

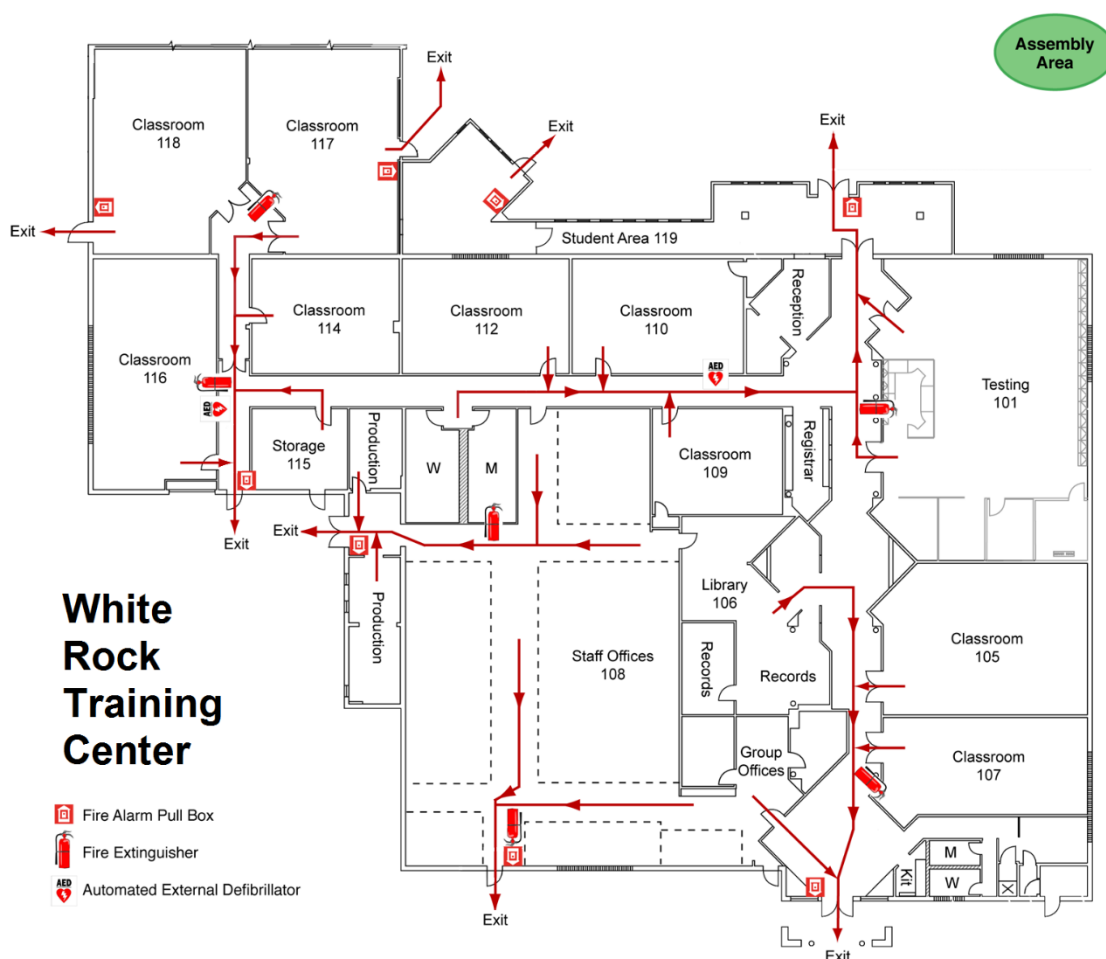
RCRA PERSONNEL TRAINING #7488

STUDENT MANUAL

SEPTEMBER 2026



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Introduction and Orientation

Course Overview

Federal and state regulations require hazardous waste facility workers at permitted and interim status treatment and storage facilities to be trained in hazardous waste management. This course will familiarize and update workers and supervisors at these units regarding the following according to the LANL Hazardous Waste Permit and Title 40 CFR 264 and 265.

- *storage requirements*
- *treatment requirements*
- *waste characterization requirements and documentation*
- *other recordkeeping and reporting requirements*
- *emergency response procedures*

Course Purpose

Upon successful completion of this course, participants should demonstrate familiarity with the essential responsibilities and requirements for hazardous waste management work at permitted and interim status treatment and storage facilities.

Course Objectives

After completing this course, you should be able to do the following:

- *Recognize the storage area and treatment requirements for permitted and interim status storage and treatment units*
- *Recognize waste storage documentation and labeling requirements*
- *Recognize the importance of recordkeeping and reporting as required by federal and/or state environmental regulatory agencies*
- *Identify the purpose of and major elements in the emergency management plan (EMP) and contingency plan.*

Target Audience

Los Alamos National Laboratory (LANL) personnel who work in or are supervisors at permitted and interim status hazardous waste management units are required by LANL Procedure (P) 409, Waste Management, to take this course.

Program Owner

This course was developed under the direction and technical oversight of Environment, Safety, Health, and Quality, the functional program owner for this training. The Waste Management Program group within the Environmental Protection and Compliance division (EPC-WMP) is the primary contact for the content of this training.

Training Requirements

- **Initial training** – RCRA Personnel Training, #7488 and accompanying quiz, RCRA Personnel Training Quiz #63363
- **Refresher training** – RCRA Refresher SS, #28582 and quiz.

(NOTE: This refresher must be taken every 365 days. There is NO GRACE PERIOD.)

Treatment and Storage Facility (TSF) workers must be trained and qualified to ensure the Laboratory meets its regulatory and contractual requirements. These individuals must be assigned and maintain Curriculum 256, RCRA Hazardous/Mixed Waste Worker Training.

Workers whose training expires are prohibited from generating waste, treating waste, or working in a waste storage or treatment unit described in this document until their training is completed. Performance of waste related activities without proper training is a regulatory compliance violation.

Note: Site-specific training may be required and directed by responsible line managers.

Course Limitations

This course does not detail facility- or job-specific training that may be required by facilities that operate permitted and interim status hazardous waste management units.

Registration and Attendance

Attendance is crucial in order to receive credit for this course. All participants must complete registration prior to the beginning of the course, sign the attendance roster for each day of the course, and attend and actively participate in the course.

Note – Hazardous waste workers only: Training must be provided within six months after the date of employment or assignment to a new facility or to a new position at a facility, whichever is later. Employees must not work in unsupervised positions until they have completed the training.

Delivery Methods

Course delivery consists of lectures, group discussions, and participant activities.

Evaluation Strategy

Formative assessment: The instructor will use oral questioning during the presentation of each module to assess participants' mastery of the material. Problem areas identified during questioning will be reviewed in further detail. Participants will be evaluated with classroom discussion and a participant activity.

Summative assessment – RCRA Personnel Training Quiz #63363 on UTrain: Students must score at least 80 percent.

Administrative Details

The instructor will use this portion of the course for introductions and to familiarize participants with facility safety and convenience features, the location of the facility's designated break area(s), and any additional resources or equipment available.

Participants must adhere to all safety requirements during training sessions. They should see their instructor immediately if they have any questions or concerns about safety.

Acronyms

AK	acceptable knowledge
AR	action required
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWDR	chemical waste disposal request
DOE	Department of Energy
DOT	Department of Transportation
EMP	Emergency Management Plan
EMS	Environmental Management System
EM	Emergency Management Division
EPC-ES	Environmental Stewardship Office
EPC-WMP	Environmental Compliance Programs
EPA	Environmental Protection Agency
ER	environmental restoration
FFCA	Federal Facilities Compliance Act
GIC	Green Is Clean
HMTA	Hazardous Materials Transportation Act
HPI	human performance improvement
HSWA	Hazardous and Solid Waste Amendments
HWFP	hazardous waste facility permit
ID	identification
IRF	inspection record form
ISO	International Organization for Standardization
IWD	integrated work document
LANL	Los Alamos National Laboratory
LDR	land disposal restriction
LANS	Los Alamos National Security, LLC
LLW	low-level (radioactive) waste
LOL	List of Lists
MLLW	mixed LLW
MSS	Maintenance and Site Services
MTRU	mixed TRU
MTSCA	mixed TSCA
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMHWAA	New Mexico Hazardous Waste Act
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration

P	Policy
P2	pollution prevention
PCB	polychlorinated biphenyl
PPE	personal protective equipment
ppm	parts per million
psia	pounds per square inch absolute
psig	pounds per square inch gauge
RCA	radiologically controlled area
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
RLWTF	radioactive liquid waste treatment facility
SAA	satellite accumulation area
SDS	safety data sheet
STP	site treatment plan
SWWS	sanitary wastewater system
SWSC	sanitary wastewater system consolidation
TA	technical area
TCE	trichloroethylene
TCLP	toxicity characteristic leaching procedure
TFCH	treated formerly characteristic hazardous
TRU	transuranic
TSCA	Toxic Substances Control Act
TSD	treatment, storage, and disposal
TSDf	treatment, storage, and disposal facility (for off-site disposal)
TSF	treatment and storage facility
UHC	underlying hazardous constituent
UHWM	uniform hazardous waste manifest
WAC	waste acceptance criteria
WCATS	Waste Compliance and Tracking System
WCP	Waste Certification Program
WDR	waste disposal request
WMC	waste management coordinator
WM–DO	Waste Management Division Office
WSP	waste stream profile

Glossary

See [LANL Definition of Terms](#)

Term	Definition
acceptable knowledge	A waste stream characterization method that can be used to meet all or part of the waste analysis requirements appropriate for the waste media. The method may include documented process knowledge (also known as knowledge of process), additional characterization data, and/or facility records of analysis.
accumulation start date	The date on which each period of hazardous waste accumulation in a container, tank, or accumulation/storage area begins. Waste containers in the following areas require an accumulation start date: universal waste, central accumulation area (CAA), permitted hazardous waste storage unit, and satellite accumulation area (SAA) when the SAA's volume limit is exceeded.
acutely hazardous waste	Waste that has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral lethal dose (LD) 50 toxicity (rat) of less than 50 milligrams per kilogram, an inhalation lethal concentration 50 toxicity (rat) of less than 2 milligrams per liter, or a dermal LD 50 toxicity (rabbit) of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible or incapacitating reversible illness. Waste listed in accordance with these criteria will carry a U.S. Environmental Protection Agency hazardous waste number that includes "P" or the following "F" codes: F020, F021, F022, F023, F026, and F027. (See 40 CFR 261.11(a)(2).)
administratively controlled waste	Waste that is nonhazardous and nonradioactive that may not be disposed of at a commercial or municipal solid waste landfill. This waste includes, but is not limited to, classified waste, sensitive waste, and empty containers greater than 30 gallons and other types.
asbestos waste	Waste that contains more than 1% of any of the following naturally occurring crystalline minerals: chrysotile, amosite, crocidolite, tremolite, actinolite, and anthophyllite may be friable or nonfriable.

ash	Material that results from the incineration or transformation of solid waste and includes fly ash, bottom ash, and ash from the incineration of densified–refuse–derived fuel and refuse–derived fuel. This definition does not include fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels and wastes produced in conjunction with the combustion of fossil fuels that are necessarily associated with the production of energy and that traditionally have been and actually are mixed with and are disposed of or treated at the same time with fly ash, bottom ash, boiler slag, or flue gas emission control wastes from coal combustion.
central accumulation area	A designated space for accumulating hazardous waste in containers or tanks; the waste may not remain in the accumulation area longer than 90 days. (See 40 CFR 262.17.)
characteristic hazardous waste	Wastes that exhibit one or more of the four categories used in defining hazardous waste: ignitability, corrosivity, reactivity, and toxicity. (See 40 CFR 261, Subpart C.)
characterization	The determination of a waste’s physical, chemical, biological, and radiological characteristics with sufficient accuracy to permit proper segregation, treatment, storage, and disposal according to the final treatment, storage, or disposal facility’s (TSDF’s) waste acceptance criteria (WAC).
classified waste	Classified matter determined by a generating group to be a waste that could include documents, film, parts or assemblies, safe or vault locking devices, computer tape, degaussed magnetic tape, metal parts, or classified shapes.
commercial solid waste	Includes all types of solid waste generated by stores, offices, restaurants, warehouses, and other non–manufacturing activities, excluding residential, household, and industrial wastes. These wastes may be disposed of at commercial or municipal solid waste facilities.
compatibility	Waste, including secondary job waste, that can be safely mixed with other waste and materials. The resultant waste mixture will not react in a manner that produces effects harmful to human health or the environment, including heat or pressure, fire, explosions, or violent reactions, uncontrolled toxic mist, dusts, fumes, or gases in sufficient quantity to pose a risk of fire or explosions or to damage the structural integrity of the container, including the inner liner, in a manner that can cause corrosion or decay (see 40 CFR 264.17 and 264.172).

construction and demolition debris	Materials generally considered not to be water soluble and nonhazardous in nature, including glass, brick, concrete, asphalt roofing materials, pipe, gypsum wallboard, lumber, and other materials discarded during the construction or destruction of a structure or project. This debris also includes rocks, soil, tree remains, trees, and other vegetative matter that normally results from land clearing.
contingency plan	A document that describes an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.
container	Any device in which a material is stored, transported, treated, disposed of, or otherwise handled, as described in 40 CFR 260.10.
corrosivity (D002)	A solid waste exhibits the characteristic of corrosivity if it is: • aqueous and has a pH of less than or equal to 2 or greater than or equal to 12.5 as determined by a pH meter using Method 9040C in “Test Methods for Evaluating Solid Waste: Physical/Chemical Methods” (EPA Publication SW–846) or • a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by Method 1110A in SW–846.
decommissioning	The permanent removal from service of surface facilities or equipment.
decontamination	The removal of unwanted material (e.g., radioactive material) from personnel, equipment, or areas.
discharge	Spilling, leaking, pumping, pouring, emitting, emptying, or dumping into water or in a location and manner where there is a reasonable probability that the discharged substance will reach surface or subsurface water. Discharges can be accidental or intentional.
disposal	The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwater.

electronic waste (E-waste)	A term loosely applied to consumer and business electronic equipment that is near or at the end of its useful life. E-waste includes computers, computer peripherals, telephones, answering machines, radios, stereo equipment, tape players/recorders, phonographs, video cassette players/recorders, compact disc players/recorders, calculators, and some appliances. Certain components of some electronic products contain materials that render them hazardous, depending on their condition and density.
environmental restoration	A term used by the DOE to describe cleanup of DOE facilities and lands.
EPA identification number	The number assigned by the U.S. Environmental Protection Agency to each generator, transporter, and treatment, storage, and disposal facility.
flash pad	A designated open burning treatment unit used to thermally treat* or “flash” high-explosives contaminated waste by applying heat until the high explosive material is destroyed. The purpose is to render contaminated objects (equipment, debris, soil, etc.) safe by decomposing the explosive content under controlled conditions before disposal, handling, or recycling. (*See “thermal treatment.”)
hazardous waste	A solid waste that is not excluded from regulation under 40 CFR 261.4(b) and that is listed in 40 CFR 261, Subpart D; exhibits any of the characteristics identified in 40 CFR 261, Subpart C; or is a mixture of solid waste and one or more hazardous wastes listed in 40 CFR 261, Subpart D. For purposes of corrective action, hazardous waste will have the meaning set forth in the New Mexico Hazardous Waste Act (HWA), Section 74-4-3(K). Hazardous waste may be a “mixed waste,” which is waste that contains hazardous waste that is subject to the HWA and the Resource Conservation and Recovery Act and source, special nuclear, or byproduct material subject to the Atomic Energy Act, 42 U.S.C. 2011, et seq.
hazardous waste determination	The process (identified at 40 CFR 262.11) followed to decide if a solid waste is a hazardous waste. The term can also refer to the resulting decision and the documentation created to confirm the accuracy of the hazardous waste determination.
high-explosive waste	Any waste containing material having an amount of stored chemical energy that starts a violent reaction when initiated by impact, spark, or heat. This violent reaction is accompanied by a strong shock wave and the potential for propelling high-velocity particles.

incompatible waste	A hazardous waste that is unsuitable for: • placement in a particular device or facility because it could cause corrosion or decay of containment materials (such as container inner liners or tank walls); or • commingling with another waste or material under uncontrolled conditions because commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes or gases, or flammable fumes or gases.
industrial solid waste	Solid waste generated by manufacturing or industrial processes that is not hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA). This term does not include mining waste or oil and gas waste.
industrial wastewater	Water that includes radioactive waste, chemical waste, high explosives waste, and other industrial waste that is not acceptable for discharge into the sanitary wastewater system.
infectious waste	A limited class of substances that carry a probable risk of transmitting disease to humans, including but not limited to microbiological laboratory wastes, including cultures and stocks of infectious agents from clinical research and industrial laboratories and disposable culture dishes and devices used to transfer, inoculate, and mix cultures; pathological wastes, including human or animal tissues, organs, and body parts removed during surgery, autopsy, or biopsy; disposable equipment, instruments, utensils, and other disposable materials that require special precautions because of contamination by highly contagious diseases; human blood and blood products, including waste blood, blood serum, and plasma; used sharps, including used hypodermic needles, syringes, scalpel blades, Pasteur pipettes, and broken glass; and contaminated animal carcasses, body parts, and bedding, especially those intentionally exposed to pathogens in research, in the production of biologicals or the in vivo testing of pharmaceuticals.
inner liner	A continuous layer of material placed inside a tank or container that protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste.

interim status unit	Any hazardous waste management unit that was in operation before the effective date of the statutory or regulatory amendments that caused the unit to become subject to permitting requirements that • meets the requirements for interim status under 3005(e) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6925(e); • has not had its interim status terminated pursuant to Section 3005(e)(2) of RCRA, 42 U.S.C. 6925(e)(2); and • has not been issued a permit by the Environmental Protection Agency or the New Mexico Environment Department.
land disposal	Placement of waste in or on the land (except in a corrective action management unit or staging pile), including (without limitation) placement in a landfill such as a pit or a trench, surface impoundment, waste pile, or land treatment facility; or placement in a concrete vault or a shaft intended for disposal purposes.
liquid waste	A waste material that is determined to contain free liquids defined by the paint filter test described in “Test Methods for Evaluating Solid Waste: Physical/Chemical Methods” (EPA Publication SW-846; NMAC 20.9.8.11 C.).
listed hazardous waste	Wastes that are listed in 40 CFR 261.30–261.33, mixtures of those wastes, and wastes derived from those wastes. Listed hazardous wastes are listed specifically because they are inherently ignitable, corrosive, reactive, and/or toxic.
low-level radioactive waste (LLW)	Radioactive waste that is not high-level waste, spent nuclear fuel, transuranic (TRU) waste, byproduct material, or naturally occurring radioactive material.
mixed waste	Any waste that contains hazardous waste (as defined herein) and source, special nuclear or byproduct materials subject to the Atomic Energy Act of 1954. The use of the generic term <i>mixed waste</i> will refer to both mixed low-level radioactive waste and mixed transuranic waste.
municipal solid waste	Household solid waste, commercial solid waste, and industrial solid waste or petroleum-contaminated soils that are not a special waste.
municipal solid waste landfill	A solid waste facility that receives household waste and may also receive commercial solid waste, industrial solid waste, and construction and demolition debris, depending on its permit.

New Mexico Special Waste (NMSW)	Solid waste that has unique handling, transportation, and/or disposal requirements to assure protection of the environment and the public health, welfare, and safety (NMAC 20.9.2.7, S. (13). At LANL, NMSW includes treated formerly characteristic hazardous wastes; regulated asbestos waste; ash; infectious waste; sludge; industrial solid waste that, unless specially handled or disposed, could harm the environment or endanger public health or safety; spill of a chemical substance or commercial product that, unless specially handled or disposed, could harm the environment or endanger public health or safety; unbound engineered nanoparticle waste; petroleum-contaminated soil that has a sum of benzene, toluene, ethylbenzene, and xylene isomer concentrations of greater than 50 mg/kg or benzene individually greater than 10 mg/kg or a total petroleum hydrocarbon concentration of greater than 100 mg/kg. NMSW does not include waste regulated by any other regulatory program; therefore, NMSW does not include hazardous waste, universal waste, used oil, radioactive waste, polychlorinated biphenyl waste, etc.
no-known-owner waste	Sometimes designated as “orphan waste”; any material or waste with an unknown origin, history, generator, or process that does not have a defined owner.
non-hazardous waste	Any waste that is not regulated as a hazardous waste by the Resource Conservation and Recovery Act.
orphan waste	See “no-known-owner waste.”
overpack	A container used by a single shipper to provide protection or convenience in handling a package or to consolidate two or more packages.
package	Packaging and its contents.
packaging	A receptacle and any other components or materials necessary for the receptacle to perform its intended containment function in conformance with the minimum packing requirements of the Department of Transportation.
PCBs (polychlorinated biphenyls)	A group of man-made organic chemicals once widely used in various industrial and commercial applications, primarily used in coolants and lubricants in transformers, capacitors, and other electrical equipment; also found use in fluorescent lighting fixtures, microscope oil, and hydraulic fluids.
PCB storage area, general	An area for the storage of polychlorinated biphenyl (PCB) waste that is not Resource Conservation and Recovery Act hazardous or radioactive. Waste may be stored for up to 1 year based on the out-of-service date, which is the date PCB material was taken out of service and placed into storage.

PCB storage area, temporary	A polychlorinated biphenyl (PCB) storage area (subject to an approved spill prevention control and countermeasures compliance plan) designated for up to 30–days’ onsite storage of PCB waste.
pyrophoric material	A material that, under normal conditions, is liable to cause fires through friction or retained heat from manufacturing or processing or that can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation, handling, or disposal hazard.
radioactive waste	Waste that has been determined to contain added radioactive material or activation products or concentrated naturally occurring radioactive material by monitoring and analysis, AK, or both, or does not meet radiological release criteria.
sanitary waste	“Municipal solid waste” generated at a private household that may be disposed at a municipal solid waste landfill. The Laboratory does not generate municipal solid waste; items normally classified as sanitary waste at home are commercial solid waste (see <i>commercial solid waste</i>) if generated at the Laboratory.
satellite accumulation area (SAA)	A designated space for accumulating hazardous waste, where the volume of hazardous waste may not exceed 55 gallons or the volume of acutely hazardous waste may not exceed 1 quart of liquid. The accumulation area must be located at or near the point of generation and be under the control of the generator/operator of the process generating the waste. (See 40 CFR 262.15.)
secondary containment	Any system, device, or control measure that is used to stop a discharge, spill, leak, or other release from leaving a specified area. Incompatible materials may NOT be stored on the same secondary containment.
secondary material	Miscellaneous materials associated with waste processing that are placed into primary or daughter containers during packaging/repackaging. Examples of secondary waste include gloves, tools, rags, wipes (Kimwipes), plastic labels, tags, personal protective equipment (PPE), plastic sheeting used for contamination control, and original packaging material (e.g., plastic bags, plywood sheathing, and rigid liner lids cut into pieces).
segregate	To separate waste from non–waste materials; to sort waste according to type, such as sorting radioactive waste from non–radioactive waste or hazardous waste from non–hazardous waste.
sludge	Waste in a solid, semi–solid, or liquid physical form generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control device. Sludge does not include treated effluent from these plants/devices.

solid waste	The full regulatory definition of solid waste is found at 40 CFR 261.2 . To summarize, for LANL's purposes, a solid waste is any discarded material that is not excluded in the regulations. Discarded material includes materials that are abandoned (disposed of, burned/incinerated, accumulated speculatively, or sham recycled), inherently waste like, sham recycled, or recycled in specific ways (used in a manner that constitutes disposal, burning for energy recovery, or reclamation of certain types). Solid waste is a regulatory term and does not refer to the waste's physical form. As such, liquids, gases, and semisolid materials can meet the solid waste definition.
staging area (radioactive waste)	A registered area designated for the routine staging of radioactive waste before transport to a storage area or treatment, storage, and disposal facility.
storage area (radioactive waste)	A registered area where certified waste containers are stored for up to 1 year of the closed date before transfer for treatment, storage, or disposal elsewhere. Waste must be packaged for shipment in accordance with LANL waste acceptance criteria and the waste acceptance criteria of the final disposal facility.
thermal treatment	A method of treating hazardous waste by applying controlled heat to high-explosives-contaminated materials until the energetic compounds chemically decompose and no longer present an explosive hazard.
transuranic (TRU) waste	Radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting TRU isotopes per gram of waste, with half-lives greater than 20 years, except for (1) high-level radioactive waste; (2) waste that the U.S. Department of Energy Secretary of Energy has determined, with the concurrence of the Environmental Protection Agency Administrator, does not need the degree of isolation required by the 40 CFR Part 191 disposal regulations; or (3) waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.
treatment	Any method, technique, or process designed to change the physical, chemical, or biological character or composition of any waste to neutralize such waste or to recover energy or material resources from the waste or to render such waste nonhazardous or less hazardous; safer to transport, store, or dispose of; amenable for recovery; amenable for storage; or reduced in volume. Treatment of waste is frequently subject to applicable permits.
treatment and storage facility (TSF)	A permitted or interim status hazardous waste management unit at LANL, where hazardous waste may be stored up to 1 year or treated before transport off-site for disposal.

universal waste	Certain of the following types of hazardous waste are subject to the universal waste requirements of 40 CFR 273 and NMAC 20.4.1.1000; for example, aerosol cans, batteries, lamps, pesticides, and mercury thermostats. The universal waste requirements ease some of the regulatory requirements for collecting and managing these common waste types.
used oil	Any oil that has been refined from crude oil or any synthetic oil that has been used and, as a result of such use, is contaminated by physical or chemical impurities.
used oil generator	Any person, by site, whose act or process produces used oil or whose act first causes used oil to become subject to regulation.
waste acceptance criteria (WAC)	Criteria that must be met before a waste is accepted for treatment, storage, or disposal. WAC may involve the physical form of a waste; a waste's container; its radioactivity, packaging, labeling; etc.
waste characterization	The determination of a waste's physical, radiological, biological, and chemical characteristics with sufficient accuracy to permit proper classification and management.
Waste Compliance and Tracking System (WCATS)	A software application that was specifically designed to manage LANL's waste from cradle to grave. The system provides the proper support needed for characterization, generation, processing, and shipment of waste created at LANL.
waste generator	Within the Laboratory, anyone who discards material, destroys it, releases it into the environment, or decides that it is not going to be used. The individuals who make these decisions are normally process personnel and/or front-line managers who are closest to the work activity. These individuals are actively engaged in or are actively overseeing waste-generating work activities. Specific job titles for these individuals will vary among different organizations.
waste management	The planning, coordination, and direction of those functions related to generation, handling, treatment, storage, transportation, and disposal of waste, as well as associated surveillance and maintenance activities.
waste management coordinator (WMC)	The individual responsible for coordinating waste management activities on behalf of waste generators, line managers, facility managers, field project leaders, waste management groups, and other LANL organizations. This individual also coordinates resolution of waste management issues on behalf of his/her waste-generating organization and reviews documents pertaining to the management of waste.

waste stream	Each waste material generated from a single process or from an activity that is similar in the materials from which it was generated, similar in its physical form and hazardous constituents, and distinguishable from other wastes by U.S. Environmental Protection Agency hazardous waste numbers and land disposal restriction status.
waste stream profile	The Waste Compliance and Tracking System (WCATS) record associated with a task, container, waste stream, etc.

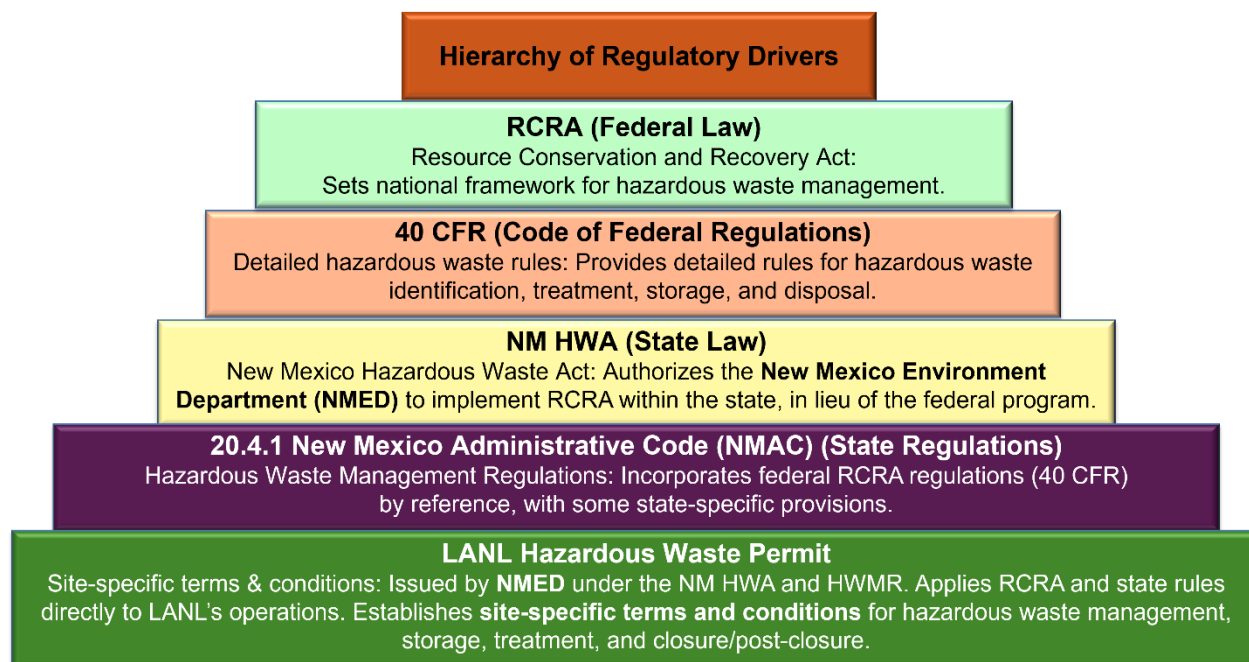
Introductory Module



After reading this module, you should recognize the following:

- *An overview of the regulatory drivers for hazardous waste management*
 - *Resource Conservation Recovery Act (RCRA)*
 - *Title 40 Code of Federal Regulations (CFR) Parts 260-265, 268*
 - *The New Mexico Administrative Code, Title 20, Chapter 4, Part 1*
- *The implications of RCRA for Los Alamos National Laboratory*

Hierarchy of Regulatory Drivers



The Resource Conservation and Recovery Act (RCRA)

Enactment of RCRA: RCRA was enacted by Congress in 1976 as an amendment to the Solid Waste Disposal Act of 1965, in response to growing concerns over the management of hazardous and non-hazardous waste. The law was designed to address the mounting volume of waste generated by industrial and municipal sources and to ensure that waste is managed in a manner that protects human health and the environment.

Authority Established: RCRA provides the U.S. Environmental Protection Agency (EPA) with the authority to regulate the generation, transportation, treatment, storage, and disposal of solid and hazardous waste. It marked a major shift in federal waste policy from open dumping and uncontrolled landfilling to a comprehensive waste management approach. **The EPA regulations to implement environmental laws including RCRA are detailed in Title 40 of the Code of Federal Regulations (CFR), parts 260 – 273 and 279.**

While RCRA is a federal law, it allows states to implement their own hazardous waste programs if they are at least as stringent as federal requirements. Most states have been authorized by EPA to operate RCRA programs, often with additional or more specific requirements.

Subtitle C: RCRA is organized into several subtitles, the most relevant for LANL being *Subtitle C – Hazardous Waste Management*. Subtitle C defines what constitutes hazardous waste and sets standards for generators, transporters, and treatment, storage, and disposal facilities (TSDs). Entities must obtain permits and comply with strict recordkeeping, reporting, and operational requirements. Subtitle C establishes a system for controlling hazardous waste from its generation

to disposal, or what RCRA calls “cradle-to-grave” waste management. This management system includes tracking waste from the point of generation through transportation to its final treatment or disposal.

Federal and State Regulations

As stated above, RCRA allows states to implement their own hazardous waste programs if they are at least as stringent as federal requirements. Most states have been authorized by EPA to operate RCRA programs, often with additional or more specific requirements.



Hazardous waste management requirements are specified in New Mexico regulations (*Title 20 of the New Mexico Administrative Code, Chapter 4.1*), which incorporate the federal regulations mentioned above (*Title 40 CFR, Parts 260–273 & 279*). Together, these regulations specify detailed requirements for hazardous waste generation, identification, characterization, short-term accumulation and longer-term storage, treatment, disposal, and recordkeeping.

- *New Mexico Hazardous Waste Act (NMHWA)*
- *New Mexico Administrative Code (NMAC), Title 20, Chapter 4.1*

Note: There are additional requirements by the Department of Transportation for shipping of hazardous waste that are addressed in HMPT courses, not in this course.

Implications for LANL

At LANL, compliance with RCRA is essential due to the generation of both hazardous and non-hazardous wastes in research, analytical, and maintenance operations. **LANL is a Large Quantity Generator and must:**

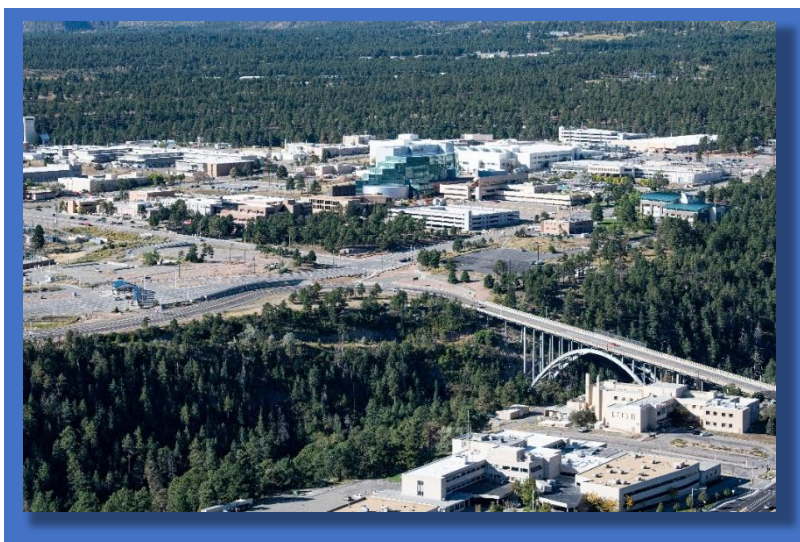
- *ensure all personnel handling waste are properly trained.*
- *maintain accurate waste characterization and labeling.*
- *use approved containers and storage practices.*
- *submit required reports and manage emergency response plans.*



LANL is viewed as a single generator by state and federal regulatory agencies.

Module

1



Module 1: LANL Hazardous Waste Permit and Permitted Units

Module Objectives

After completing this module, you should be able to do the following:

- *Demonstrate familiarity with an overview of the Permit.*
- *Demonstrate familiarity with management and characterization of hazardous waste at treatment storage facilities (TSFs), including general facility conditions.*
- *Recognize the specific hazardous waste units at LANL under the permit or in interim status and what agencies manage each site.*

Overview of the Permit

As stated earlier, the State of New Mexico's authority to regulate the storage and treatment of hazardous waste at LANL for the protection of human health and the environment is governed by the New Mexico Hazardous Waste Act (HWA) and the Resource Conservation and Recovery Act (RCRA). Under RCRA, State programs are authorized to operate in lieu of the Environmental Protection Agency (EPA). New Mexico is authorized by EPA to issue and enforce RCRA hazardous waste facility permits.



At LANL, a Treatment Storage Facility (TSF) is a RCRA-permitted or interim status facility that is authorized to store and treat hazardous waste. TSFs operate under strict RCRA permit conditions including applicable EPA regulations from [Title 40 of the Code of Federal Regulations Parts 260 through 270](#).

Originally issued in November 1989, the current Los Alamos National Laboratory Hazardous Waste Facility Permit (the Permit) was issued in November 2010 and became effective in December 2010. The Permit includes conditions for safe storage and treatment of hazardous waste onsite prior to being shipped off-site for disposal.

Unlike hazardous waste generator requirements, hazardous waste management units covered by the Permit have volume limits associated with the actual capacity of the area and can store waste for up to one year (in the case of container storage).

Management of Hazardous Waste

All hazardous waste management must comply with federal, state, and local regulations and policies, with which the permit is aligned. There are general requirements for waste characterization included in the permit part 2.4.1.

Waste Characterization

Only waste that has been fully characterized in accordance with 40 CFR 264.13, shall be accepted, stored, treated, or otherwise managed at permitted units. All information needed to treat, store, or otherwise manage a hazardous waste stream must be obtained and documented.

Waste Characterization Requirements

According to 40 CFR Parts 264 and 268, permitted units are required to adhere to specific requirements.

- *Identify and document all applicable EPA hazardous waste numbers.*

- *Implement waste characterization necessary to*
 - *determine whether the waste stream is prohibited from land disposal.*
 - *prevent the mixing or placing of incompatible wastes in the same container or tank system.*
 - *prevent the impairment of containers tanks, and secondary containment systems for tanks by incompatible wastes.*
 - *prevent accidental or spontaneous ignition or reaction of ignitable or reactive wastes, including, but not limited to, ignition or reaction in containers and tank systems.*
 - *determine whether the waste is a mixed waste.*
 - *determine whether the waste contains free liquids.*
- *Identify and document the waste stream name, the unique waste stream identifier; the waste stream generation location (e.g. building and room number).*
- *Provide a detailed description of the waste stream generation process that includes all relevant material inputs or other information that identifies the chemical content and physical form of the waste.*

Hazardous Waste Management Units

There are 28 hazardous waste management units covered by the Permit (“Permitted Units”) and 3 additional hazardous waste management units in interim status awaiting addition to the Permit (“Interim Status Units”).

Agencies that Divide Management of the Units

NNSA Los Alamos Field Office (NA–LA) and Triad National Security, LLC

The following units are managed by the NA–LA and Triad National Security, LLC:

- *10 storage/treatment units (TAs 3, 50, 54, 55, 60, & 63)*
- *6 storage units (TAs 50 & 55)*
- *1 storage tank system (TA–55)*
- *1 cementation treatment unit (TA–55)*
- *the 3 interim status treatment units (TAs 16, 36, & 39)*

Environmental Management Los Alamos Field Office (EM–LA) & Los Alamos Legacy Cleanup Contractor

There are several units that are managed by the Environmental Management Los Alamos Field Office (EM–LA) and the Los Alamos Legacy Cleanup Contractor. They are not included as part of this course.

- *9 storage/treatment units (TA–54)*
- *1 storage units (TA–54)*

Types of Permitted Units

In the Permit there are two types of units at LANL:

- 1) **Container Storage Units** – Units that are authorized under the LANL Hazardous Waste Permit to hold hazardous waste temporarily (up to one year) before it is treated, disposed of, or shipped off-site.
- 2) **Treatment Units** – Units that are authorized to treat hazardous waste.
 - a. **Permitted Treatment Units:** Units under a full RCRA permit; or
 - b. **Interim Status Units:** Units under a temporary regulatory status until a final permit is issued.

Container Storage Units - Descriptions

TA–03 Building 29 CMR Storage Unit

The CMR was established in 1952 as a research facility. It contains offices, laboratories, and the LANL HWFP permitted container storage unit in room 9010 and portions of rooms 9020 and 9030. This unit has been used to store waste since 1990.

TA–50 Building 69 Waste Characterization Reduction and Repackaging Facility (WCRRF)

TA–50 is located at the northeast corner of the intersection of Pajarito Drive and Pecos Road. TA–50 Building 69 is east of Pecos Road across from TA–55. The indoor unit houses the WCRRF. Storage of hazardous waste in containers at TA–50 occurs only in two areas in support of co-located treatment activities:

- an indoor storage area located in Building 69, Rooms 102 and 103
- an outdoor storage area located south/southeast of Building 69, comprised of an asphalt pad and modular transportainer units

The WCRRF has been used as permitted waste storage since 1995. The outdoor storage area has been used to store mixed waste since 1982. It is primarily used for storage of waste prior to or just after treatment of hazardous waste in containment.

TA-55 Indoor Storage Units

Hazardous waste container storage is conducted at seven indoor permitted units within TA-55. These permitted units are identified as B05, B13, B40, B45, G12, K13, and the Vault. Hazardous waste stored within these units are generated in support of Plutonium Facility operations.



TA-55 Outdoor Storage Units

The Outdoor Storage Pad is located outside and south-southwest of TA-55 Building 4. The TA-55-355 Pad is located outside and south of the Outdoor Storage Pad and TA-55 Building 4. These are outdoor, constructed pads that are used to temporarily store waste while it undergoes the inspection, characterization, and documentation necessary for certification before shipment to WIPP.



TA-54 Building 38 Radioactive Assay & Nondestructive Testing Facility Permitted Indoor & Outdoor Storage Units (RANT)

The two permitted units at TA-54 Building 38 Radioactive Assay and Nondestructive Testing (RANT) include the indoor low bay and the high bay inside the building, an outdoor storage pad that surrounds the north, east, and south sides of the building, and a loading dock attached to the building. RANT was constructed in 1993. The indoor unit started waste operations in 1995, and the outdoor unit started operations in 1998. Shipments of waste packages to the Waste Isolation Pilot Plant (WIPP) started in 1999. TA-54 Building 38 is primarily used for storage of waste immediately before loading on trailers for shipment to the WIPP.

TA-60 Building 17 Storage Unit

TA-60 sits atop Sigma Mesa between Sandia and Mortandad Canyons in the north-central part of LANL. TA-60 Building 17 is located approximately 0.8 miles east of the intersection of Diamond and Enewetak Drives and adjacent to the Roads and Grounds area. TA-60 Building 17 is the single unit that provides storage of waste destined for off-site treatment and/or disposal for waste generated across the entire Laboratory, not only in support of Plutonium Facility operations. The facility is subject to the LANL HWFP and permitted activities only take place in the southern portion of the building.

TA-63 Transuranic Waste Facility Indoor and Outdoor Storage Units

The TA-63 TWF is located at TA-63 at the junction of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito road to the southwest. It was designed, constructed, and commissioned as a Hazard Category (HC)-2 nuclear facility and provides storage and certification of waste destined for WIPP. Outdoor portion may be used for container storage.

Interim Status Treatment Units – Descriptions

Thermal treatment is a hazardous waste treatment process that uses elevated temperatures to chemically break down hazardous constituents—such as reactive or toxic compounds—so the waste no longer poses the same level of risk. See Module 5 for more information on Open Detonation and Open Burning.

TA-16-0388 Interim Status Open Burning of Explosives Waste

The TA-16-0388 Flash Pad used to treat hazardous waste, wet or dry explosives waste, explosives-contaminated combustibles, and explosives-contaminated non-combustibles. This unit is not currently regulated under the LANL HWFP because it is an interim unit regulated under 40 CFR Part 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.



TA-36-0008 (“Minie”) and TA-39-0006 (“Point 6”) Interim Status Open Detonation of Explosives Waste

The open detonation (OD) units are primarily used for non-treatment-related research and development operations. However, they are occasionally used for thermal treatment of explosive contaminated hazardous waste that exhibits the characteristic of reactivity. The purpose of waste treatment at the units is to remove the characteristic of reactivity by open detonation.

Permitted Treatment Units – Descriptions

TA-55 PF-4 Mixed Waste Tank Storage and Stabilization (Cementation) Unit

Liquid waste stored in the mixed waste tank system comes primarily from the evaporator as evaporator bottoms in approximately 25-liter batches. Unrecyclable evaporator distillate waste (corrosive only) from TA-55 or CMR is also cemented when there is a small volume and when the low-level radioactive acid waste line to the TA-50 Radioactive Liquid Waste Treatment Facility is closed. Liquid waste generated from a source other than the evaporator (such as C-AAC analytical residues) is transferred to the stabilization unit glovebox in plastic bottles up to 2 liter in volume via the trolley system. The stabilization unit treats homogeneous liquid and solid mixed waste generated primarily from R&D and processing and recovery operations at TA-55 and CMR.

TA-50-69 Stabilization & Resizing Treatment Unit

TA-50-69 WCCRF Used to treat waste by stabilization and by resizing in gloveboxes. Stabilization processing occurs with zeolite (clay). In addition, WCCRF is equipped with a larger glovebox enclosure designed for resizing activities. Typically, the unit treats MTRU waste or MLLW by stabilization and LLW, MTRU, or MLLW by resizing.

Macroencapsulation Treatment Units

Macroencapsulation is the treatment of hazardous or MLLW by utilizing a polymer coating, or a jacket of inert inorganic materials, to immobilize the leachable hazardous waste constituents by completely surrounding the waste with a leach-resistant coating and immobilizes the leachable hazardous waste constituents to meet the land disposal restrictions treatment standard for hazardous debris waste and radioactive lead solids as specified in 40 CFR 268.42 and 40 CFR 268.45. Macroencapsulation treatment will be conducted at permitted container storage unit locations described above. All locations with approval to conduct macroencapsulation treatment are listed in the table above. **Note: Always check with the facility receiving the waste for any additional requirements.**

General Facility Conditions

Facilities shall be designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or any unplanned, sudden, or non-sudden release of hazardous waste or hazardous constituents to air, soil, groundwater, or surface water that could threaten human health or the environment.

Warning Signs

Bilingual warning signs (in English and Spanish) shall be posted at all gates and perimeter fences around the permitted units. Signs shall be posted in sufficient numbers to be visible at all angles of approach and from a distance of at least 25 feet.

Warning signs in the appropriate dialect of Tewa shall be posted in a manner equivalent to the bilingual warning signs in English and Spanish along shared boundaries with the Facility's permitted units and the Pueblo of San Ildefonso (PO WHO GEH). Signs requested by Santa Clara Pueblo (Kha'-Po) shall be posted and shall include the following warning:

Wi-i ts'uni pi'

DO NOT ENTER



Security Measures

Unknowning or unauthorized entry to the permitted units must be prevented. The following measures must be implemented:

- 24-hour surveillance system continuously monitoring and controlling entry into the permitted units at the Facility or
- controlled entry into the permitted units at all times via gates, stations, or other means (*e.g.*, attendants, locks, prohibited or controlled roadway access)

All security fences, entry gates, and entry stations surrounding the permitted units must be maintained as functioning and effective.

Table J-1: Unit Descriptions & Storage/Treatment Capacities (Attachment J)

Table J–1 describes storage capacity at the active portions of each permitted unit and for treatment units the time and parameters associated with those capacities.

Waste can be stored for up to one year. If stored for more than one year, mixed waste must be documented on the facility Site Treatment Plan (STP). (See Appendix B for complete table.)

Container Storage Units				
Unit Identifier	Operating Capacity (gallons)	General Information	Process Code	Type of Unit
TA–3–29	18,500	Square footage – 3,040	S01	Indoor storage
TA–50–69 Indoor	1,500	Square footage – 2,680	S01	Indoor storage
TA–50–69 Outdoor Pad	30,000	Square footage – 2,160	S01	Outdoor storage with transportainers
TA–54–38 West Indoor	4,950	Square footage – 4,060	S01	Indoor storage

Module 2

Module 2: Storage in Containers



Module Objectives

After completing this module, you should be able to demonstrate familiarity with the following:

- *Storage in containers*
- *General container management*
 - *Acceptable container condition*
 - *Compatibility considerations for containers*
 - *Storage configuration*
 - *Container labeling requirements*
- *Secondary containment systems*

Storage in Containers

Under RCRA, storage in containers refers to the temporary holding of hazardous waste in portable units such as drums, boxes, or other compatible containers. This practice does not involve treatment or disposal, but rather the safe management of waste until it can be transferred to an approved treatment, storage, or disposal facility.

General Container Management

Permit Part 3.1 General Conditions

Hazardous waste containers must be managed in compliance with federal regulations (40 CFR Part 264, Subpart I) and the facility's RCRA permit. Containers can only be stored in specifically permitted units, within approved capacity limits, and for only the waste types identified in the permit. Holding of hazardous waste containers within a permitted unit for 24 hours or less for activities like transport or packaging is not considered storage.

Permit Part 3.2 Container Conditions

Waste packages or containers must be in "good condition," which means not deteriorating defined as cracked, corroded, severely rusting or with apparent defects that could result in leaking or spilling (i.e., dents, holes or bulges).

When managing containers stored outdoors, it is best practice to consistently check for signs of rust or deterioration.

Waste stored in deteriorating containers must be transferred to a container in good condition **within 24 hours** of discovery of the problem, and in accordance with [40 CFR 264.171](#).

Permit Part 3.3 Acceptable Containers

Solid, oversize items (e.g., glovebox, glovebox parts, vacuum pumps, tanks, duct work, piping, HEPA filters) contaminated with hazardous wastes that cannot be placed in waste containers must be wrapped in plastic with a minimum of two layers of plastic to prevent dispersion of contaminating material.



Permit Part 3.4 Compatibility of Containers with Waste

Hazardous waste must be stored in containers that are made of, or lined with, materials compatible with the waste. This ensures that no reaction occurs between the container and its contents, and that the container remains capable of safely holding the waste. (See 40 CFR 264.172). Containers in storage must be segregated based on compatibility requirements.

Permit Part 3.5 Management of Containers

Hazardous waste containers must always be kept closed, except when waste is being added, removed, or repackaged. Containers must never be handled or stored in ways that could cause leaks or ruptures.

Boundaries of all permitted container storage units (CSUs) must be clearly marked with permanent lines using paint, tape, or other permanent visible marking on the floor on base material or with fencing or building walls (see 40 CFR 270.32(b)(2)).

In movable buildings without grated floors, drums must be elevated on dollies or pallets to prevent direct contact with the floor. Finally, whenever containers are moved, both their new location and the quantity of waste at each location must be properly documented to ensure accurate tracking (see 40 CFR 264.73(b)(2)).



Permit Part 3.5.1 Storage Configuration

Aisle Space

Adequate aisle space must be **at least 2 feet** to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment within the permitted units.

Emergency egress aisles with a minimum aisle space of **two feet** must be maintained at all personnel doors (see [40 CFR 264.35](#)).

Stacking Containers

Containers equal to or greater than 30 gallons cannot be stacked more than three (3) high unless more strictly specified by the facility. If containers hold ignitable or reactive waste, then they cannot be stacked more than two (2) drums high. Stacked containers equal to or greater than 30 gallons must be palletized and banded.



Outdoor Space

Containers cannot be stored within five (5) feet of the unit perimeter fence, any permanent structure, or any paved or unpaved roadway. Containers stored outdoors must be protected from contact with precipitation.

Areas that Manage Ignitable and Reactive Waste*

Containers holding ignitable, reactive, or incompatible wastes must be stored at least 50 feet from facility boundaries or designated fence lines. These wastes must be managed to prevent dangerous conditions, including:

- *fire, explosions, gas releases, or violent reactions*
- *generation of extreme heat or pressure*
- *production of uncontrolled toxic mist, fumes, dusts, or gases in quantities sufficient to threaten human health or the environment*
- *production of uncontrolled flammable fumes or gases in quantities sufficient to pose a risk of fire or explosion*
- *damage to the structural integrity of containers, tanks, permitted units, or associated structures*

To reduce risks, containers must be kept away from open flames, sparks, frictional heat, welding, spontaneous ignition, radiant heat, and other ignition sources. Only non-sparking tools may be used, and smoking or open flames must be restricted to designated areas at least 50 feet away.

Additional requirements include:

- *As stated above, containers of ignitable or reactive wastes may not be stacked more than two drums high.*
- *Fire suppression systems in these areas must be compatible with the waste stored, and appropriate lightning protection must be in place.*
- *For water-reactive wastes stored where water-based suppression systems exist, containers must be kept in cabinets or other protective*

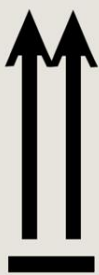
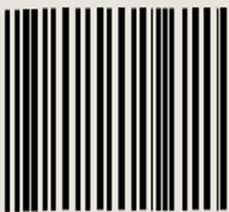
storage that prevents water contact. Containers that are overpacked are not considered protected per New Mexico regulators.

- *Adequate clearance must be maintained around fire hydrants.*
- *Fire protection systems must be regularly maintained and inspected to ensure effectiveness.*
- *Certain unvented drums and boxes containing mixed transuranic waste are assumed to generate hydrogen gas and must be managed under these same requirements.*

All storage and handling practices must ensure that exposure to ignition sources, spark-producing tools, or other conditions does not create threats to human health or the environment.

*See Hazardous Waste Permit Part 2.8, 2.8.1.

Permit Part 3.6 Waste Container Labeling

 WASTE COMPLIANCE & TRACKING SYSTEM (wcats5beta.lanl.gov)  Labeled ID # ID = Container ID #	HAZARDOUS WASTE CAUTION RADIOACTIVE MATERIAL FEDERAL LAW PROHIBITS IMPROPER DISPOSAL IF FOUND, CONTACT THE NEAREST POLICE, PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY GENERATOR'S INFORMATION: NAME: TRIAD on behalf of US Department of Energy ADDRESS: P.O. Box 1663, Los Alamos, NM 87545 EPA ID NO: NM123456789 EMERGENCY PHONE NO: 505 - 667 - 2400 MANIFEST NO: 123456 ACCUMULATION START DATE: 25 - FEB - 25 EPA WASTE NUMBER: D008 WSP NAME: Forma Scientific CO2 Incubator and other HRL Rad Waste ☒ SOLID ☐ LIQUID ☐ IGNITABLE ☐ CORROSIVE ☒ TOXIC ☐ REACTIVE	 NCR CLASS: C DOSE (mrem/hr) SURFACE: 0.1 1 METER: 0.1 LABELS REQUIRED PRIMARY: SECONDARY: WEIGHT (KG) Gross: 577 Net: 271  Labeled ID #
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Labeling must meet federal, state and DOE regulations, and LANL internal policy documents. All waste containers must be labeled when waste is first placed in the container. Correct labels must be used, and all label fields must be completed. All label entries must be legible, not faded and placed on the container that fully encloses the waste. Container labels must be able to be inspected without moving the container.

The following are required to be clearly marked on the label (see [40 CFR 268.50\(a\)\(2\)\(i\)](#)):

- *the words "Hazardous Waste" if the container has hazardous or mixed waste*
- *the generator's name (Triad), address, and the EPA ID number*
- *the date waste was placed in storage (accumulation start date)*

- the EPA Hazardous Waste Number(s) associated with the waste
- the indication of all hazards associated with the waste (i.e., ignitable, corrosive, reactive, and/or toxic)
- the word “Radioactive” if the container has radioactive waste or mixed waste
- the words “Free Liquids,” if holding free liquids

Permit Part 3.7 Containment Systems

The Permittees shall store containers of hazardous waste in a manner that prevents contact with any accumulated liquids (see [40 CFR 264.175\(b\)\(2\)](#)).

Containers with any quantity of free liquid must have adequate secondary containment to contain the volume of the largest container or 10% of the total volume of all waste containers (see [40 CFR 264.175\(b\)\(3\)](#)).

Class Discussion



New Mexico Environment Department: Focus on Compliance

- Compliance & Enforcement Division
- Resource Protection Compliance & Enforcement Bureau

ALL violations found by the Inspectors are considered major consequence infractions that carry the maximum penalty allowed by the statute.

- Violations associated with the LANL Hazardous Waste Facility Permit: Starting value of \$10,000
- Minor violations in a generator area (SAAs or CAAs): \$600

Annual inspections include all hazardous waste accumulation, storage, and treatment areas.

- Over 400 sites per visit
- Every violation damages the public perception of Los Alamos National Laboratory.

Module

3



Module 3: Tank Storage System and Stabilization Requirements

Module Objectives

After completing this module, you should be able to demonstrate familiarity with the following:

- *The description of storage in tanks*
- *Treatment by stabilization*
- *General conditions*
 - *Tank systems and stabilization unit containment*
- *Types of waste accepted at storage/treatment units and compatibility requirements*

Tanks Storage System and Stabilization Requirements

Storage in Tanks

Under the Resource Conservation and Recovery Act (RCRA), storage in tanks allows hazardous waste to be temporarily accumulated in large, fixed units such as aboveground or underground tanks. Tanks are used to hold waste safely until it can be treated or disposed of, and their design provides secondary containment and monitoring features to prevent releases.

Tanks must be compatible with the waste, properly maintained, inspected regularly, and equipped with controls to protect workers, the environment, and surrounding communities.

Treatment by Stabilization

Stabilization is a RCRA-approved treatment method that involves mixing hazardous waste with binding or solidifying agents (such as cement, fly ash, or other reagents) to chemically and physically reduce its mobility. At LANL, this process does not destroy the contaminants but alters their form, so they are less likely to leach into the environment.

Stabilization makes the waste more manageable and less hazardous by locking contaminants into a stable, solid matrix. This treatment is strictly regulated to ensure that the final material meets RCRA performance standards and remains protective of human health and the environment.

Permit Part 4.1 General Conditions

Waste must be stored and mixed in compliance with federal regulations. Permitted tanks and stabilization units must be maintained and operated within approved capacity limits for specified waste types. All equipment and containment systems must be properly maintained, and materials must not be placed in units that could cause structural failure.

Mixed wastes or treatment reagents must not be placed in the storage tank or stabilization units if they could cause the units, their ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail (see [40 CFR 264.194\(a\)](#)).

Workers are required to be aware of and prevent situations that may cause units, their ancillary equipment, or the containment system to rupture, leak, corrode or otherwise fail.

Permit Part 4.4 Tank Systems and Stabilization Unit Containment

Tank and stabilization units are to have an associated secondary containment system that conforms to the requirements specified at 40 CFR § 264.193. Appropriate controls and practices to prevent spills and overflows from the storage tank unit, the stabilization unit, or their associated containment system are to be used in accordance with 40 CFR § 264.194(b).

Spilled, leaked, or otherwise accumulated liquids are to be removed from the secondary containment system, including but not limited to the sumps, within 24 hours of detection of the spill, leak, or accumulation. The Permittees shall notify the EPC – WMP of any accumulated liquids within the secondary containment system within five days of detection of such liquids (see 40 CFR § 270.32(b)(2)).

Permit Part 4.5 Types of Waste Accepted and Compatibility Requirements

Waste that is accepted for storage or treatment at Tank Storage Units may not be ignitable or reactive. Workers must ensure that incompatible wastes, or other materials that are incompatible, are not placed in the same tank system or stabilization unit.

Module

4



Module 4: Treatment in Containment

Module Objectives

After completing this module, you should be able to demonstrate familiarity with the following:

- *General conditions for treatment in containment*
- *Requirements for glove bag/glovebox integrity and containment*
- *Treatment requirements*
- *Requirements for incompatible wastes*

Treatment in Containment (TA–50–69)

Treatment in containment is a Resource Conservation and Recovery Act (RCRA)–approved method that allows hazardous waste to be treated within portable units such as drums, tanks, or other enclosed containers. This method provides flexibility because the treatment process—such as neutralization, stabilization, or other approved chemical or physical treatments—can be carried out directly in the container where the waste is accumulated.

Using containers helps minimize handling, reduces the risk of spills or releases, and allows for easier management and movement of the waste within permitted treatment areas. RCRA regulations require that the containers be compatible with the waste, properly labeled, and managed under strict operating standards to ensure safety and environmental protection.

Permit Part 7.1 General Conditions

Waste must be treated through stabilization, resizing, absorption, and neutralization only in designated permitted units. All equipment must be maintained and operated according to the site requirements. Waste types treated in the unit include those that require stabilization by mixing with zeolite (clay) and minor compaction to fit within 55–gallon waste containers, as well as resizing of large waste items to fit within shippable waste containers. No materials may be used that could damage or compromise the treatment equipment. All waste treatment is conducted in maintained containment.

Wastes or treatment reagents must not be used in the stabilization process if they could cause the equipment used for treatment to rupture, leak, corrode, or otherwise fail.

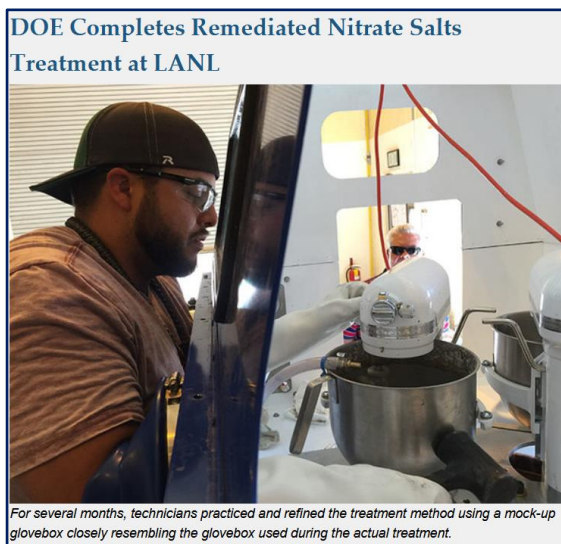
Permit Part 7.2 Glove Bag/Glovebox Integrity and Containment

The written integrity assessment of the glove bag/glovebox system used to treat nitrate salt–bearing waste and other wastes with the characteristics of ignitability, corrosivity, and reactivity must be maintained in the Facility Operating Record.



https://int.lanl.gov/news/news_stories/2026/march/0303-glovebox-training.shtml

Processes used for treatment at this unit are evaluated to minimize surprises during treatment activities.



[ENERGY.GOV Office of Environmental Management, 11/7/17](https://www.energy.gov/enr/2017/07/11/doe-completes-remediated-nitrate-salts-treatment-at-lanl)

“For several months, technicians practiced and refined the treatment method using a mock-up glovebox closely resembling the glovebox used during the actual treatment.”

Permit Part 7.3 Treatment Requirements

Waste must be treated inside an enclosed glove bag, glovebox, or other approved containment system. Stabilization is done by mixing water and zeolite (clay) with waste solids, or by blending liquid waste with zeolite or other WIPP-approved absorbents.



https://int.lanl.gov/news/news_stories/2026/march/0303-glovebox-training.shtml

Neutralization requires measuring pH and carefully adding HCl or NaOH until the pH falls between 3 and 10. If only very small amounts of liquid are present, neutralization is skipped, and the material is stabilized with zeolite or another WIPP-approved absorbent.

Permit Part 7.5 Incompatible Wastes

Potentially incompatible waste must be either treated or segregated to eliminate the possibility of combining materials that are incompatible.

Module

5

Module 5: Thermal Treatment Activities



Module Objectives

After completing this module, you should be able to demonstrate familiarity with the following:

- *Waste streams treated by thermal treatment*
- *The processes of open detonation and open burning at LANL*
- *Management of thermal treatment units*
- *Operational requirements*
- *Post-treatment residue management*

Waste Streams Treated by Thermal Treatment

As mentioned earlier, thermal treatment is a hazardous waste treatment process that uses elevated temperatures to chemically break down hazardous constituents—such as reactive or toxic compounds—so the waste no longer poses the same level of risk.

Waste stream descriptions for explosives waste streams can be found in the applications for the thermal treatment units and can be obtained by contacting EPC-WMP. Waste streams received at these units include only explosives waste and explosives-contaminated waste from facilities within the Weapons Facility Operations Facility Operations Directorate. The wastes are characterized to include detonable or suspected-detonable quantities of explosives and may not be shipped off-site before treatment.

Specific wastes prohibited at thermal treatment units include:

- *wastes that are not explosive or pose an explosive risk*
- *the hazardous component of mixed wastes*
- *biologic or chemical warfare weaponry*
- *small arms ammunition up to 50 calibers*
- *materials containing beryllium*
- *materials containing perchlorate-based propellants or explosives*
- *materials containing polychlorinated biphenyls (PCBs)*
- *polyvinyl chloride (PVC)*
- *small control boxes or electronic equipment*

Additionally, the open burning unit cannot accept for treatment blasting caps, electric detonators, explosives units containing electric detonators, or mild detonating fuse arrays. These cannot be safely treated by burning.

The Processes of Open Detonation and Open Burning at LANL

Open Detonation at TA-36 & TA-39 / Open Burning at TA-16

Two open detonation units at TA-36 and TA-39 and one open burning Flash Pad at TA-16 have been subject to regulation under RCRA as interim status hazardous waste treatment units since November 1980.

Among annual inspections done by the New Mexico Environment Department – Hazardous Waste Bureau (NMED-HWB), none has resulted in any allegation of noncompliance with any applicable RCRA regulations.

Furthermore, environmental testing of soils, surface water, groundwater, and air quality in the vicinity of the interim status open detonation units and intensive risk analysis show no evidence that an unacceptable or actionable level of any hazardous constituent has come to exist after over 80 years of operation. Inclusion into the LANL Hazardous Waste Facility Permit is being sought for all three units.

Legacy units that conducted these types of treatment activities have been closed or will be closed under RCRA and are no longer in use at LANL.

Both Open Detonation and Open Burning Processes

- Utilized for safe treatment and disposal of explosive (reactive) wastes (D003) that cannot be safely neutralized or processed by other means.
- Engineered safety procedures used to minimize risks to workers, the public, and the environment.
- Destroys explosive characteristics of the waste, rendering it non-reactive.
- Significantly reduces hazards.

Open Detonation (TA-36 & TA-39)

Explosive hazardous waste is:

- placed on the ground in a designated, secure outdoor area
- intentionally detonated remotely in a controlled manner

Conducted at TA-36 and TA-39 since the 1950's.

Considered for treating explosive hazardous waste that is encased.

Open Burning (TA-16)

Explosive hazardous waste is burned in a controlled, open-air environment, converting it into minimal quantities of ash and producing little to no visible emissions released into the atmosphere.

Unit was redesigned and significantly upgraded in the 1990's to provide for an engineered, controlled burning environment in an unenclosed facility.

Management of Thermal Treatment Units

Priorities

The units are managed and maintained to minimize the possibility of accidental fire, explosion, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents into air, soil, sediment, surface water or groundwater which could threaten human health or the environment. Any abnormal treatment events are documented in the facility operating record (*see Module 7*) and require reporting to EPC-WMP. The units are designed, constructed, and operated to maintain run-off control to minimize precipitation run-off and prevent the migration of hazardous waste or hazardous waste constituents from the units.

Maintenance

All industrial equipment is maintained and repaired to avoid situations that may result in leaks, spills, and other releases of pollutants in storm water discharges to receiving waters. All control measures used to mitigate the flow of storm water are maintained in effective operating condition. All nonstructural control measures are also maintained (e.g., spill response supplies are available and personnel were trained). If control measures require repair or replacement, necessary repairs or modifications are made as expeditiously as practicable.

Operational Requirements

Routine treatment activities are conducted only during daylight hours (i.e., between one hour after sunrise and one hour before sunset). Only one treatment event can be conducted in 24 hours. Waste is treated by applying heat to a specific quantity at one time completing that treatment cycle before adding more material, rather than feeding waste into the process continuously (also referred to as “non-continuous (batch) thermal process”). All persons present remain on site within the control building for the duration of the treatment operation. Hazardous waste treatment operations are confined to the boundary of the unit.

Prior to a treatment event, qualified personnel ensure that **the area has been cleared and kept clear** of all personnel and any wildlife. They must then ensure that all personnel have entered the control building or have been accounted for outside the clearance area. Treatment operations are not conducted if unauthorized personnel are within the clearance area.

All waste treatment operations shall be performed remotely from inside the control building. After treatment is complete personnel inspect the site to ensure that the high explosives are expended. If the inspection confirms the shot fired completely, an “All Clear” is signaled. Personnel must remain in the bunker or outside the clearance area until “All Clear” is signaled.



The following general requirements concerning overall operations at the thermal treatment units apply.

- The access gates for entry to the sites are kept closed for the treatment events.
- Treatment events occur after a minimum of 24 hours has elapsed since the last event.
- Non-sparking tools are utilized at the units when waste is present.
- During normal treatment activities the explosives waste shall be treated promptly upon transport to the unit and configuration of the waste.
- Transportation of or routine operations with explosives waste at the thermal treatment units are not conducted during the following severe conditions:
 - lightning is within a six-mile radius (9.6 kilometers)
 - icy roads (for transport)
 - winds greater than 20 miles per hour at the unit
 - winds greater than 10 miles per hour in drier weather conditions
 - when fire danger rating is deemed to be “Very High” or “Extreme”
 - during precipitation events

Operations are ceased immediately upon the discovery of an unsafe situation including but not limited to an aircraft in dangerous proximity to the hazardous waste management unit. Additionally, if environmental conditions change rapidly and unexpectedly after waste is already staged at the unit, the waste will remain at the unit under administrative control until treatment can be safely conducted.

Post-Treatment Residue Management

The unit is inspected and the waste containment devices cleaned of any treatment residues as close to 24 hours after a treatment event as possible. Residues that are a result of thermal treatment processes are managed as a separate waste stream. If any untreated explosives waste are found remaining in the residue or ash during inspection of the unit after treatment, the Permittees shall re-treat the waste. All nonreactive residues shall be managed as waste and characterized in accordance with appropriate waste management procedures.



Group Activity 1: Module Review Exercises

- Divide into groups of 2 – 3 people.
- Complete pages 2 – 4 of the **Student Activity Packet**.

Module

6

Module 6: Inspections, Recordkeeping, and Reporting



Module Objectives

After completing this module, you should be able to demonstrate familiarity with the following:

- *The Inspection Plan & General Inspection Requirements*
- *The Inspection Record Form*
- *The Facility Operating Record*

Inspection Plan - Permit, Attachment E

Regular Inspections: All permitted hazardous waste units must be inspected on a regular basis to ensure safe operations and regulatory compliance. Inspections are required at permitted hazardous waste units to identify problems that could lead to a release of hazardous constituents to the environment or pose a threat to human health (40 CFR Part 264.15(a), *before they become an issue*). These inspections are not conducted to “find noncompliance,” but to protect workers, the public, and the environment. Written inspections must be conducted as outlined in the [LANL Hazardous Waste Facility Permit](#) using the [Hazardous and Mixed Waste Facility Inspection Record Form](#).

General Inspection Requirements

The Inspection Plan must be followed for the inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing, detecting, and responding to environmental or human health hazards. Inspections may be conducted at any time during the applicable day or week, as specified in the inspection schedule.

The waste compliance personnel and the site operator (*i.e.*, the division or operating group that is responsible for or manages the permitted unit) must maintain a copy of the Inspection Plan, which includes inspection schedules. Tanks must be inspected every day that waste is present.

Weekly Inspections

Written inspections must be performed weekly using the [Hazardous Waste Facility Inspection Record Form \(IRF\)](#), in accordance with [Attachment E \(Inspection Plan\)](#).

Additional Inspections

In addition, written inspections are required each day, or the day after, waste is added, removed, treated, or moved using the same inspection record form. Spill-Prone Areas, Areas such as loading and unloading zones must be inspected daily when in use (40 CFR Part 264.15(b)(4)).

What Must Be Inspected

Inspections must include all equipment and structures that are critical for preventing, detecting, and responding to hazards associated with hazardous waste, as detailed in the table below.

General Items for Weekly Inspections

Communication & Warning Systems	- Communications equipment (phones, pagers, radios, public-address systems) must be available and operational. - Bilingual/Trilingual Warning signs must be posted, visible, legible, & bilingual as required. (English/Spanish; Kha-'Po at TA-54)
Security Measures	- Security devices (locks, fences, gates, cameras, surveillance, access controls) must be present and available. - Unit perimeter must prevent unauthorized entry. - Doors, gates, and other access points must be intact and operational.
Work Areas & Structural Integrity	- Work surfaces, floors, and roads must be free from obstruction, damage, deterioration, discharges that could lead to spill or incident. - Waste management structures and foundations must be intact and undamaged. - Loading and unloading areas must be free from deterioration, damage, or spills. - Secondary containment systems must be free of waste, intact, and properly maintained. - Run-on and run-off controls must be maintained, undamaged, and free of spills/ponding/erosion.
Storage Tanks, & Treatment Units	- Storage tanks and treatment units must be free of visible damage, leaks, or deterioration. - Tank discharge controls and fill levels must be in proper order. - Tanks must show no corrosion, leakage, or structural failure.
Monitoring & Operating Equipment	- Monitoring instruments (e.g., gauges, sensors) must be functional and calibrated as required. - Operating equipment such as pumps, valves, hoses, and handling tools must be in good working order.
Spill, Fire, & Emergency Preparedness Equipment	- As listed in Appendix E of the Student Manual - Required equipment must be present, accessible, properly maintained, and inspected according to facility requirements. - Includes spill kits, fire protection equipment, and decontamination equipment (eyewashes, safety showers).

Container Condition and Storage	• Covers/lids must be closed and secured. • Containers must be in good condition, free from leaks, corrosion, deterioration, or damage. • Containers must be segregated by compatibility. • Containers must be properly elevated. • Secondary containment must be functional, free of cracks or conditions that could cause failure. • Labels must be present, legible, and accurate. • Labels must include start date. • Aisle space must be adequate. Maintain at least 2 ft. of emergency egress at all personnel doors to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment. • Stacking must be safe.
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Outdoor Unit Requirements Windsock installed must be clearly visible and free of damage.	Open Detonation • Units must have no visible erosion. • Vegetation must be cleared from the unit area.
Other Treatment Units • Containment and treatment equipment must be in good condition. • No evidence of spills are observed.	Open Burning • Covers must be in good condition. • Equipment must be in good condition. • No visible erosion or leakage.

Additional Requirements by Unit Type

Repairs and Corrections

- *Any deterioration or malfunction discovered must be corrected (repaired or mitigated, provide substitute equipment, or provide other functionally equivalent measures and/or equipment) within 24 hours of discovery.*
- *If an imminent hazard is identified, immediate remedial action must be taken (40 CFR Part 264.15(c)).*
- *If substitute equipment is necessary, personnel working in the area are notified of the presence of substitute equipment and, if necessary, provided with training for use.*

The Inspection Record Form

Inspection Record Forms (IRFs) are legal documents. It is essential to complete them accurately. Inspections must be conducted mindfully. Regulators assess these forms at all inspections. It is imperative that forms be completed carefully to ensure accuracy.

Documentation Requirements

All inspection results must be documented on the IRF. At minimum, the record must include:

- *Date and time of inspection*
- *Identification of unit/equipment*
- *Inspector's name*
- *Observations made*
- *Date and nature of repairs or corrective actions*
- *All rows for the column on the inspection day must be completed with OK, AR, or NA*



Group Activity 2

Inspection Record Form

Correcting an Improperly Filled-Out IRF

Complete pages 5 – 9 of the **Student Activity Packet**.
Instructor will present answers on the next slides.

Records must be legible, written in ink, and corrections must be made with a single line-out, initialed, and dated. Logs must be maintained in paper format (with optional transfer to electronic format approved by New Mexico Environment Department). Logs must be retained for the period specified in Permit Section 2.12.2. (See **Appendix D** for blank IRF.)

Recordkeeping

Recordkeeping is an essential part of managing hazardous waste under RCRA. It provides a clear, documented history of how waste is handled, stored, and treated at the Facility. These records not only demonstrate compliance with permit requirements, but also help ensure safety, accountability, and transparency.

By keeping accurate and accessible records, the Facility can show regulators, auditors, and the public that hazardous waste is being managed responsibly from day-to-day operations through closure and beyond. Maintaining complete and accurate records demonstrates and documents compliance as we protect human health and the environment and ensure accountability throughout the life of a hazardous waste management unit.

The Facility Operating Record

Each permitted unit at the Facility must have a Facility Operating Record. This is the “official logbook” where important documents about the unit’s operations are stored. The Operating Record must be kept until closure or post-closure is complete and officially approved by the New Mexico Environment Department. Records that apply to the entire Facility (for example, reports about the whole facility and documentation of emergency preparedness) must be kept for the entire active life of the Facility, and through post-closure care.

- Electronic records: Records can be kept electronically, as long as they can be printed and are in a format acceptable to the Department.
- Changes to records: If any significant edits are made to an electronic record, those changes must be logged, dated, and included in the Facility Operating Record.

Required Contents of the Facility Operating Record

Unit-Level Documentation Requirements

The Facility Operating Record must capture the following information at or by the applicable units:

- *hazardous waste received and the methods and dates of treatment and storage at each permitted unit*
- *the location of each type of hazardous waste within each permitted unit and the total quantity of all wastes and waste types at each unit*
- *records and results of waste analyses and waste determinations that are performed*
- *documentation demonstrating the installation and maintenance of secondary containment system coatings or sealants as required at Permit Section 3.7.1(4) and 4.4(4)*
- *documentation of notifications and trainings associated with alternate emergency equipment as discussed earlier within this module*
- *documentation of all instances where an indoor fire suppression system has been activated resulting in fire suppressants contacting a waste storage pad*
- *records and results of inspections including:*
 - *completed inspection record forms*
 - *the results of any preventive maintenance activities (maintenance on floors, secondary containment structures, unit drainage structures, and fire protection equipment at a permitted unit)*
 - *any malfunctions and deterioration of such structures or equipment*

- *any errors affecting waste containment or compliance with this Permit*
- *the locations, dimensions, and repairs of all identified cracks or gaps in floors or base materials*
- *any discharges of hazardous waste, hazardous constituents, or fire suppression systems at a permitted unit*
- *any occurrences that might cause or exacerbate contamination of a permitted unit*

Facility-Wide Documentation Requirements

- *monitoring, testing, analytical data, and response actions as required*
- *notices to off-site generators sending waste to units at LANL as specified in 40 CFR § 264.12(b)*
- *an annual certification stating a Facility program is in place to reduce the volume and toxicity of hazardous waste generated*
- *all monitoring reports and records required by this Permit, including but not limited to: records of all monitoring data used to complete Permit Application(s)*
- *all data gathered or generated during the closure or post-closure process; and all laboratory reports, drilling logs, bench-scale or pilot scale data*
- *documentation demonstrating distribution of the Contingency Plan in accordance with Permit Section 2.11.3*
- *incident reports and details of all incidents that required the implementation of Attachment D (Contingency Plan), any instance of fire, explosion, spill, or release from, or at, a permitted unit regardless of whether the incident required implementation of the Contingency Plan or Permit Part 11 (see 40 CFR § 270.32(b)(2))*
- *personnel training records including both introductory and continuing training programs used to prepare employees to safely operate and maintain a permitted unit in compliance with 40 CFR § 264.16(d)*
- *if applicable, for hazardous wastes left in the ground after closure (i.e., disposal units), the information required of a treatment facility under 40 CFR § 268.7(b)*
- *for treated wastes, the information contained in the notice and certification required under 40 CFR § 268.7(b), which is incorporated herein by reference*
- *for stored wastes, the notice (or information contained in the notice for wastes generated on-site) and certification required at 40 CFR § 268.7*

Reporting and Notification Requirements

The RCRA Team is responsible for the following annual, quarterly, and as-required reports and notifications:

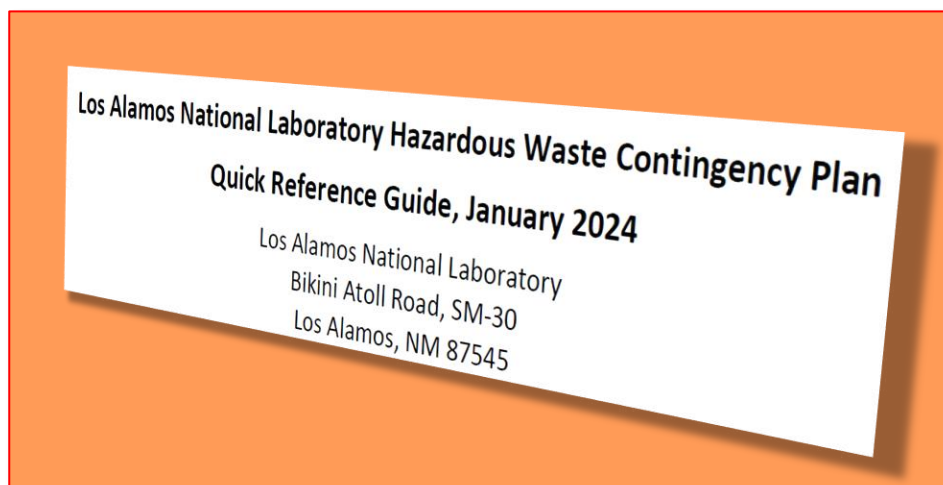
- *Noncompliance reporting*
- *Demolition activities*
- *Container non-conformance summary*
- *Distribution of updated Contingency Plan*
- *Treatability study reporting and/or notifications*
- *Hazardous waste biennial reporting*
- *Annual Hazardous Waste Fees*
- *Affidavits documenting no use for specific activities*
- *Transuranic Waste Facility (TWF) soil vapor monitoring*
- *Waste minimization reporting*
- *Inventory of hazardous waste sites (3016 Report)*
- *Procedure revisions annual update*

Additional reporting requirements:

- *Manifest discrepancies*
- *Use of expanded storage capacity at the TA-54-38 transuranic waste loading facility*
- *Notification to the public of entering dispute resolution*
- *Responses to requests for information from the NMED or the United States Environmental Protection Agency (EPA)*
- *Emergency permits*

Module 7

Module 7: Preparedness, Prevention, and Emergency Requirements



Module Objectives

After completing this module, you should be able to demonstrate familiarity with the following:

- *Preparedness and prevention*
- *The purpose and content of the Contingency Plan and the Quick Reference Guide*
- *Emergency management*
- *Emergency equipment requirements*

Preparedness and Prevention

LANL is required to maintain and operate each permitted unit in a manner that minimizes the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous constituent to the air, soil, or surface water that could threaten human health or the environment (see 40 CFR Part 264.31). In response to this requirement, LANL maintains a comprehensive emergency preparedness and prevention framework under the Hazardous Waste Facility Permit to protect human health, the environment, and facility operations. This framework requires the use of the National Incident Management System (NIMS) and the Incident Command System (ICS), ensuring a clear command and communication structure during hazardous waste incidents.

LANL's Contingency Plan includes designated internal and external response resources (e.g. facility safety, radiation protection, fire and medical services, outside agencies under memoranda of understanding), a flexible notification system that scales for different emergencies, well-defined roles and responsibilities, and procedures for distributing the contingency plan to all relevant response groups and oversight agencies.



In addition to the general preparedness and prevention requirements identified here, the Permittees shall comply with the TA-specific preparedness and prevention requirements and shall maintain the equipment identified in the Permit, Attachment A (*Technical Area Unit Descriptions*) and Attachment D (*Contingency Plan*).

Contingency Plan – Hazardous Waste Permit, Attachment D

Purpose of the Contingency Plan

Attachment D of the Hazardous Waste Permit presents contingency measures applicable to all permitted hazardous waste management units. This plan describes the actions facility personnel must take in response to fires, explosions, and any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The plan must be implemented immediately to minimize hazards that could threaten human health or the environment.

A copy of this Contingency Plan and any revisions will be provided to each of the emergency response groups or agencies, including the Los Alamos Police Department (LAPD), the Los Alamos Fire Department (LAFD), the Los Alamos Medical Center (LAMC), and the State of New Mexico's Department of Homeland Security and Emergency Management (DHSEM) Area 3 Emergency Management Coordinator.

ATTACHMENT D CONTINGENCY PLAN	
Los Alamos National Laboratory Hazardous Waste Permit January 2024	
TABLE OF CONTENTS	
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D.1 HAZARDOUS AND MIXED WASTE EMERGENCY RESPONSE RESOURCES	6
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Content of the Contingency Plan

The CP contains detailed information regarding the following:

- *emergency response to fires, explosions, or release of hazardous waste or hazardous constituents to air, soil, and surface water*
- *arrangements agreed upon by local police and fire departments, hospitals, federal, state, and local emergency response teams, and tribal governments to coordinate emergency services*
- *contracts with emergency response contractors and equipment suppliers*
- *contact information for primary and alternate individual assigned to act as Incident Response Commander*
- *an evacuation plan*

Quick Reference Guide

Purpose and Content of the Quick Reference Guide

While the CP provides the overall emergency response plan for areas where hazardous waste is generated and accumulated, the Quick Reference Guide provides more information that is general to the overall hazards at the LANL facility as a whole.

The following sections as well as a chart with waste types and a location map for LANL are included in the guide.

- *Facility Contacts*
- *Primary Incident Response Commander*
- *Alternate Incident Response Commanders*
- *On-Site Notification Systems*
- *Waste that May Pose a Unique Threat*
- *Location of Hazardous and/or Mixed Waste*
- *Maximum Quantity of Hazardous Waste*

Emergency Management

Emergency Response Personnel

During an emergency situation, line management (*i.e.*, the Line Manager of the affected area) works with an Incident Response Commander from the emergency management organization. The Incident Response Commander has primary responsibility for managing emergency response operations, directing the Emergency Operations Support Center (EOSC) to make appropriate notifications, and activating the emergency response organizations to complete the appropriate response to the situation.

Line Management works with an Incident Response Commander (IRC) from the emergency management organization. The IRC has primary responsibility for managing emergency response and can serve as the Incident Commander (IC) at the scene. Depending on the type of incident, other agencies such as the Federal Bureau of Investigation (FBI) or the Los Alamos Fire Department may assume IC duties.

Incident Response Commander (IC) Role and Functions

The IC coordinates all groups and agencies responding to the emergency and personnel operating at the scene using the ICS. To assess, plan for, and mitigate emergencies the IC may appoint and utilize a network of support personnel such as the following:

Safety Officer, Public Information Officer, Liaison Officer: Responsible for issues related to safety, information, interaction of various groups associated with the overall emergency.

Operations Section Chief: Responsible for mitigating the response, overseeing the Fire Branch, the Emergency Medical Services Branch, and the emergency response organization.

Logistics Section Chief: Responsible for providing support personnel and equipment for the emergency response.

Planning Section Chief: Responsible for planning the mitigation and recovery activities for the emergency.

Administrative Section Chief: Responsible for keeping Records of Expenditures.



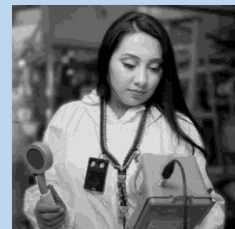
Additional Emergency Response Support

Emergency response support such as health physics, industrial hygiene, emergency response, fire, law enforcement, and medical services are provided through the Incident Command System and activated as needed during an emergency.

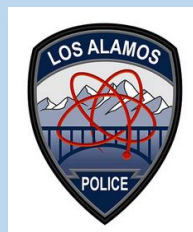
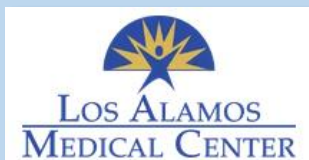


Facility Resources include health physics, industrial hygiene, environmental compliance, emergency response, and radiation protection staff.

Laboratory-Contracted Support Services include Los Alamos Fire Department and contracted services for security.



Memorandum of Understanding (MOU) with DOE includes the Los Alamos Police Department, the Los Alamos Medical Center, and several other medical facilities.



Emergency Response Networks

Incident Command System (ICS)

All responses use the ICS, which follows the protocols of the National Incident Management System (NIMS), a national standard that provides a solid foundation for an effective and integrated emergency response.

- ✓ Is a core component of the **National Incident Management System (NIMS)** in the U.S.
- ✓ Is a standardized, on-scene, all-risk management framework
- ✓ Allows diverse agencies to work together during emergencies
- ✓ Provides a common structure for command, control, and coordination
- ✓ Focused on safety and efficient resource use

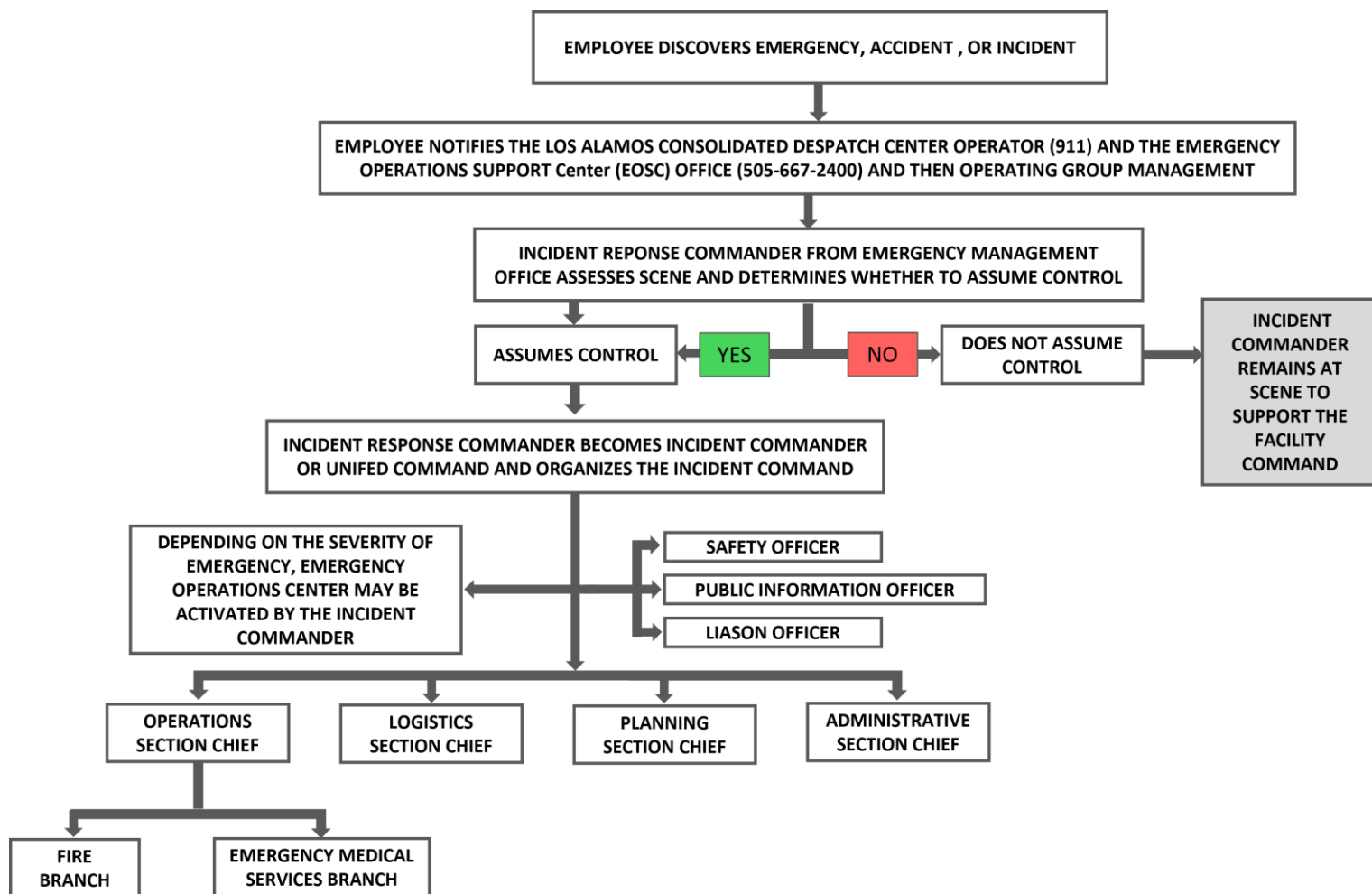
Organized around five key functions:

1. Command
2. Operations
3. Planning
4. Logistics
5. Finance/Administration

Ensures clear authority and objectives from small incidents to major disasters.

General Hazardous Waste Emergency Notification System

The Incident Response Commander will activate the General Hazardous Waste Emergency Notification System (**below and also in Appendix C**), which is a flexible notification network used during hazardous or mixed waste emergencies. This notification system is designed to expand and contract depending on the incident, ensuring that appropriate on-site and off-site responders are informed. The Emergency Operations Support Center (EOSC) also handles notifications to on-site and off-site groups.



Notifications and Follow-up Reporting

Post-Emergency Requirements

At the conclusion of emergency response actions and related activities, determination of notifications and follow-up reporting requirements must be made. Applicable notification requirements could include oral reporting within 24 hours of an incident and 5-day follow-up reporting on the incident if the response actions met the criteria for implementation of the LANL Hazardous Waste Facility Permit, Contingency Plan. Other notifications may be provided to the regulator voluntarily as well. EPC-DO and EPC-WMP management will make the determination and complete any notifications/reporting that are required.

Emergency Equipment Requirements

At a minimum, internal communication and alarm system devices, fire control equipment, spill control equipment, and decontamination equipment shall be maintained at the Facility and at each permitted unit. All required equipment is listed in Attachment E, *Emergency Requirements per Unit*, of this manual which was adapted from the tables in Attachment A, *Technical Area Unit Descriptions* and Attachment D, *Contingency Plan*. (See 40 CFR § 264.32(b)(2)).

Summary

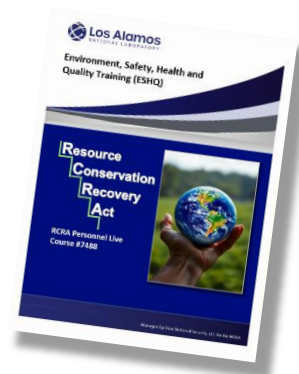
Now that you have completed this course, you should be able to do the following:

- *Recognize the storage area and treatment requirements for permitted and interim status storage and treatment units*
- *Recognize waste storage documentation and labeling requirements*
- *Recognize the importance of recordkeeping and reporting as required by federal and/or state environmental regulatory agencies*
- *Identify the purpose of and major elements in the emergency management plan (EMP) and contingency plan.*

Next Steps:

Now that you have completed this course, continue to UTrain to complete the accompanying quiz, RCRA Personnel Live Quiz #63363. Once you complete the quiz with a score of 80 percent or better you will receive credit for the course.

Refer to this Student Manual as a resource as you take the quiz and as you continue to work at Treatment and Storage Facilities at LANL.



Appendix

A

Appendix A: RCRA Overview

Resource Conservation and Recovery Act (RCRA)

Enactment of RCRA: The Resource Conservation and Recovery Act (RCRA) was enacted by Congress in 1976 as an amendment to the Solid Waste Disposal Act of 1965, in response to growing concerns over the management of hazardous and non-hazardous waste. The law was designed to address the mounting volume of waste generated by industrial and municipal sources and to ensure that waste is managed in a manner that protects human health and the environment.

Authority Established: RCRA provides the U.S. Environmental Protection Agency (EPA) with the authority to regulate the generation, transportation, treatment, storage, and disposal of solid and hazardous waste. It marked a major shift in federal waste policy from open dumping and uncontrolled landfilling to a comprehensive waste management approach.

RCRA and Corrective Action: RCRA also authorizes EPA and state agencies to require corrective action at facilities where waste has been mismanaged. This includes cleanup of soil, groundwater, or surface water contamination. Corrective action can be required as a condition of a facility's permit or through enforcement actions.

State Authorization: While RCRA is a federal law, it allows states to implement their own hazardous waste programs if they are at least as stringent as federal requirements. Most states have been authorized by EPA to operate RCRA programs, often with additional or more specific requirements.

Subtitle C: RCRA is organized into several subtitles, the most relevant for LANL being *Subtitle C – Hazardous Waste Management*. Subtitle C defines what constitutes hazardous waste and sets standards for generators, transporters, and treatment, storage, and disposal facilities (TSDs). Entities must obtain permits and comply with strict recordkeeping, reporting, and operational requirements. Subtitle C establishes a system for controlling hazardous waste from its generation to disposal, or what RCRA calls “cradle-to-grave” waste management. This management system includes tracking waste from the point of generation through transportation to its final treatment or disposal.

Generator Classifications - RCRA classifies hazardous Waste Generators based on the amount of waste produced in a calendar month:

- Very Small Quantity Generators (VSQGs): ≤ 100 kg of hazardous waste/month.
- Small Quantity Generators (SQGs): 100–1,000 kg/month.
- Large Quantity Generators (LQGs): $>1,000$ kg/month or >1 kg of acutely hazardous waste.

Each category has specific requirements for storage, labeling, training, emergency preparedness, and reporting.

Implications for National Laboratories - At a national laboratory, compliance with RCRA is essential due to the generation of both hazardous and non-hazardous wastes in research,

analytical, and maintenance operations. Laboratories typically fall into the LQG category and must:

- Ensure all personnel handling waste are properly trained.
- Maintain accurate waste characterization and labeling.
- Use EPA-approved containers and storage practices.
- Submit biennial reports and manage emergency response plans.

Appendix

B

Appendix B: Adaptation of Attachment J, Table J–1

Container Storage Units

Unit Identifier	Operating Capacity (gallons)	General Information	Process Code	Type of Unit
TA-3-29	18,500	Square footage – 3,040	S01	Indoor storage
TA-50-69 Indoor	1,500	Square footage – 2,680	S01	Indoor storage
TA-50-69 Outdoor Pad	30,000	Square footage – 2,160	S01	Outdoor storage with transportainers
TA-54-38 West Indoor	4,950	Square footage – 4,060	S01	Indoor storage
TA-54-38 West Outdoor Pad	29,160	Square footage – 37,900 * May include excess storage capacity when necessary	S01	Outdoor storage
TA-55-4, B40	21,500	Square footage – 3,380	S01	Indoor storage
TA-55-4, K13	2,500	Square footage – 208	S01	Indoor storage
TA-55-4, B05	3,600	Non-liquid wastes only Square footage – 260	S01	Indoor storage
TA-55-4, B45	11,000	Non-liquid wastes only Square footage – 788	S01	Indoor storage
TA-55-4, B13	4,950	Non-liquid waste only Square footage – 495.83	S01	Indoor storage
TA-55-4, G12	5,225	Non-liquid waste only Square footage – 512.98	S01	Indoor storage
TA-55-4, Vault	4,000	Square footage – 4,020	S01	Indoor storage
TA-55-4 Outdoor Storage Pad	135,000	Square footage – 11,100	S01	Outdoor storage
TA-55-355 Pad	84,370	Square footage – 13,390	S01	Outdoor storage with canopy cover
TA-60, Building 17	17,600	Square footage – 3,480	S01	Indoor storage
TA-63 Transuranic Waste Facility	105,875	Square footage – 79,239	S01	Outdoor storage with storage buildings

Tank Storage and Stabilization Unit

Unit Identifier	Operating Capacity (gallons)	General Information	Process Code	Type of Unit
TA-55-4 Mixed Waste Storage Tank System	137	Square footage – 4,500	S02	Tank storage
TA-55-4 Mixed Waste Stabilization Unit	150 per day	Square footage – 4,500	T04	Stabilization treatment

Treatment in Containment

Unit Identifier	Operating Capacity (gallons per day)	General Information	Process Code	Type of Unit
TA-50-69 Indoor	1,100	Square footage – 2,680	T04	Stabilization, resizing, and repackaging treatment

Open Burning and Open Detonation

Unit Identifier	Operating Capacity (gallons)	General Information	Process Code	Type of Unit
TA-16-388 Flash Pad	200 lbs./day or 50 gallons/day	Flash Pad Total square footage – 484	X01*	Open burning unit
TA-36-8, Minie	2000 lbs./day	Near Structure TA-36-8	X01**	Open detonation unit
TA-39-6, Point 6	1000 lbs./day	Near Structure TA-39-6	X01**	Open detonation unit

Appendix

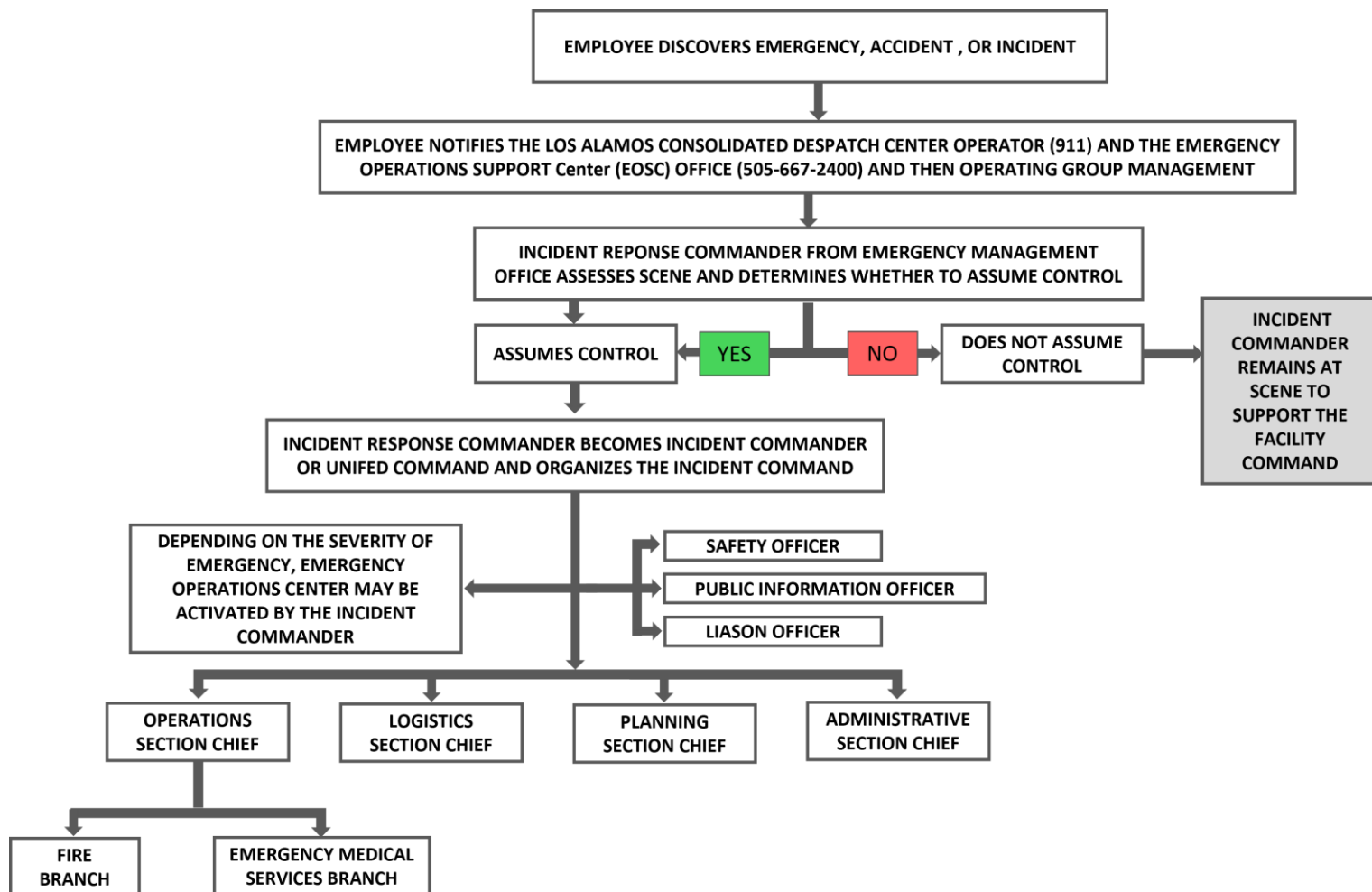
C

Appendix C: General Hazardous Waste Emergency Notification System

Permit Attachment D, Figure D-1

LANL Hazardous Waste Permit, Att. D, Figure D-1

General Hazardous Waste Emergency Notification System



Appendix

D

Appendix D: Inspection Record Form and Instructions

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

1 FACILITY:	2 Site ID #:	TREATMENT, STORAGE, OR DISPOSAL UNIT (TSD)	3 START DATE:	4 END DATE:				
5 ☐ Containers ☐ Landfill ☐ Chemical Treatment ☐ Tank ☐ Miscellaneous Unit (OB/OD, Cementation)								
PART I- Enter condition of the item inspected (i.e. OK , NA [Not Applicable], or AR [Action Required]) in column for day inspected.								
ITEM	INSPECTED FOR:	MON	TUE	WED	THU	FRI	SAT	SUN
All TSDs								
6 NO UNIT USE	No waste stored							
7 NO WASTE HANDLING	No waste handled/treated (see instructions)							
8 COMMUNICATIONS EQUIPMENT	Availability and proper operating condition							
9 WARNING SIGNS	Posted, legible, and bilingual							
10 SECURITY	Good condition of fences, gates, locks, and other access control equipment							
11 WORK SURFACES/ FLOORS/ROADS	Absence of conditions that could lead to an accident or spill							
12 SPILL/FIRE EQUIPMENT	Present, appropriate, and in proper operating condition							
13 EYEWASHES/ SAFETY SHOWERS	Proper operating condition							
14 WINDSOCK	Proper operating condition and no damage							
15 SECONDARY CONTAINMENT	Integrity- No standing water/waste, erosion, or other signs of a spill							
16 (UN)LOADING AREA	No spills or deterioration							
17 RUN-ON/OFF CONTROL	Integrity- no ponding, erosion, or damage							
Container Storage Units and/or Tanks (see instructions)								
18 COVERS/LIDS OF CONTAINERS	Closed and secured properly							
19 LABELS	Proper labels with start date, present & legible							
20 COMPATIBILITY	Separated according to compatibility							
21 INTEGRITY	No leakage, deterioration, corrosion, or damage							
22 AISLE SPACE/STACKING	Appropriateness and adequacy							
23 PALLETS AND RAISED CONTAINERS	Absence of conditions that could result in failure							
24 TANK SYSTEMS	Discharge controls and fill level and no corrosion or leakage							
Other TSDs								
25 SHAFTS/LANDFILL COVERS	Presence and condition of cover							
26 OPEN BURNING UNITS	Condition of cover, and no erosion, leakage, or deterioration							
27 OPEN DETONATION UNITS	Unit and vegetation condition and no erosion							
28 CEMENTATION UNITS	Structural integrity and condition of equipment and systems							

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

FACILITY:	Site ID #:	START DATE:	END DATE:
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	MON	TUE	WED	THU	FRI	SAT	SUN
²⁹ DATE							
³⁰ TIME							
³¹ <u>INSPECTOR(S)</u>							

Part II- For any AR (Action Required) in PART I, describe below: action required, action taken, date, and time of action. Attach additional sheets if necessary. If more than one action is required, number each AR.

32

Part III- Comments.

33

Part I

Weekly and daily inspection of TSDs will be conducted in accordance with the inspection plan in the LANL Hazardous Waste Facility Permit, (Attachment E) or in the most recent permit application for interim status units, as appropriate. Not all items in this section will apply to all facilities. An “NA” (not applicable) is required if the item does not apply. Facilities may shade parts of the form to indicate items that need to be completed only on a weekly basis. Holidays and Laboratory closures may also be noted (e.g., by writing “H” (for holidays) or “Closed” in the first box and drawing a line all the way down the page).

All boxes within the column for the day of the inspection are required to be filled. However, a column may be left blank on days when operations are not conducted.

1. Location information, including TA, building, room (if applicable), and any other location descriptors that may be necessary (e.g., TA-59-3-114 or TA-59-1-S, Dock).
2. A site identification number is assigned to every facility by the Resource Conservation and Recovery Act (RCRA) compliance personnel. This allows for ease in identification.
3. Start date of Monday for the week of record.
4. End date of Sunday for the week of record.
5. Check the appropriate box for the type of operation. Several boxes may be checked, if necessary, for those locations where inspections are combined on a single sheet. You must have prior approval from RCRA compliance personnel to combine inspections for more than one unit.
6. For container storage units only – “NO UNIT USE” may be checked (or marked “OK”) if waste was not stored at the unit for the week in question. When this box is checked, the individual responsible for the inspection must only complete this box, the items related to site location (Items 1-5), and the inspector name section for that week (Items 29-31). If any hazardous or mixed waste is subsequently placed at the site for any reason, a full inspection must be performed immediately and then subsequently according to the appropriate inspection plan.
7.
 - a. At a container storage unit if waste is in storage but no waste is handled at the unit for the week– “NO WASTE HANDLING” may be checked, but a weekly inspection in accordance with the appropriate inspection plan must be conducted.
 - b. If a treatment unit is not conducting treatment for the week – “NO WASTE HANDLING” may be checked, but a weekly inspection in accordance with the appropriate inspection plan must be conducted.
 - c. For a tank storage system unit, if no waste is being stored and the tank system is empty, “NO WASTE HANDLING” may be checked. However, a weekly inspection in accordance with the appropriate inspection plan must be conducted (If any hazardous or mixed waste is subsequently placed in the tank for any reason, full inspection must be performed immediately and then subsequently according to the appropriate inspection plan).
8. Communication equipment must be inspected in order to ensure availability and proper operating condition for each piece of equipment (e.g., telephones, radios, and alarms). Equipment must be present in accordance with the appropriate contingency plan.

9. Required signs must be legible and prominently posted in accordance with 40 CFR § 264.14(c) and/or the permit as applicable. Warning signs at all gates and perimeter fences, where present around permitted units, must be posted in bilingual (in English and Spanish), must be visible from a distance of at least 25 feet and from all angles. Warning signs along shared boundaries with the Facility's permitted units and the pueblo of San Ildefonso shall be posted in the appropriate dialect of Tewa, equivalent to the bilingual warning signs (See Permit Section 2.5.1 (Warning Signs)). Signs at large outdoor storage areas will be inspected no less than two times per year to evaluate for deterioration.
10. Site security must be verified. Items such as fences, gates, locks, and other access control equipment (as appropriate) should be checked for proper operating condition or mitigative measures (e.g., attendants, locks, prohibited or controlled roadway access). (See Permit Section 2.5 (Security))
11. Roads, process floors, and other work surfaces at TSDs must be inspected for any conditions that could lead to a spill or an accident. Inspection includes structures and base materials and malfunctions, deterioration (e.g., tears in dome fabric), operator errors, and discharges.
12. Hazardous or mixed waste TSDs must have fire control and spill control equipment. Equipment must be present, in proper operating condition, and appropriate for the material in question. Hose bibs, where present, should be inspected for proper operating condition and adequate pressure. Outdoor fire-water supply systems must be checked for freezing and damage. Equipment must be inspected and present in accordance with the appropriate inspection and contingency plans. (Attachment D (Contingency Plan) of the Permit includes a list of required equipment specific to each permitted unit.)
13. Where present, eyewashes and safety showers must be inspected to ensure proper operating condition or that scheduled routine inspections have been conducted and documented as indicated at the eyewash or safety shower. Outdoor locations must be checked for freezing.
14. Windsocks, where present at outside TSDs, must be inspected to ensure that they are in proper operating condition/functional and checked for damage.
15. Secondary containment structures for hazardous or mixed waste operations must be inspected to verify proper operating condition and to ensure adequate capacity. Structures must also be inspected for the presence of standing water or hazardous/mixed waste or any other indication of a spill (*i.e.* discolored vegetation, soil, or concrete). For certain operations, secondary containment includes inspection of gloves, gloveboxes, hoods, and ventilation systems. For locations where inflatable "Porta Berms" are used, inspectors must ensure that they are adequately inflated. All monitoring and leak detection systems must also be checked. (Note: Dome 224 must be checked for liquids even though the liner is not considered secondary containment.)
16. Loading and unloading areas must be inspected daily when in use for signs of damage or deterioration that may lead to an accident or spill. This includes asphalt covered areas and areas where containers or tanks are handled or the contents thereof are transferred, including doorways or entry ways (Permit Section 2.6.1).
17. Run-on and runoff controls, wherever present, must be checked. The integrity should be inspected by looking for signs of damage, erosion, ponding, or any other conditions that could lead to a spill or an accident.

18. All tanks and containers used for storing hazardous or mixed waste must have the cover or lid securely in place. Containers are not considered to be closed until the lid/cover is fastened in the manner the manufacturer originally intended. However, the lid may be off of a tank or container while waste is being placed into or removed from a container.
19. All containers and tanks containing hazardous or mixed waste must be labeled with the words “HAZARDOUS WASTE,” and EPA Hazardous Waste Numbers or hazardous waste constituents. They must also be marked with a legible accumulation start date. All containers must be dated when they arrive at the facility and no hazardous or mixed waste may be stored for over one year, unless specifically exempted. All containers holding mixed waste shall be labeled “Radioactive” and all containers with any amount of free liquids must be labeled as such.
20. All hazardous or mixed waste containers holding materials that may be incompatible with any other materials at that location must be separated from those materials by dikes, berms, or other physical barriers to prevent a possible reaction (e.g., when ignitable or corrosive wastes are segregated by signage or other physical boundary or marking).
21. All containers and tanks must be checked for structural integrity, leakage, corrosion, or damage that may impact integrity. This includes checking the condition of all construction materials, fixtures, seams, and auxiliary equipment. There are special inspection criteria for tank systems (see Item 24 below).
22. Adequate aisle space must be maintained to allow for inspection and for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency. Containers of hazardous and mixed waste must be stored in a manner that ensures a minimum 2-foot aisle space and containers may not be stacked more than 3 high, unless otherwise specified for the facility (*i.e.* some units within the LANL Hazardous Waste Facility Permit must have an aisle space of 28 inches and only 55 gallon drums may be stored three high). Please consult RCRA compliance personnel for permit related questions.
23. Hazardous or mixed waste containers stored at TSDs must be on pallets, elevated, or otherwise raised to be protected from contact with accumulated liquid.

TANKS SYSTEMS:

24. For tank systems used for treatment or storage of hazardous or mixed waste, all aboveground portions of the tank system, including any and all ancillary plumbing, must be inspected for signs of leaking, corrosion, deterioration, or improper operation. Tanks must be operated with a minimum freeboard of 6 inches. If the tank system includes discharge controls, overtopping controls, tank level alarms, or other monitoring equipment, including leak detection equipment, all controls and relevant data must be checked to ensure they are operating properly and that operation is within design specifications for the system.

SHAFTS:

25. Shafts used for retrievable storage should have their covers securely in place and the surrounding area should show no evidence of erosion. Disposal shafts and shafts used for retrievable storage should have their covers securely in place and, during waste handling operations, guard rails must be installed and in good condition. Landfill covers must be inspected at least weekly and after storms for evidence of erosion, subsidence, and water intrusion.

OPEN BURNING UNITS:

26. Open burning units must be inspected for deterioration, leakage, vegetation in the immediate vicinity that could catch fire, and assure that the unit is covered when not in use. Inspectors must also look for explosives and debris not consumed during the burn.

OPEN DETONATION UNITS:

27. Open detonation units must be inspected for deterioration, leakage, or vegetation in the immediate vicinity that could catch fire. Inspectors must also look for explosives and debris not consumed by the detonation.

STABILIZATION UNITS:

28. The structural integrity and condition of equipment and systems must be inspected on stabilization units. Units must also be inspected for signs of leaking, corrosion, deterioration, or improper operation.

FOR ALL INSPECTIONS:

29. Record of the date of the current inspection. Only one date is given for each inspection, whether a team or an individual performs the inspection.
30. Record of the time of the current inspection. Only one time is given for each inspection, whether a team or an individual performs the inspection.
31. Legible and/or printed name of each inspector involved in the current inspection.

Part II***List any action required.***

32. Document any action taken immediately and express any plans for future action to be taken. Also, ensure that previous ARs are closed out with completed actions described. If the AR has not been resolved, ensure that it is carried over to the current inspection. Status should be provided for both open and closed items. If necessary, attach additional sheets to inspection record form to efficiently cover the action taken or required. Printouts from databases or other documentation may be included as necessary. Initial any information or comments added, and if more than one action is required or conducted, assign a number to each AR.

Part III***Identify any comments.***

33. Document informational comments and any status associated with the current inspection that does not require specific regulatory action or remedies applicable to the LANL Hazardous Waste Facility Permit or specific permit application (in the case of interim status units).

Appendix

E

Appendix E: Emergency Equipment Requirements per Unit

Emergency Equipment (alphabetically)	Units (Increasing numerically)					
	TA-3-20 CMR	TA-50-69 WCRRF	TA-54-38 RANT	TA-55 Tank Storage & Stabilization	TA-55 Basement	TA-55 Outdoor Pad
Alarm Pull Stations	9010 & 9020	Inside (x3)	Inside (x3)	Within room	At B05, K13, B45, Vault, and fire door	In neighboring building 55-42
Fire Extinguishers	9010, 9020 & 9030	Inside (x2) and outside (x1)	Inside and outside	Within room	Near B40, B05, K13, B45, B13, G12, and Vault	Within the unit
Hydrants	Surrounding CMR	West of building	West of entrance, wall hydrant on west wall, and hose bibs on west, south, and east sides	On north, south, and west sides of building	On north, south, and west sides of building	On north, south, and west sides of building PF-4
Paging Phones	9010, 9020 & 9030	None	Public address system	Phones capable of paging	Intercom stations located throughout basement	None
Personal Protective	Change room available in 9102	Change room	Gloves and goggles in spill kit	Self-contained breathing apparatus (SCBA) located in hallway and change/decontamination rooms	Nonspecific, available as needed	Change rooms located in 55-4 and 55-3
Safety Data Sheets	Available		Available	Available	Available	Available at TA-55-2
Shower & Eyewash	9010, 9020 & 9030	In room 102 and adjacent to change room	In high bay and on loading dock, portables are present during operations with free liquids	Within room	Eyewashes throughout the basement and showers are near B40, K13 and Vault	Within the unit
Spill Kits	9010, 9020 & 9030	Inside and outside	Mobile response kit	Secondary containment of the room	At B40, K13, and Vault	At unit
Sprinkler/Suppression System	9010, 9020 & 9030	Inside	Inside and on loading dock	Within room	Inside building	None
Telephones/Immediate Communication	9010, 9020 & 9030	Phones, pagers, two-way radio or visual or voice contact with personnel	Phones or two-way radios	Phones and two-way radios are available	Phones and two-way radios are available, and pagers are carried	Phones outside adjacent buildings 55-11 and 55-4, pagers are carried, and two-way radios are available
Thermal Evacuation Alarm	9010, 9020 & 9030	None	Alarm buttons (x3)	Within room and includes ventilation alarm	Throughout building and includes ventilation alarm	None

Emergency Equipment (alphabetically)	Units (increasing numerically)					
	TA-55 355 Pad	TA-60-17	TA-63 TWF	TA-16 Flash Pad	TA-36 Open Detonation	TA-39 Open Detonation
Alarm Pull stations	In neighboring building 55-42	In neighboring building 55-42	Throughout unit	Not applicable	Thermal alarm system within control building	None
Fire Extinguishers	Within the unit and on vehicles used for transport	Within building	Within all structures utilized for hazardous waste	Available at unit and on truck	Available at unit and on truck	Available at unit and on truck
Hydrants	On north, south, and west sides of building PF-4	On the north side of building	Two located at TWF	Near the unit	Fire department on standby when necessary	Fire department on standby when necessary
Paging Phones	Phone on north side of pad and within HENC unit	Phone on north side of pad and within HENC unit	Phone and public address system available within Operations Support Building	None	None	None
Personal Protective	Change rooms located in 55-4 and 55-3	Change rooms located in 55-4 and 55-3	Nonspecific, available as needed	Nonspecific, available as needed	Nonspecific, available as needed	Nonspecific, available as needed
Safety Data Sheets	Available at TA-55-2	Available at TA-55-2	Available at Operations Support Building	Available within control building	Available within control building	Available within control building
Shower & Eyewash	Eyewash within unit	Eyewash within unit	Available within 63-0149, 63-0150, 63-0151, 63-0152, 63-0153, and 63-0154	In tank truck garage and TA-16-1508	Portable eyewash available when needed	
Spill Kits	At unit	At unit	Throughout unit	Located near unit and within control building	Within control building	Within control building
Sprinkler/Suppression System	None	Wet pipe within building	Dry pipe within 63-0149, 63-0150, 63-0151, 63-0152, 63-0153, and 63-0154	Not applicable	Not applicable	Not applicable
Telephones/Immediate Communication	Phones and two-way radios are available, and pagers are carried	Phones and two-way radios are available, and pagers are carried	Phone inside and two-way radios are available	Within control building and at TA-16-1508	Within control building	Within control building
Thermal Evacuation Alarm	None	None	Throughout unit	Not applicable	Pull station within building	Not applicable