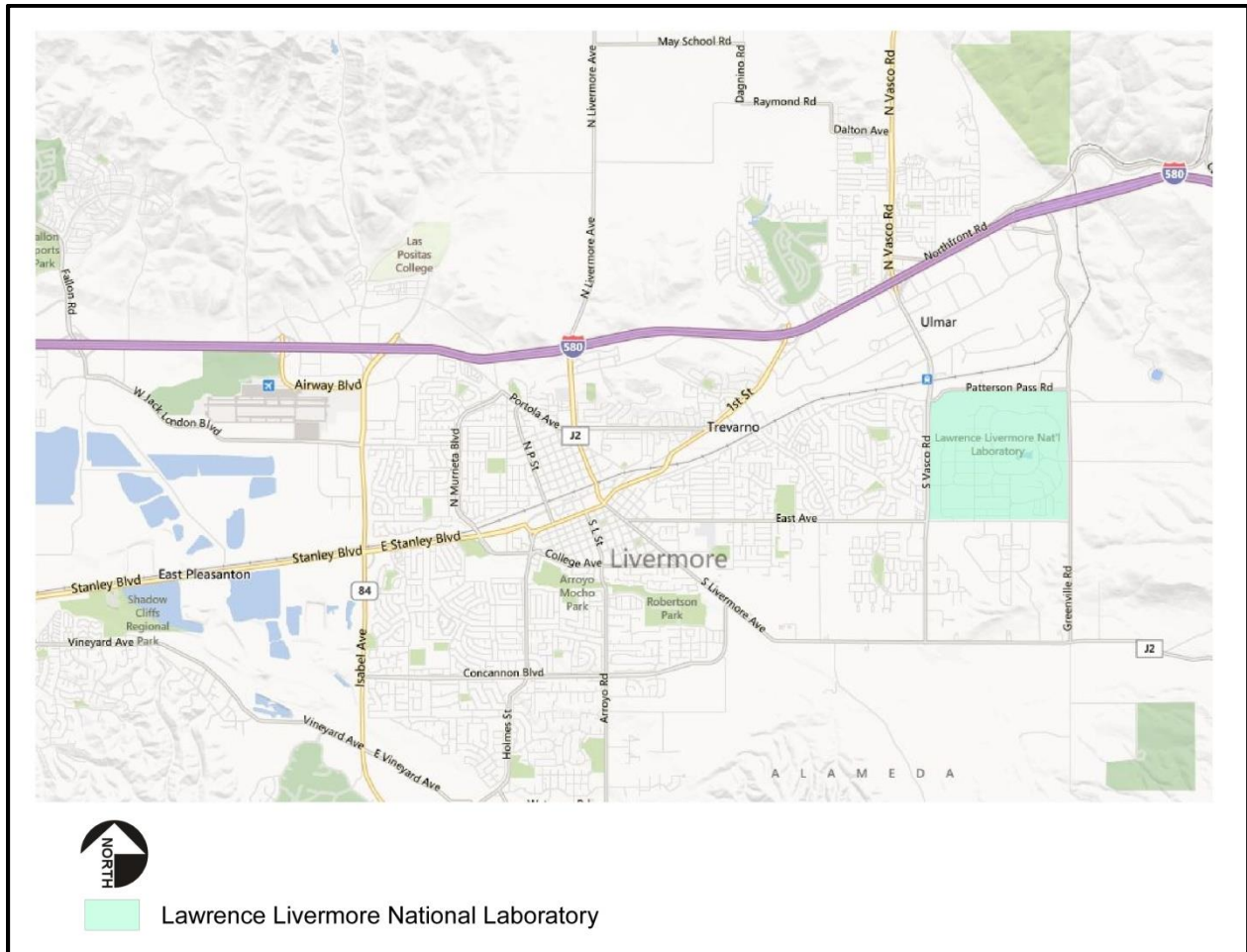


Figure 1. Location of LLNL Facility

7000 East Avenue
Livermore, California 94550



Figure 2. Aerial Photo LLNL

7000 East Avenue
Livermore, California 94550



Figure 3. Location of Permitted and Generator Accumulation Units

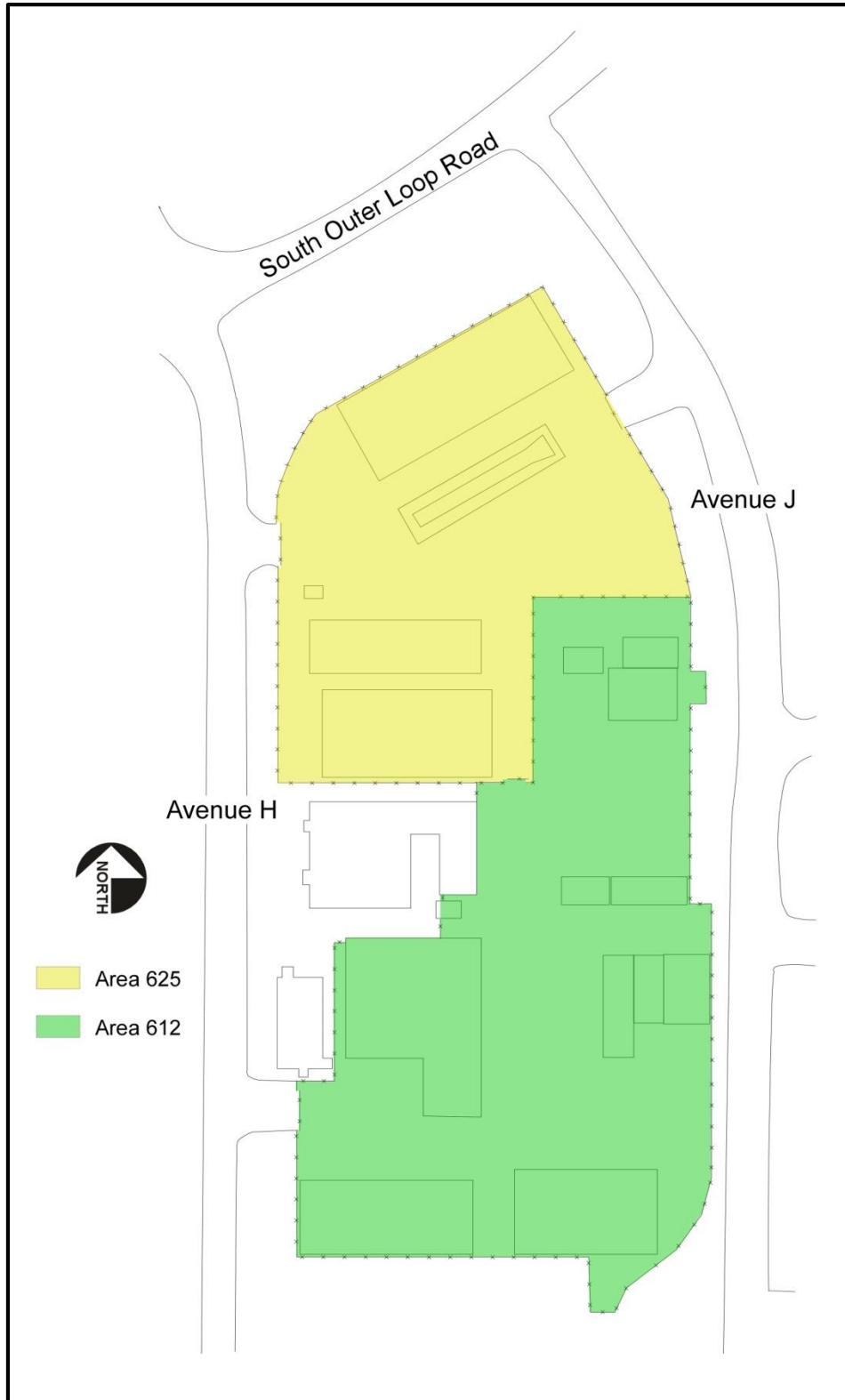


Figure 4. Area 625 and Area 612

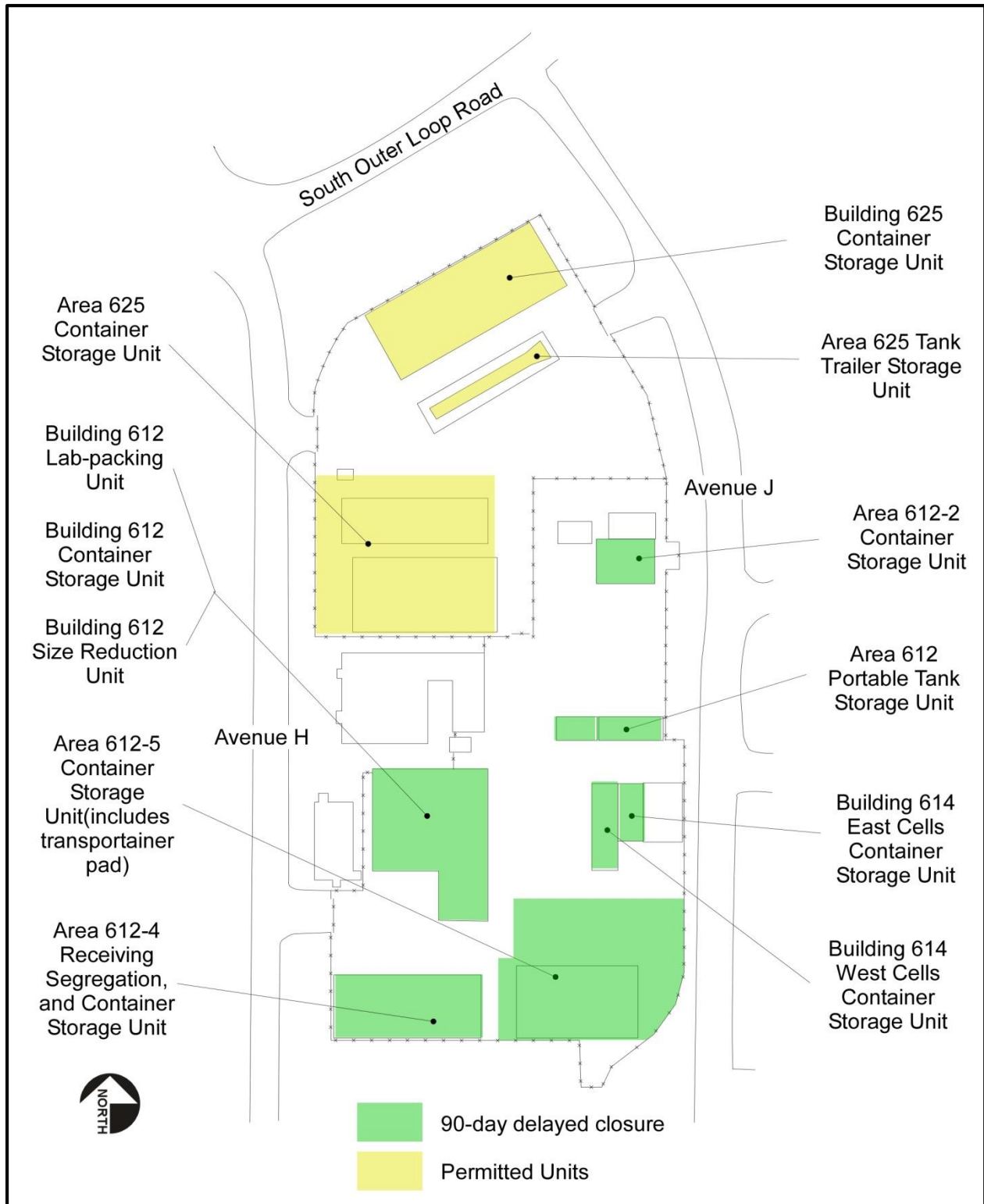


Figure 5. Units in Area 625 and Area 612

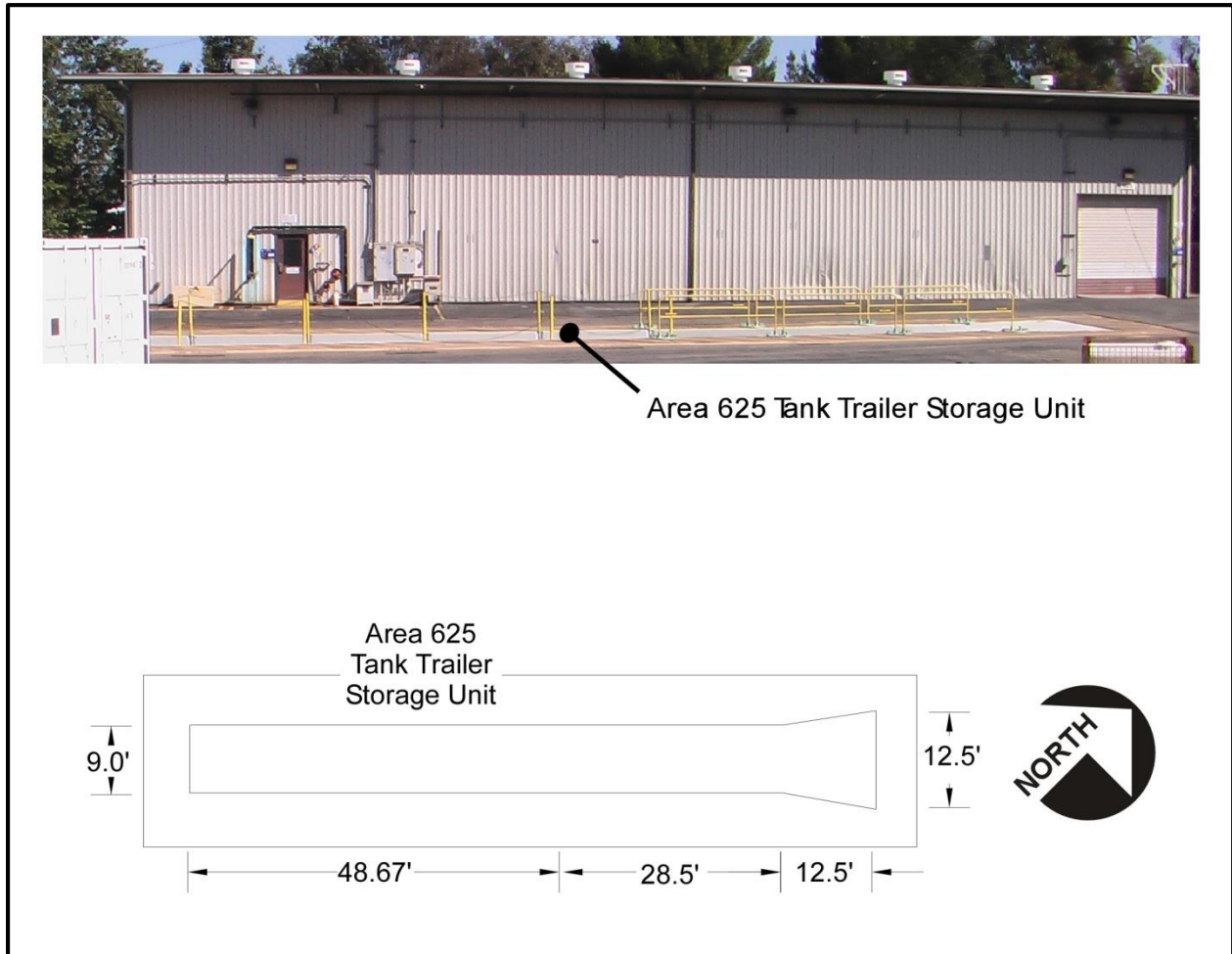


Figure 6. Area 625 Tank Trailer Storage Unit

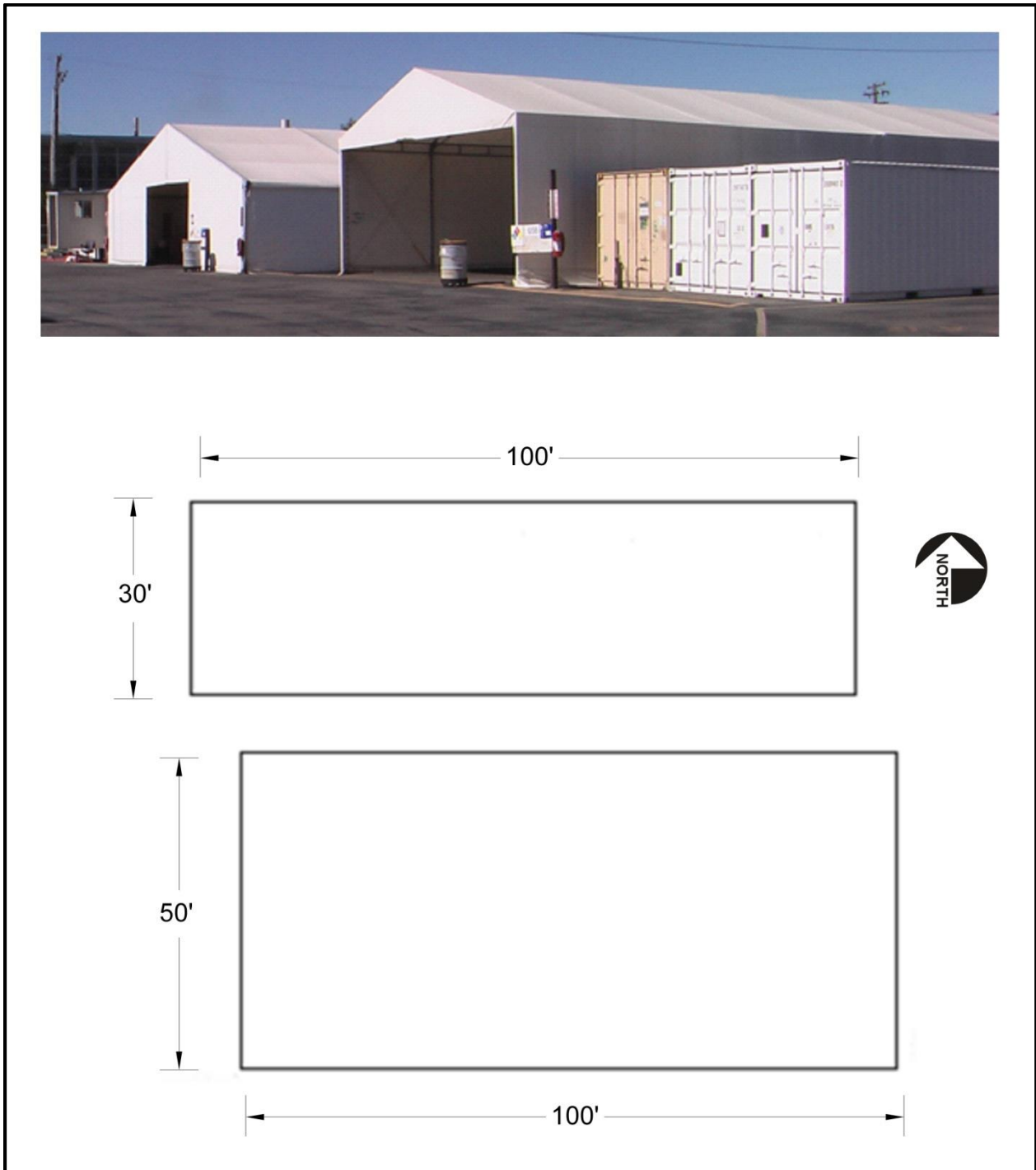
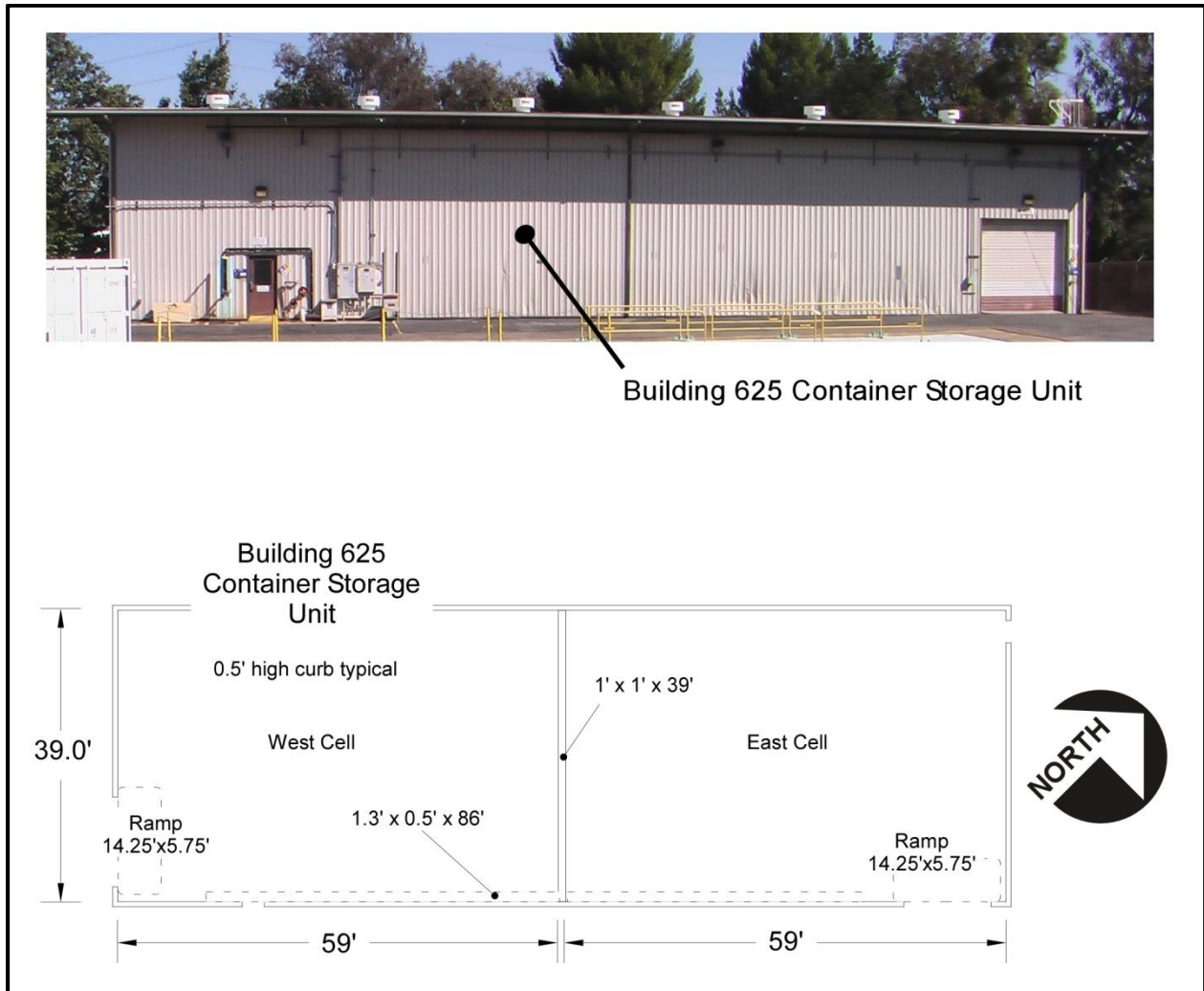


Figure 7. Area 625 Container Storage Unit



Building 625 Container Storage Unit

Figure 8. Building 625 Container Storage Unit

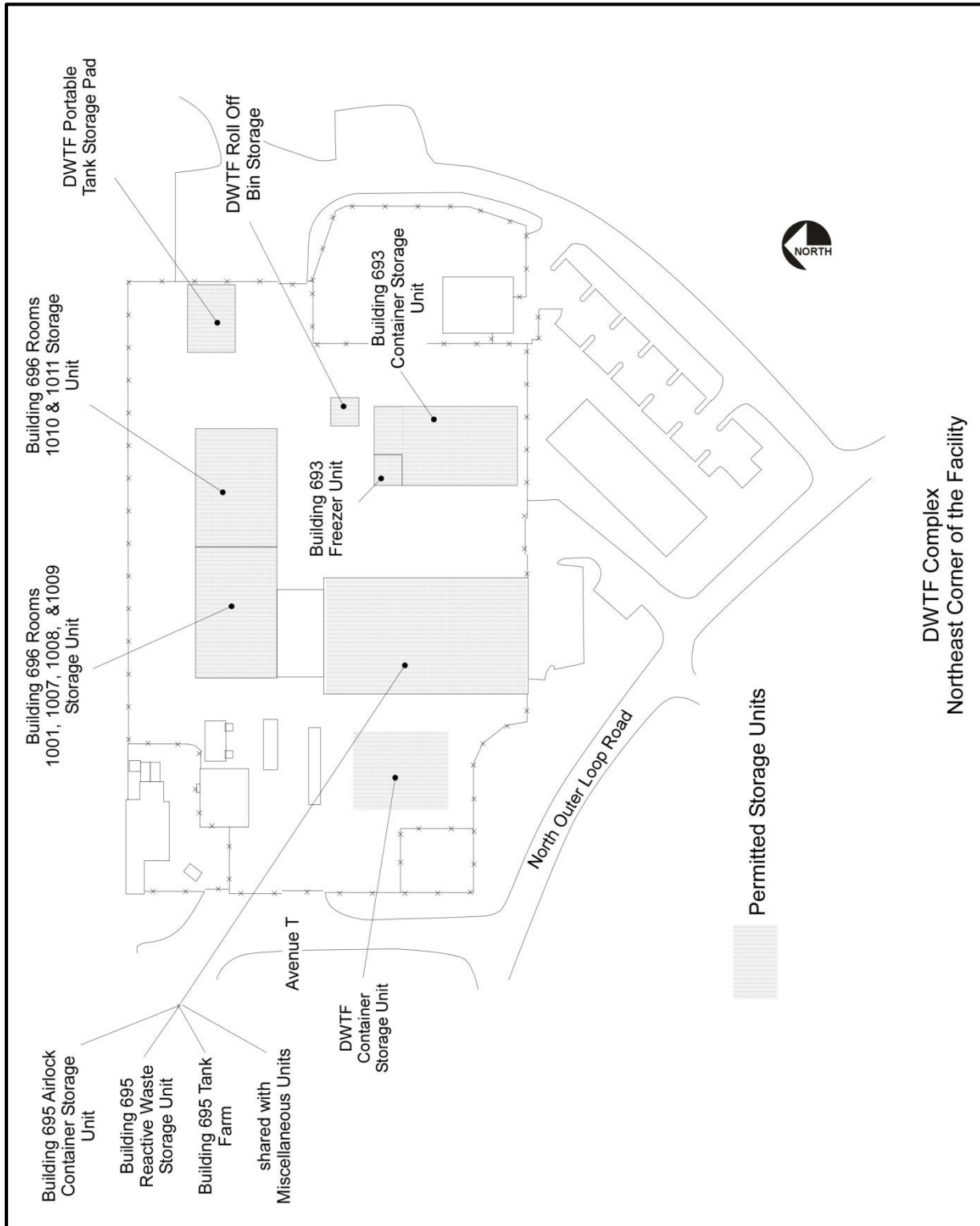


Figure 9. Decontamination and Waste Treatment Facility (DWTF)

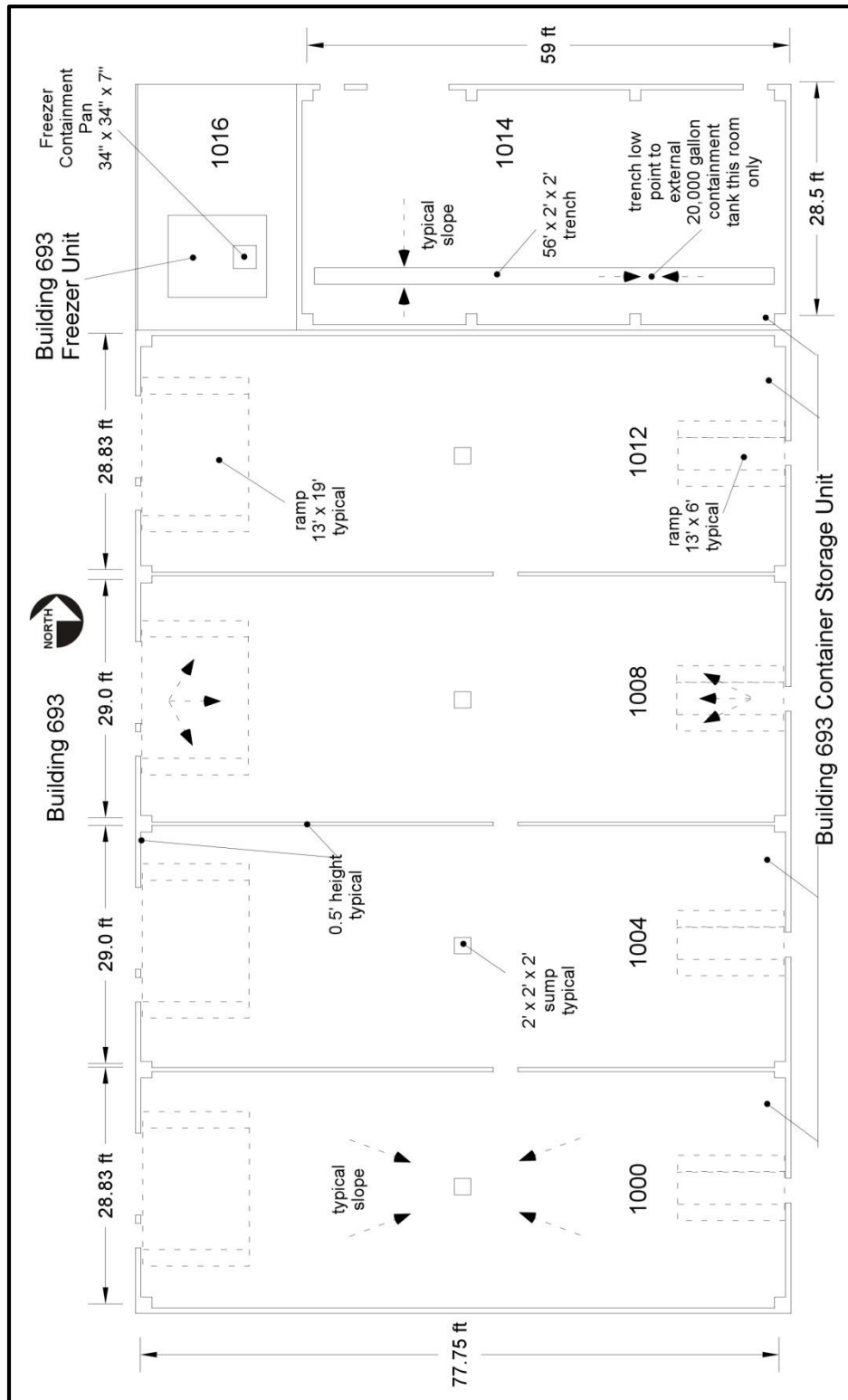


Figure 10. Building 693 Container Storage Unit

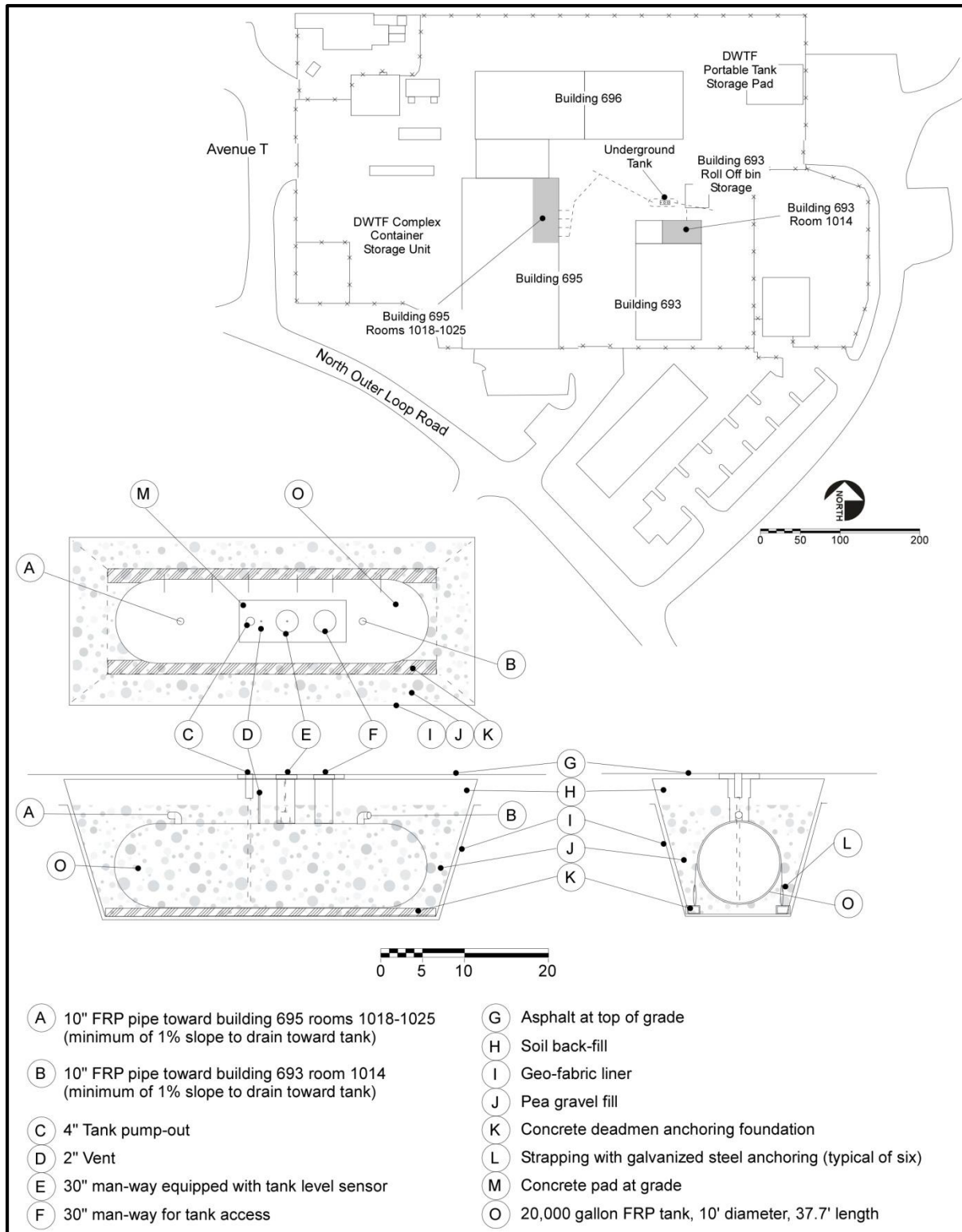


Figure 11. 20,000 Gallon Secondary Containment Tank

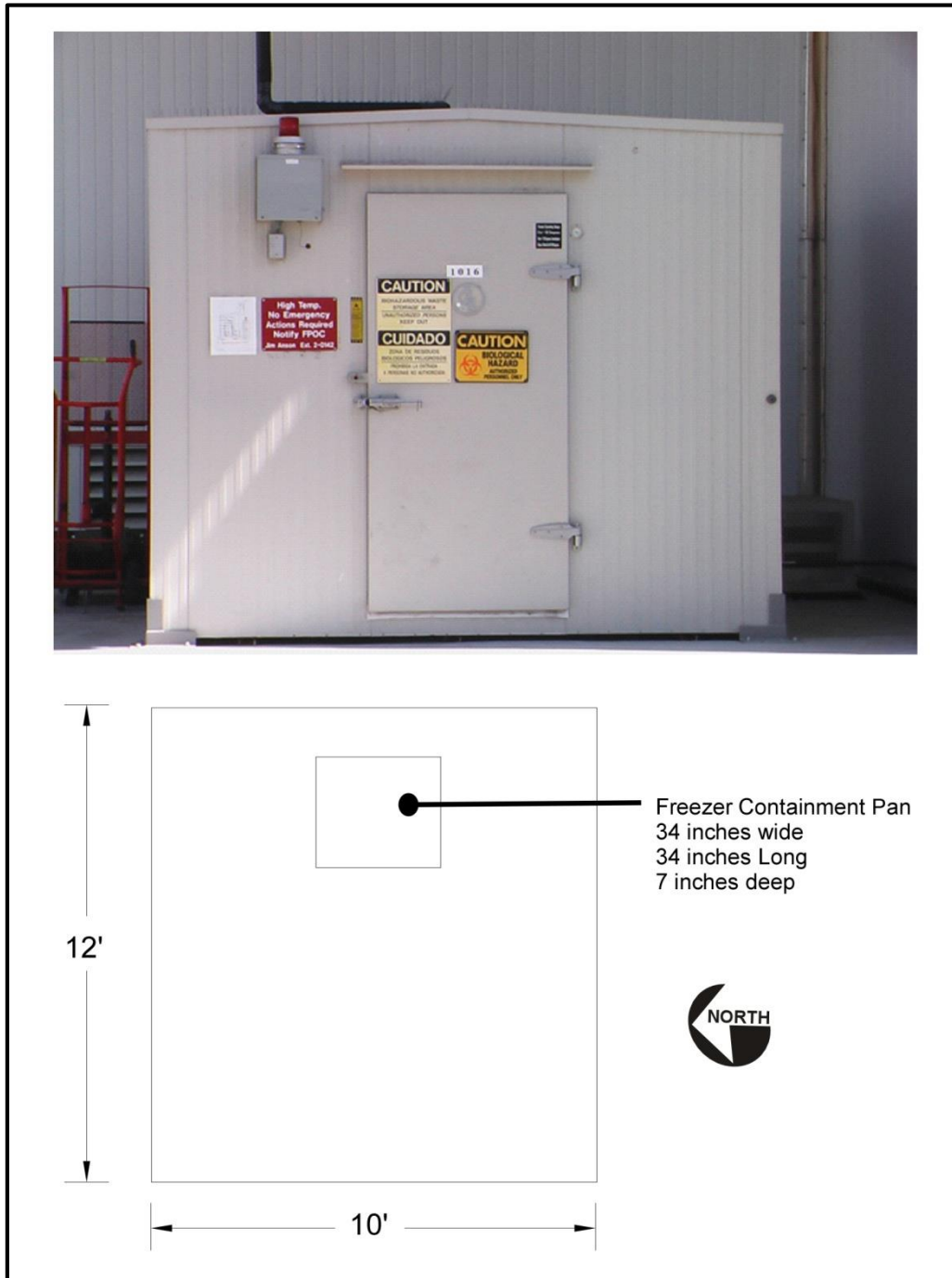


Figure 12. Building 693 Freezer Unit

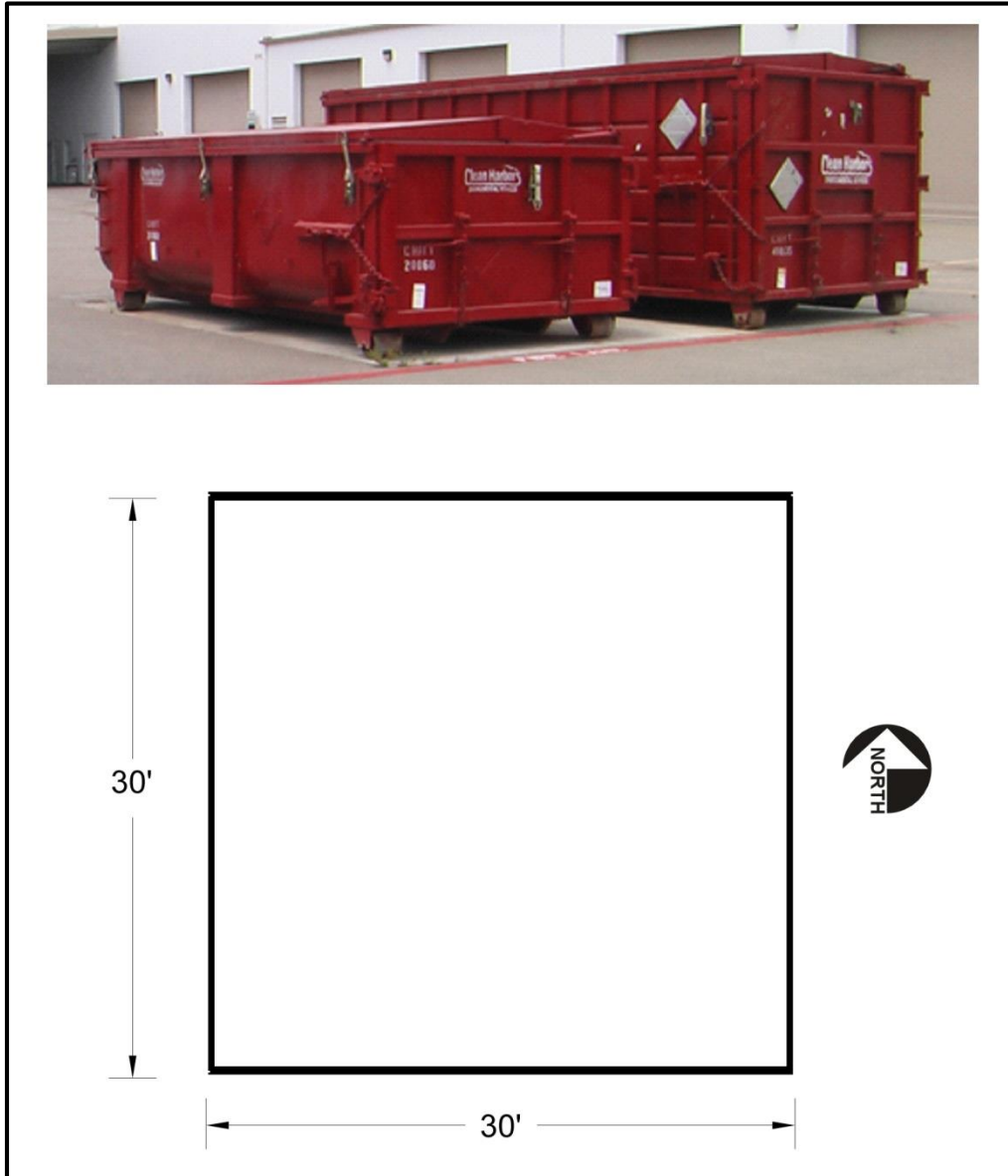


Figure 13. DWTF Roll Off Bin Area

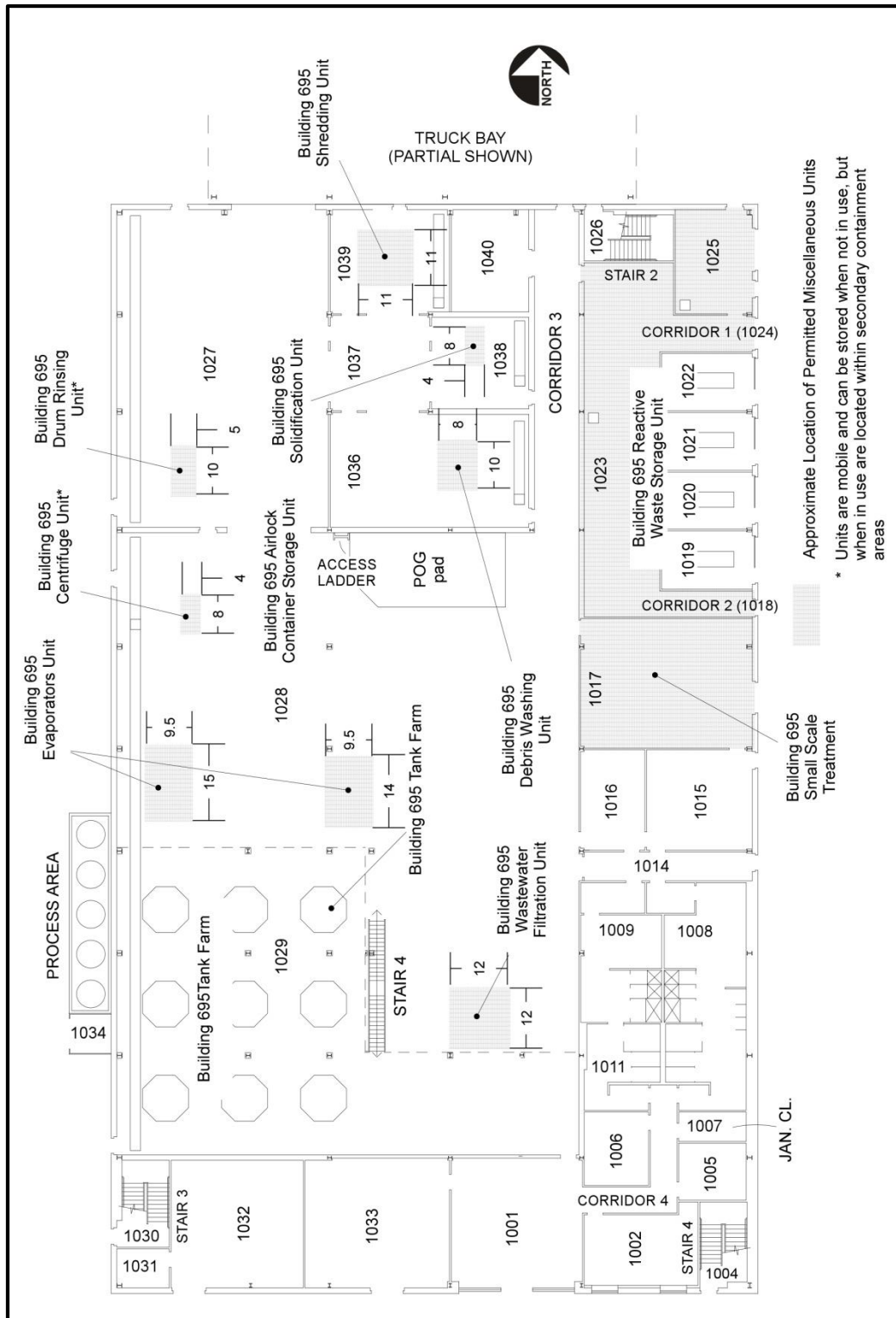


Figure 14. Building 695

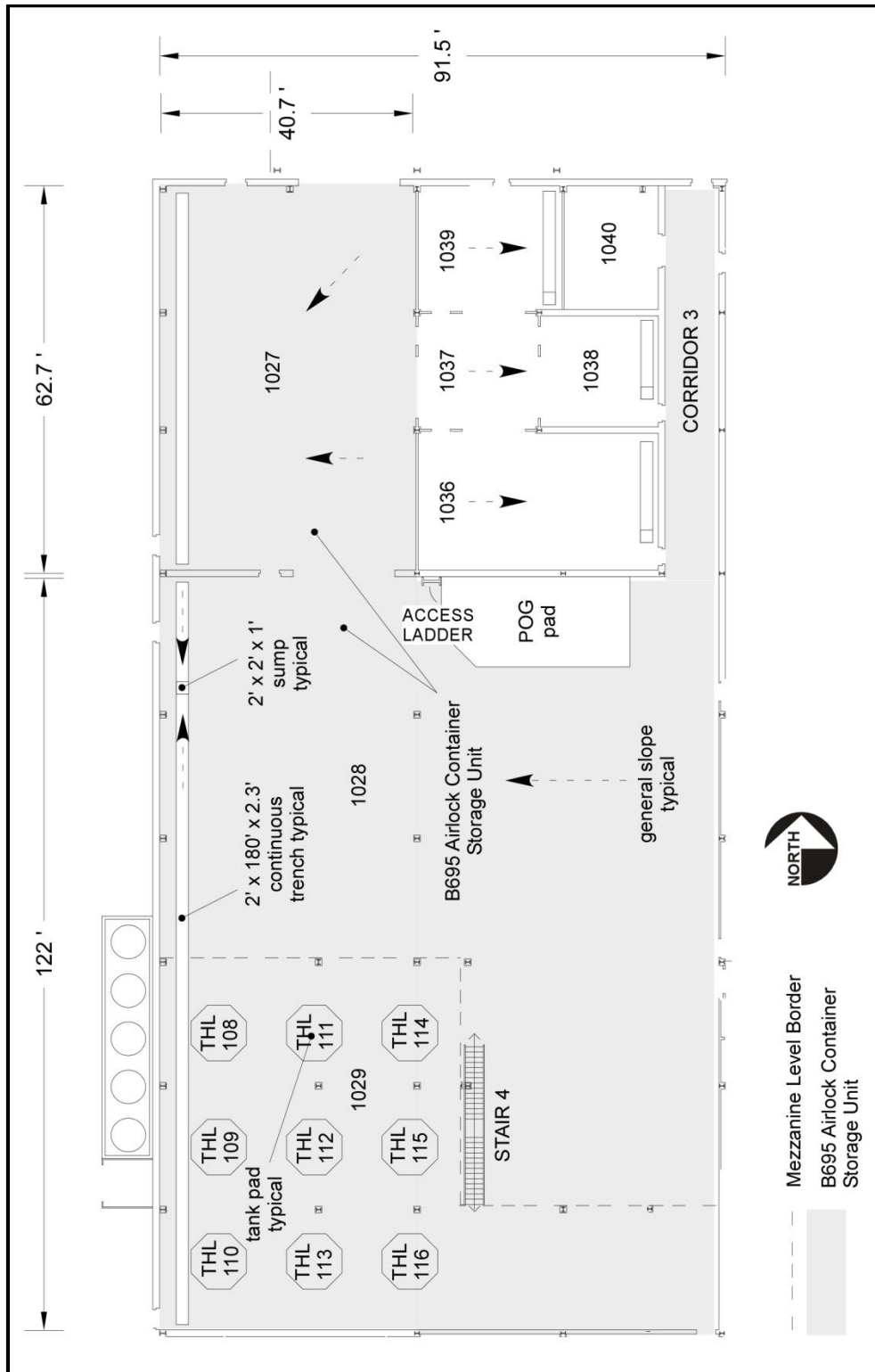


Figure 15. Building 695 Airlock Container Storage Unit

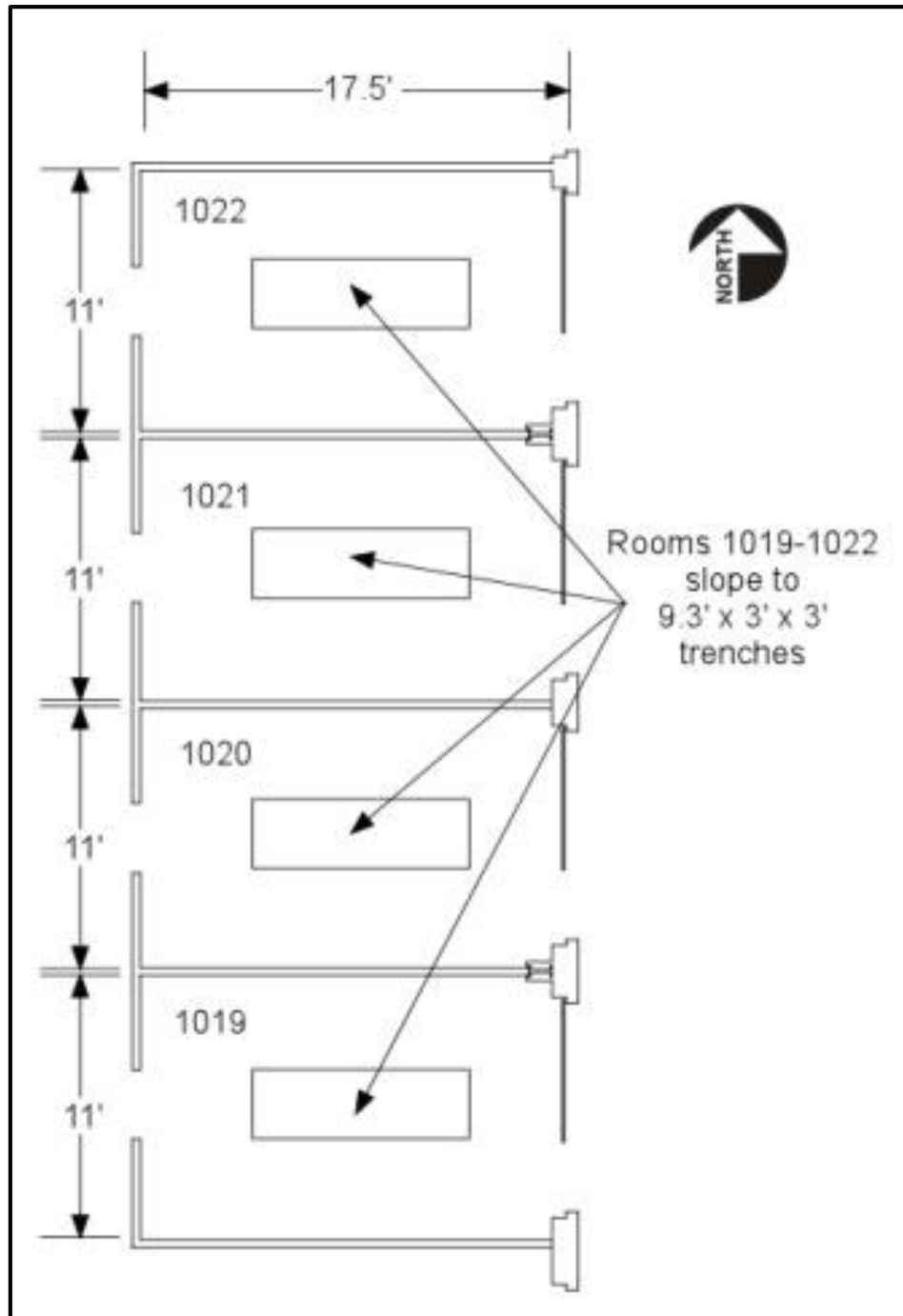


Figure 16. Building 695 Reactive Waste Storage Unit

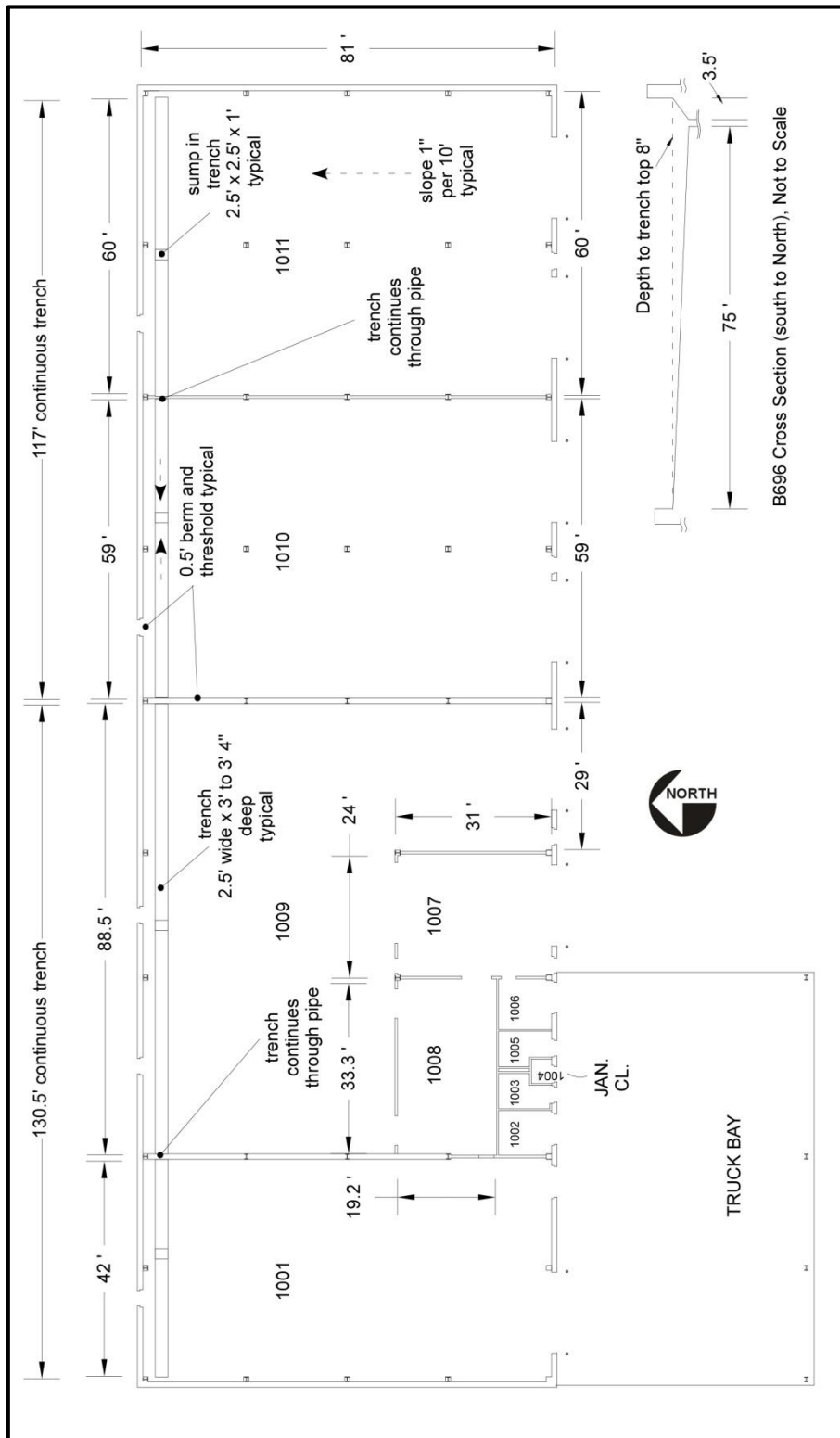


Figure 17. Building 696

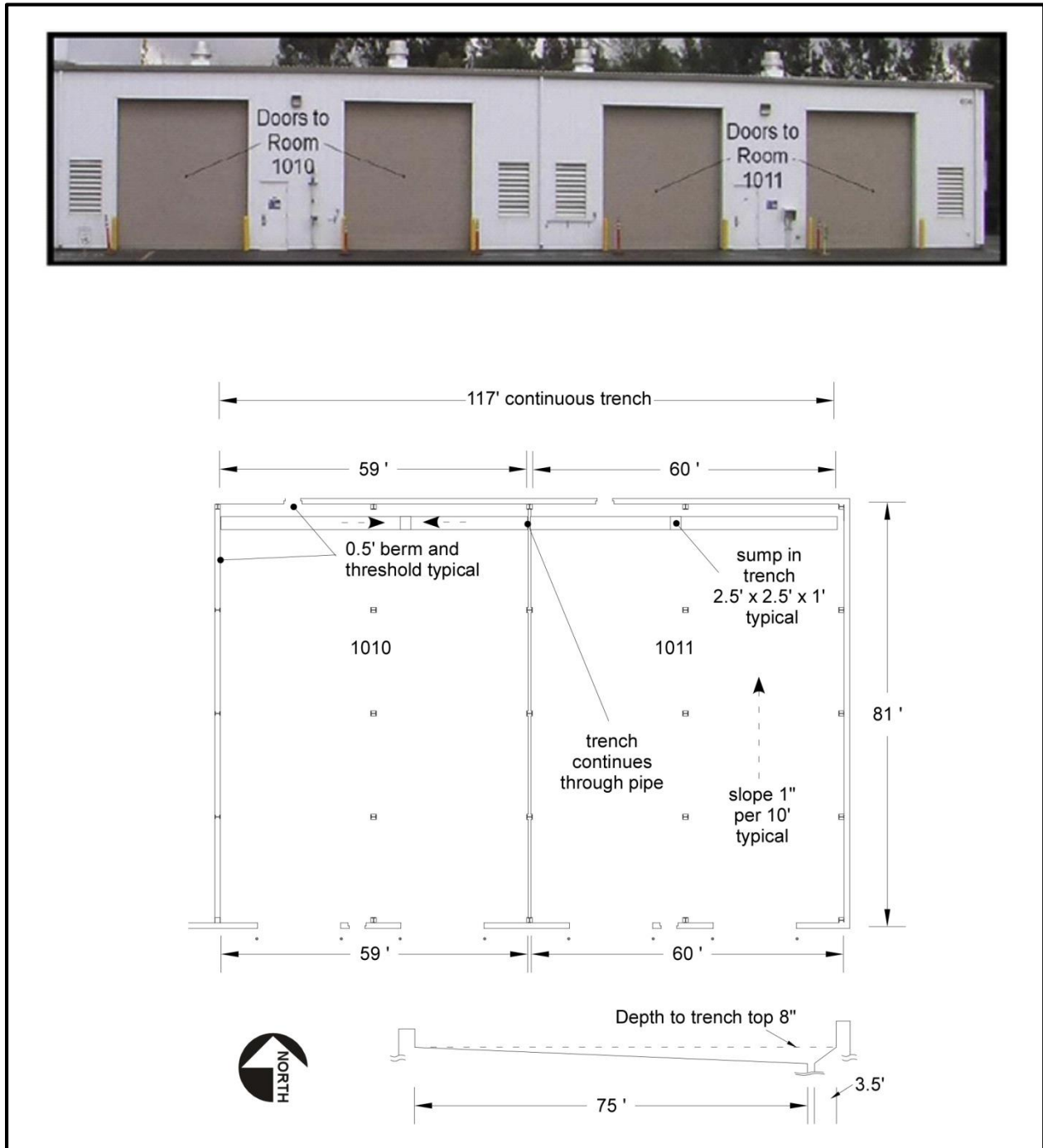


Figure 18. Building 696 Rooms 1010 and 1011 Storage Unit

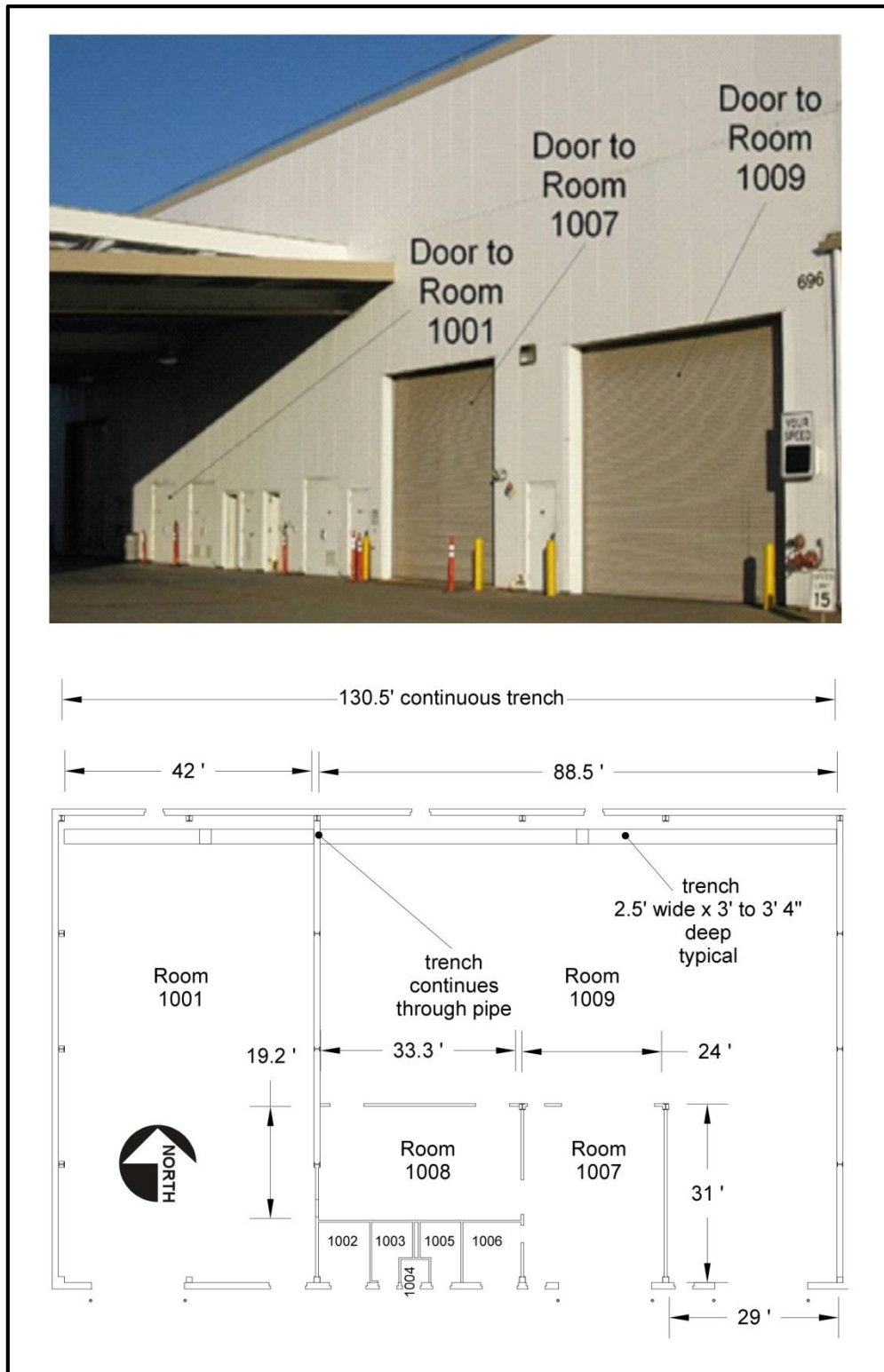


Figure 19. Building 696 Rooms 1001, 1007-1009 Storage Unit

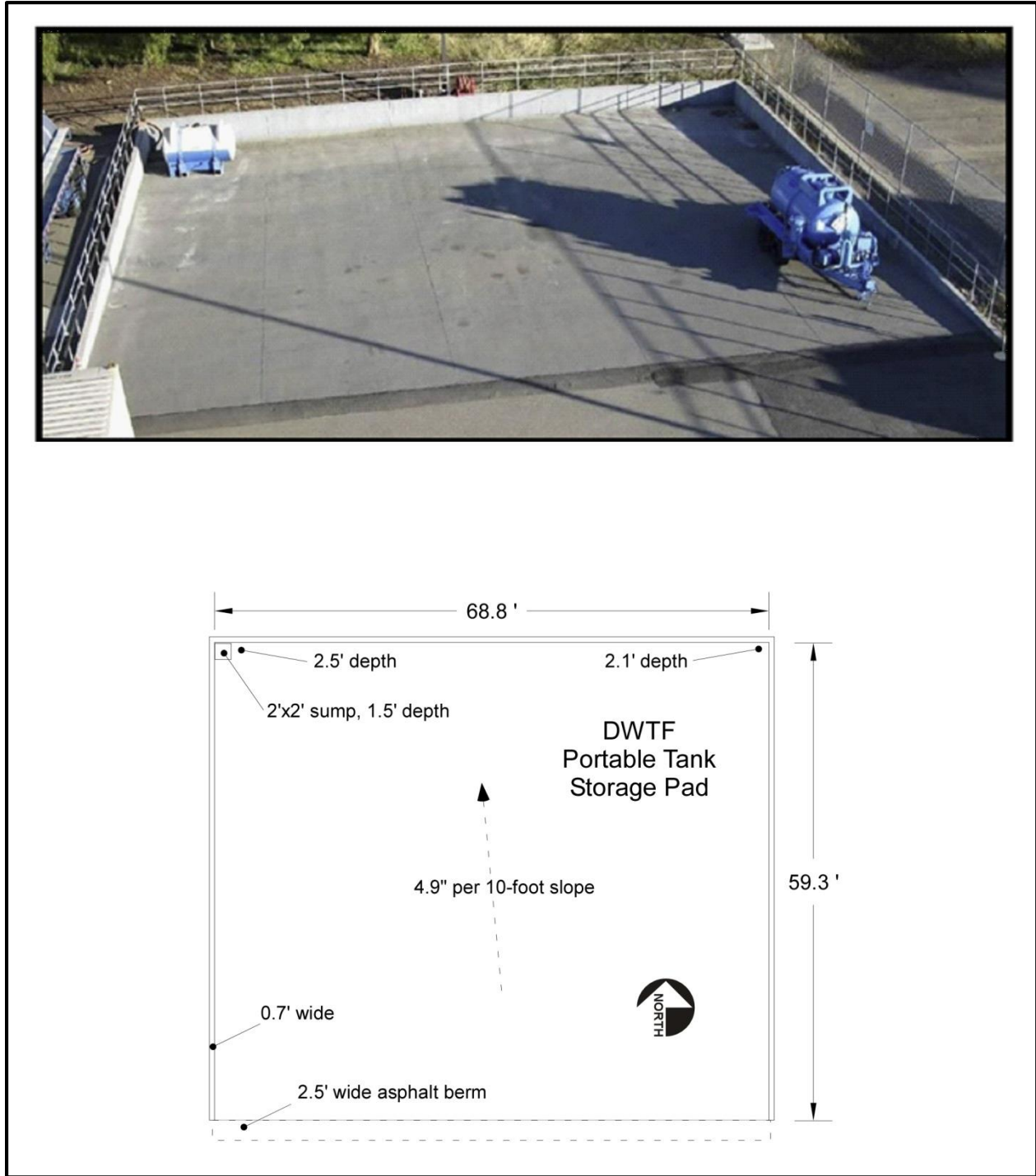


Figure 20. DWTF Portable Tank Storage Pad

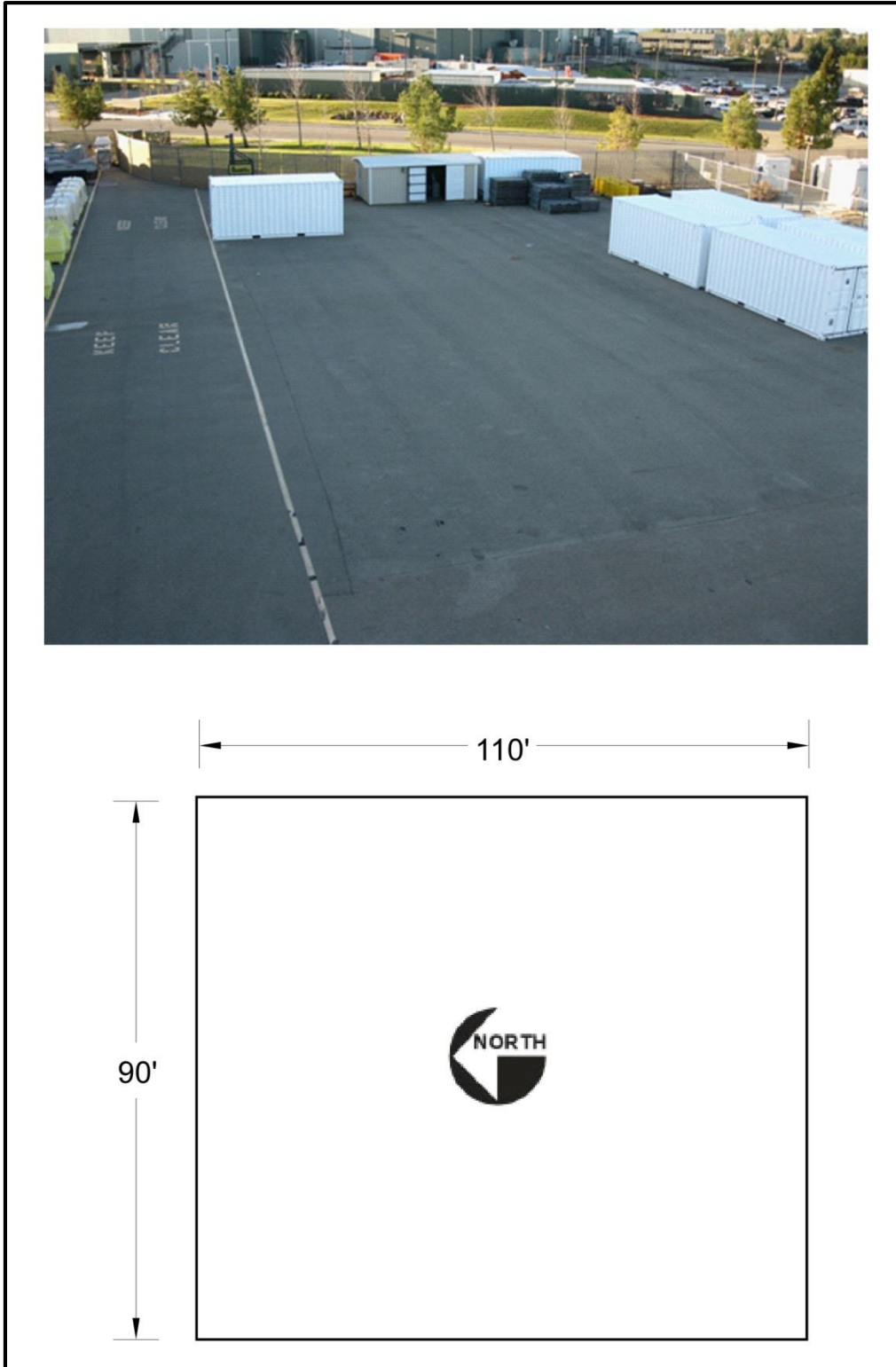
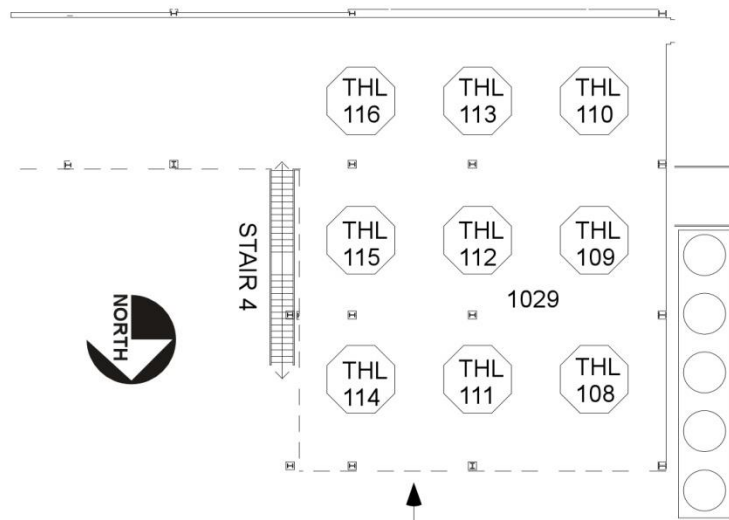


Figure 21. DWTF Container Storage Unit



Picture above taken
from this direction

Figure 22. Building 695 Tank Farm

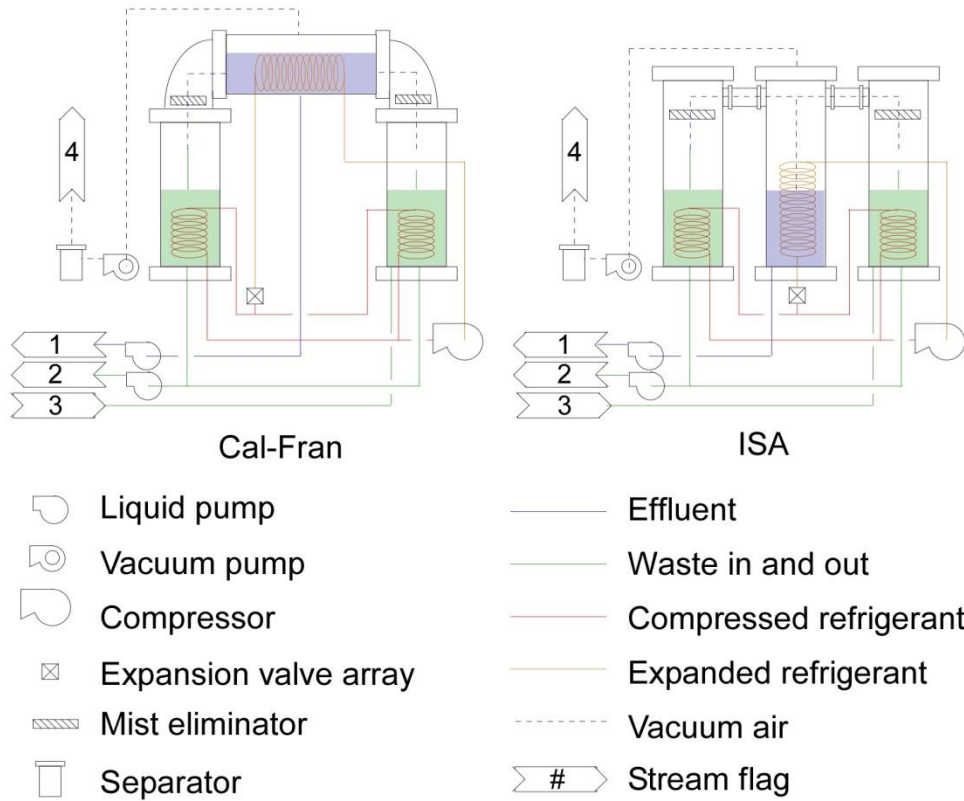


Figure 23. Evaporators Unit

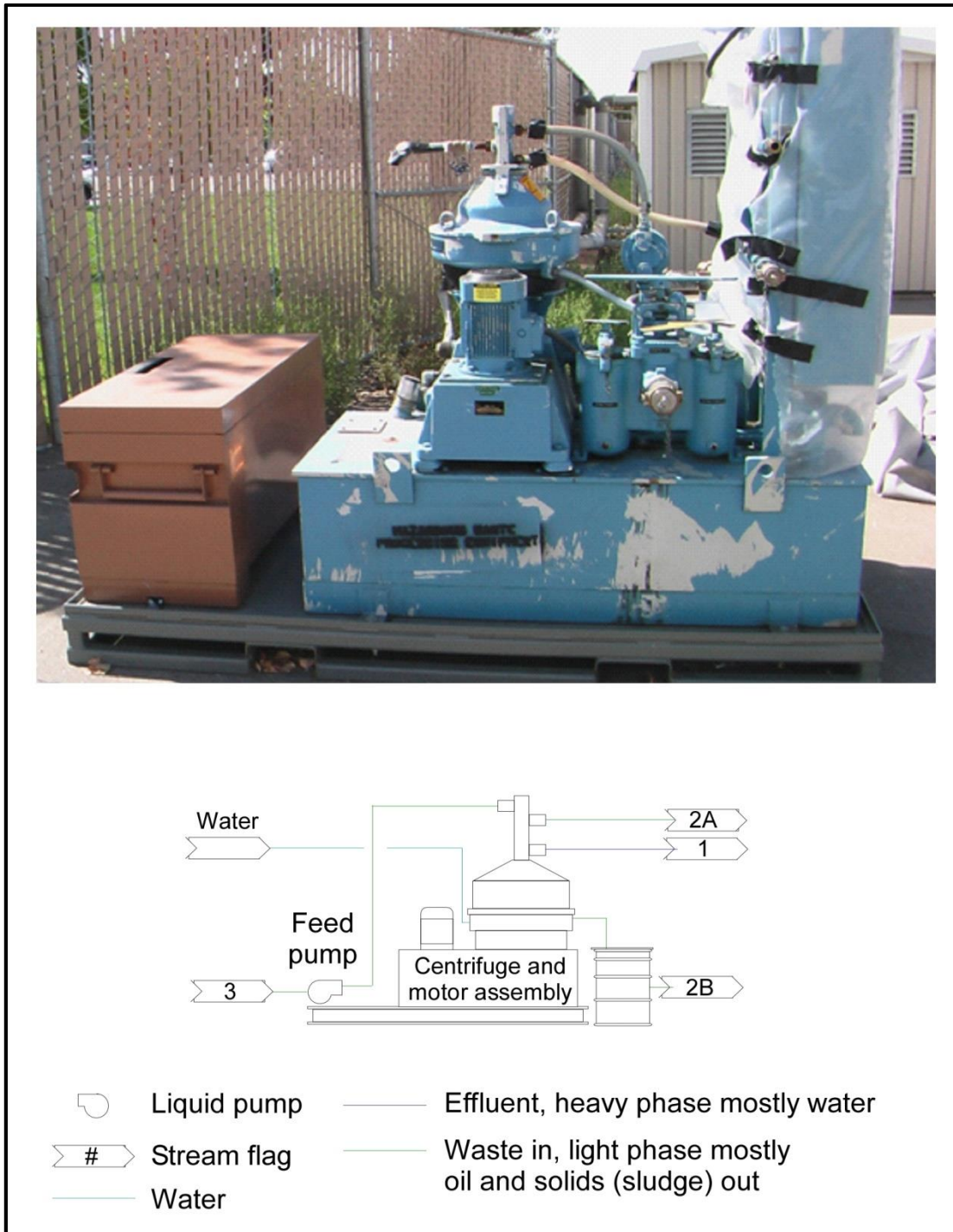


Figure 24. Centrifuge Unit

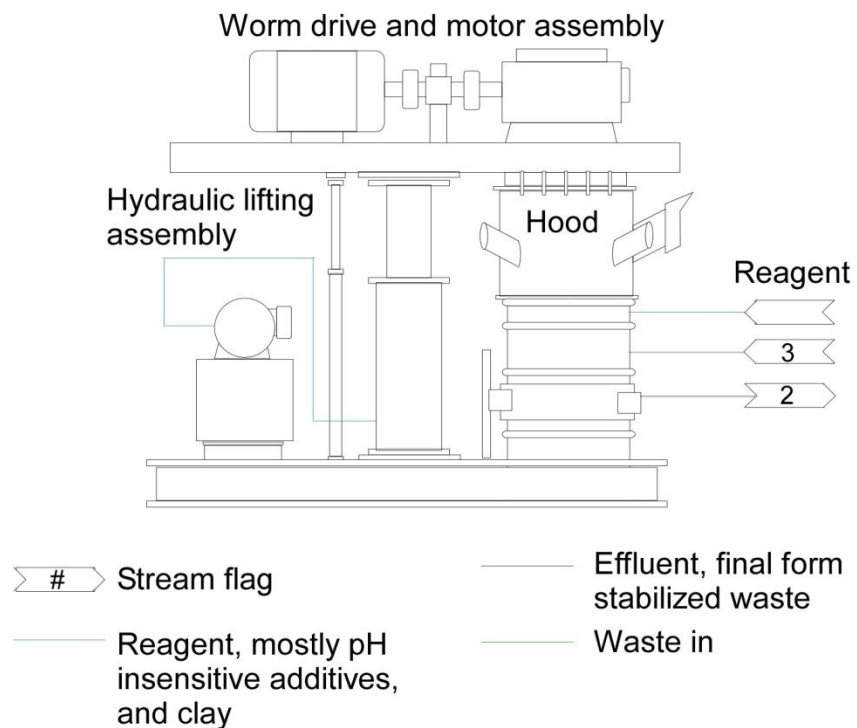


Figure 25. Solidification Unit

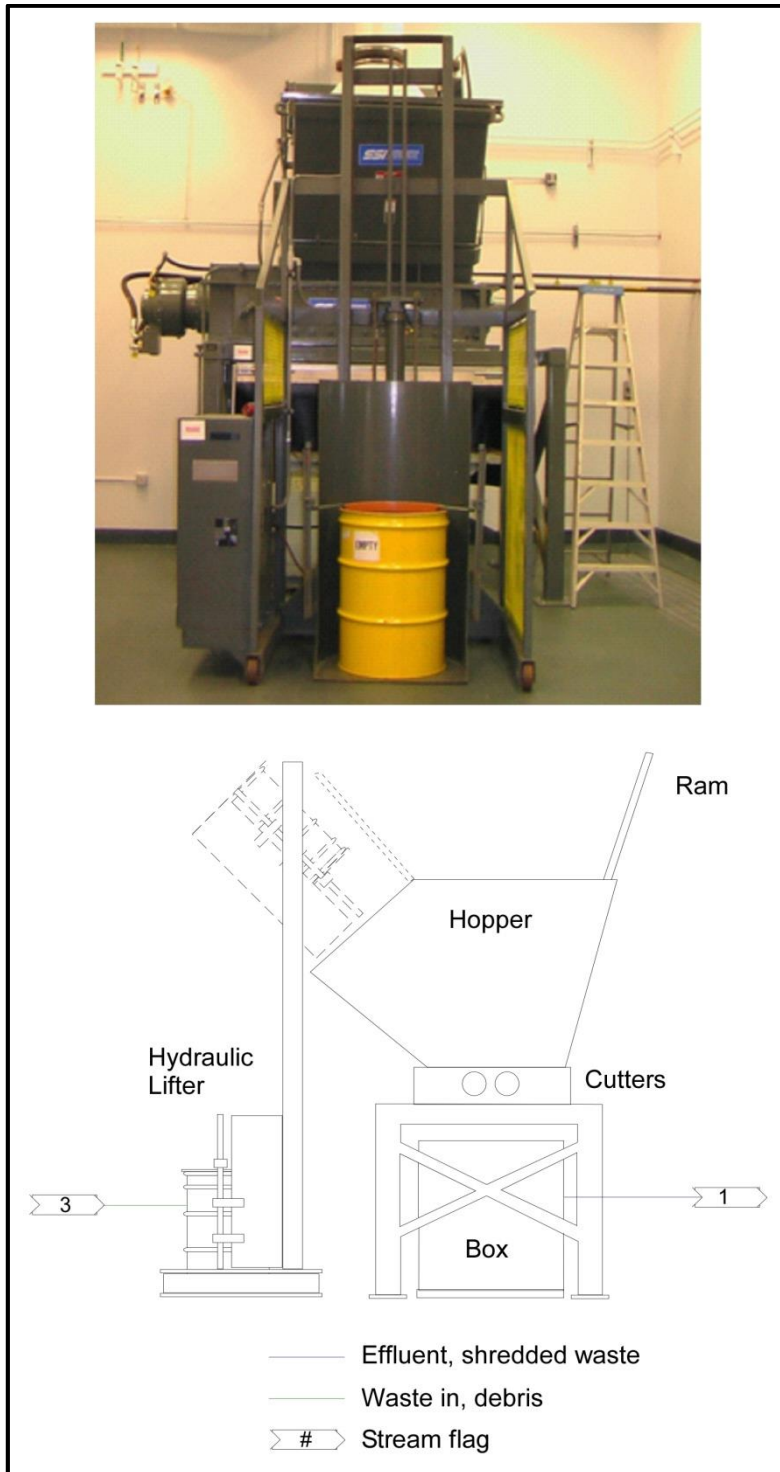


Figure 26. Shredding Unit

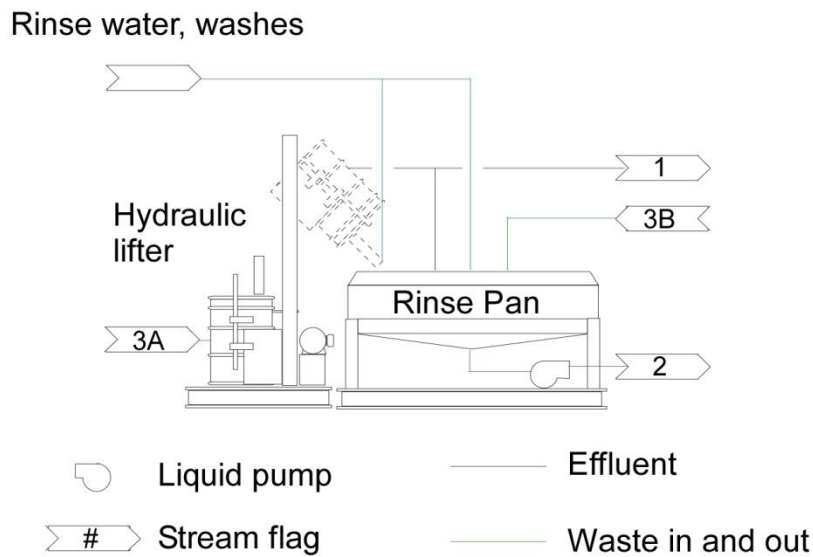


Figure 27. Drum Rinsing Unit

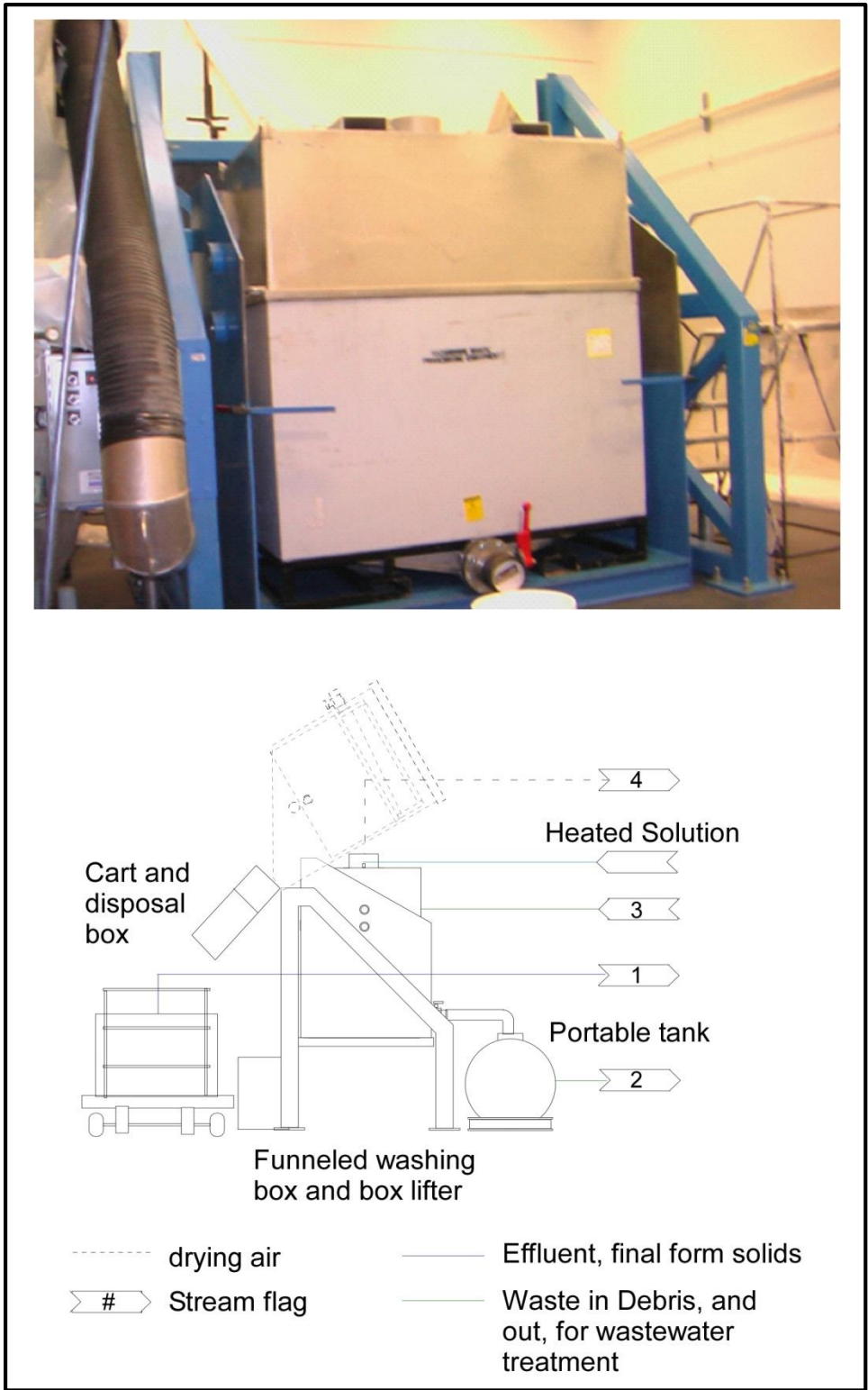


Figure 28. Debris Washer Unit

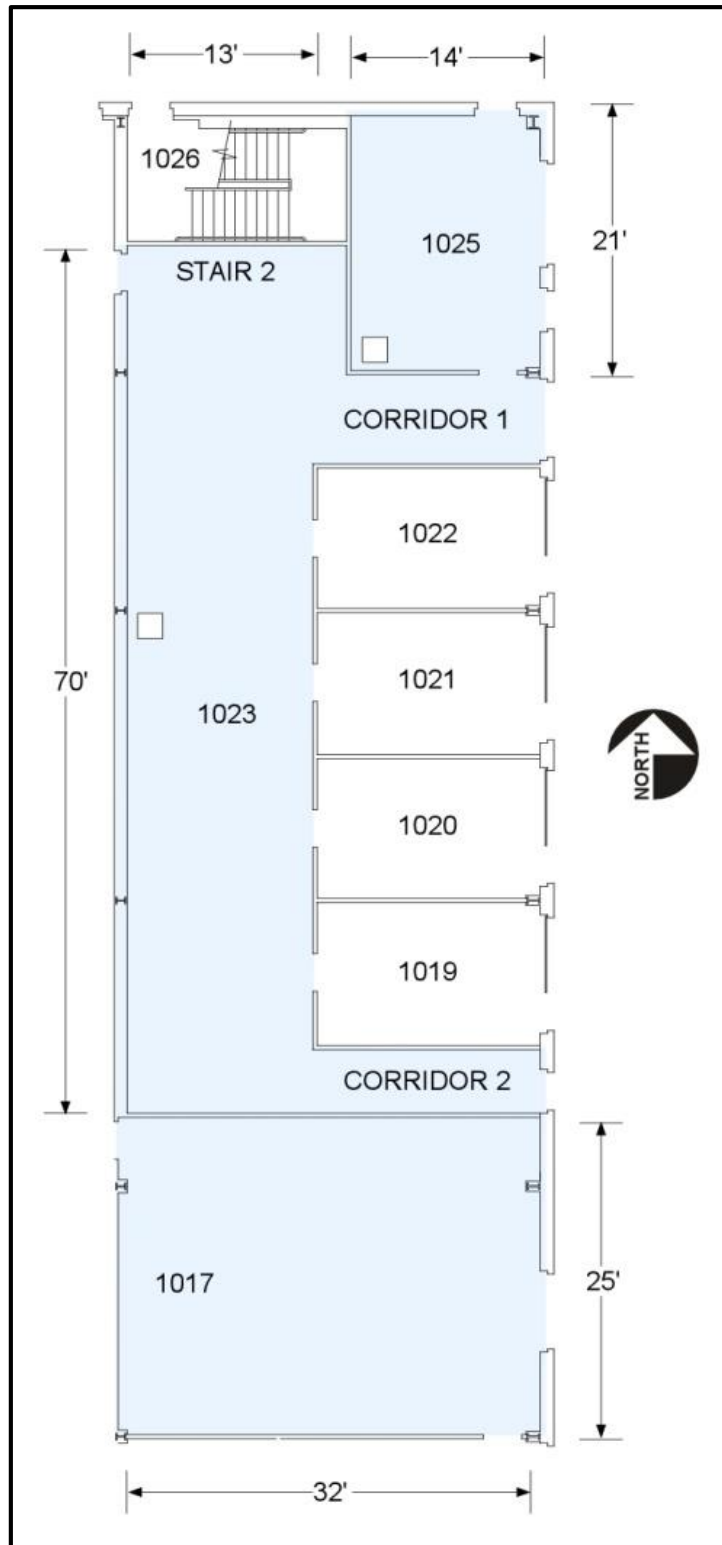
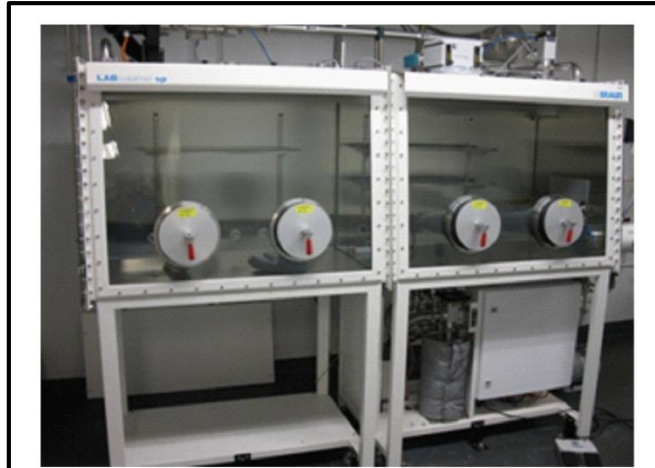


Figure 29. Building 695 Small Scale Treatment Unit



Figure 30. Small Scale Treatment Laboratory



Inert Atmosphere Glovebox



Radioisotope Glovebox



Multihazard Glovebox

Figure 31. Inert Atmosphere, Radioisotope, and Multihazard Gloveboxes



Figure 32. Walk-In Fume Hood

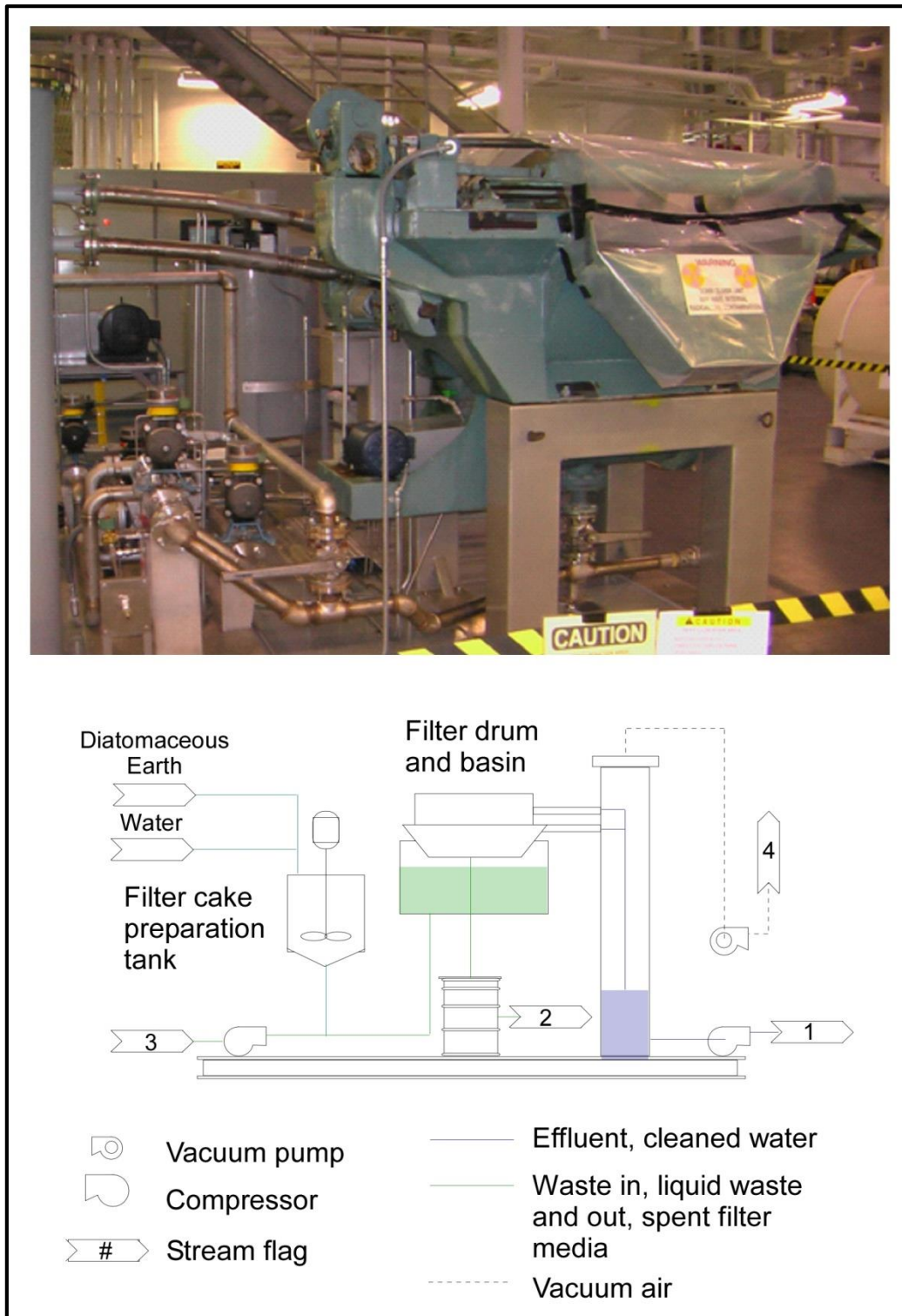


Figure 33. Wastewater Filtration Unit

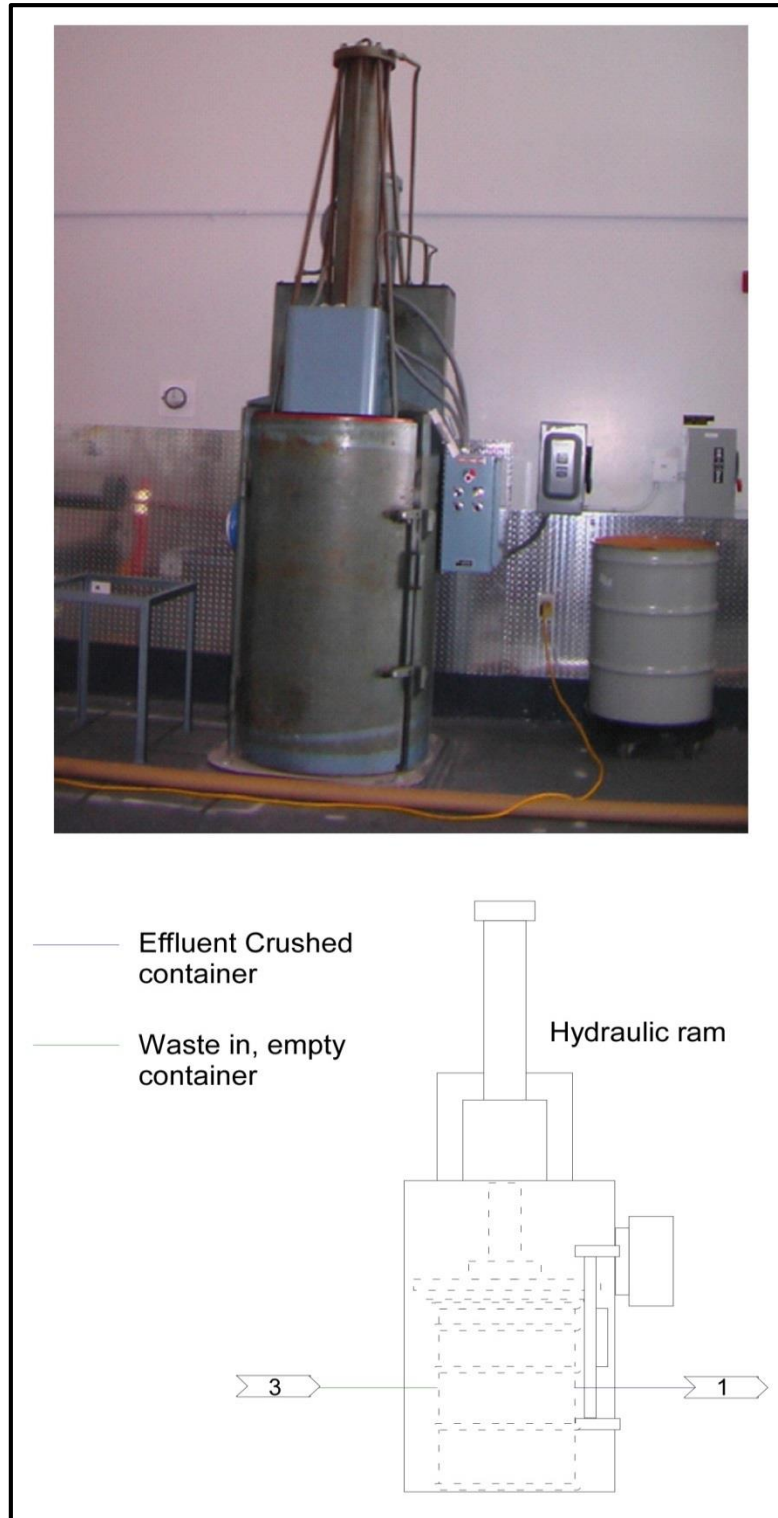


Figure 34. Building 696 Drum/Container Crushing Unit