Subpart X Overview

Subpart X Overview

- TSDF Definition: Is the unit regulated?
- What units are not Miscellaneous?
- What units are Miscellaneous?
- What is it Photo Quiz.

The purpose of this section is to give the class a reminder of terminology. 40 CFR Part 264 Subpart X Miscellaneous Units are sometimes confusing to determine. This section reiterates first what treatment, storage, and disposal is by regulation and reminding the class that hazardous waste must be involved in order to be regulated by RCRA Subtitle C. Next, is a reminder of definitions of the units that are clearly defined by RCRA. If the unit does not fit a specific definition it falls into the miscellaneous category. Next, is an explanation of units that are typically falling into the Subpart X category. Finally, there is a series of photos for the class to determine what types of regulations apply or not. This should bring newer permit writers and inspectors up to speed on types of units they will be involved with.

TSDF Definitions

- A Treatment, Storage, Disposal Facility (TSDF) is a facility engaged in one or more of the following hazardous waste activities:
  - Treatment
  - Storage
  - Disposal

TSDF Treatment (40 CFR §260.10)

- Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste,
- or as to recover energy or material resources from the waste,
- or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of;
- or amenable for recovery, amenable for storage, or reduced in volume.

Sometimes Permittees will be confused that treatment can include just a physical change to the waste and not a chemical reaction. This is an important point to operators of shredders and compactors. The crushing or compacting process is physically changing the waste. See the shredder and compactor policy memos that will be referenced in this section.

There is also confusion related to open burning and open detonation of wastes. The intent of the unit is to treat the waste from an ignitable or reactive to a non-characteristic waste. If the operator does not have controls or maintenance and operating procedures to keep the treatment zone contained, then the unit may become a land disposal unit if wastes are intentionally left in place for final disposal.

Types of Regulated Hazardous Waste Treatment Units

- Containers
- Surface Impoundments
- Containment Buildings
- Tanks
- Land Treatment
- Incinerators
- Miscellaneous Units
- Boilers, Industrial Furnaces
- Elementary Neutralization
- Thermal Treatment Units

This is a listing of all the defined hazardous waste management units.

Miscellaneous units fall in the treatment category.

TSDF Storage (40 CFR §260.10)

- Holding hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

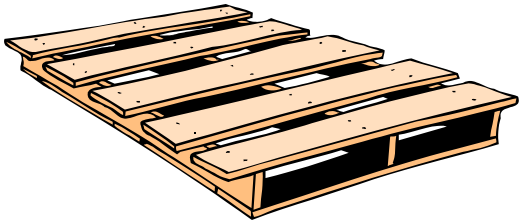
Miscellaneous units tend not to be storage units. The final military munitions rule (62 FR 6622-6657) now covers storage of ammunition in bunker type of buildings.

Geologic repositories are storage units.

Staging area storage may be included in the permitting of a miscellaneous unit and treated as ancillary to the unit operation.

Types of Regulated Hazardous Waste Storage Units

- Containers
- Containment Buildings
- Piles
- Surface Impoundments
- Tanks
- Drip Pads
- Military Munition Storage Unit/Bunkers



If the unit being assessed meets the definitions of these units, it is not miscellaneous.

TSDF Disposal (40 CFR §260.10)

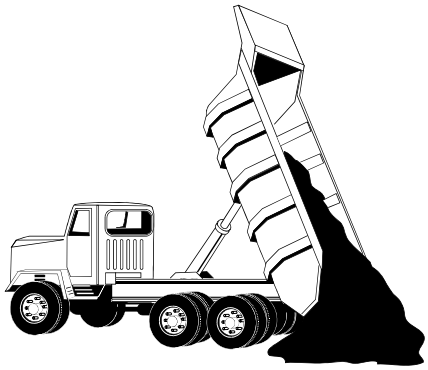
- The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

The intent of a disposal unit is to leave wastes in place. The two types of miscellaneous units that may be considered as disposal are geologic repositories and open detonation on/in the land.

Permitting should consider if the repository is only going to be used for temporary storage long or short term, or permanent storage, which becomes disposal.

Open detonation units need to consider the treatment zone delineation in the permit, where small amounts of contamination may exist in the reused soil. Methods to remove scrap should be included. Be cautious of the method of treatment. Some will give a more complete detonation and leave little scrap, where as others can leave unexploded materials causing a great safety risk. As complete a detonation as possible should be a treatment goal.

Disposal Facility



- A facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure.
- The term does not include a corrective action management unit into which remediation wastes are placed.

Treatment zones at Open Detonation ranges may eventually have to seek closure as a landfill if contamination can not be clean closed. Anticipate permit closure plans for closure as a landfill, which will include capping and ground water monitoring.

Types of Regulated Hazardous Waste Land Disposal Units

(40 CFR §264 Standards)

- Landfill (Subpart N)
- Surface Impoundment (Subpart K)
- Waste Pile (Subpart L)
- Land Treatment (Subpart M)
- Injection Well
- Miscellaneous Unit (if waste is left in place)

Ground water monitoring applies to land disposal units. Miscellaneous units can justify the requirement if any land is potentially exposed to wastes or emissions.

What is not a Miscellaneous Unit?

40 CFR §264 Standards

- Container (Subpart I)
- Tank (Subpart J)
- Waste Pile (Subpart L)
- Landfill (Subpart N)
- Incinerator (Subpart O)
- Boiler and Industrial Furnace
- Drip Pad (Subpart W)
- Munition (Subpart EE) and Explosive Storage
- Containment (Subpart DD) Building

If a unit meets any of these definitions, then it is not a miscellaneous unit. The permit writer and inspector can use these to help the Permittee understand how to apply for a unit permit.

What is not a Miscellaneous Unit? (cont'd)

- Surface Impoundment (Subpart K)
- Land Treatment (Subpart M)
- Underground Injection Well
- Corrective Action Management Unit (Subpart S)
- Staging Pile
- Research, Development, and Demonstration Permitted Unit
- Any other unit EPA defines in 40 CFR §260.10 as a specific unit regulated under 40 CFR §264 and §265.

What is a Miscellaneous Unit?

- 40 CFR §260.10 defines it as a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR §146, containment building, corrective action management unit, unit eligible for a research, development, and demonstration permit under 40 CFR §270.65, or staging pile.

Miscellaneous Unit Design

- Storage is typically in geologic structures such as salt domes or mines.
- Treatment of wastes in a unit is typically by:
  - Physical action: crushing, shredding, pressing
  - Thermal reaction: burning, flaring, torching, detonating, vitrification
  - Chemical reaction: regeneration, composting, oxidation

The permit writer must evaluate the Subpart X unit to see what standard type of unit is similar. If it looks like a tank, and acts like a furnace, both the tank and industrial furnace regulations could be applied to various portions of the unit. Tanks standards may be applied to the containment system and furnace standards for air emissions. Subpart X is typically more stringent than standard unit processing.

A standard treatment tank must meet the design issues of the definition (i.e., having a structure that supports itself). It must also meet the secondary containment requirements for tanks.

Miscellaneous Unit Operation

- Permitting is based on what the unit looks like or acts like, in addition to measures to protect human health and the environment.
- Examples:
  - If it looks similar to a tank, appropriate tank regulations can be applied.
  - If it is exposed outside to the environment like a land disposal unit, ground water monitoring can be applied.

Typical Wastes in Miscellaneous Units (cont'd)

- Open Burning
  - Bulk solid ignitable or reactive powders
  - Liquid, or semi-solid ignitable or reactive sludges
  - Pyrotechnics, explosives, or propellants or munitions in casings
- Open Detonation
  - Pyrotechnics, explosives, or propellants or munitions in casings, missiles, rockets
  - Reactive crystallized wastes

The Permittee should be able to justify in its Waste Analysis Plan that the type of treatment is appropriate for the waste through either a generator knowledge discussion or analytical requirements. Sometimes things that should be burned are actually detonated.

Keeping up with the latest safety requirements helps establish these determinations. An example is copper caps need to be handle as if they will detonate because they become more sensitive with aging. The Bureau of Alcohol Tobacco and Firearms (BATF) has training recommendations and handling procedures to protect against accidental detonation.

Typical Wastes in Miscellaneous Units (cont'd)

- Crushers
  - Containers (aerosol, metal drums, or glass)
- Shredders
  - Plastic or metal containers or debris
- Filter Presses
  - Waste water treatment sludges with listed or characteristic wastes

Physical treatment processes tend to have high maintenance to keep things clean due to the sorting of wastes occurring. Emissions during separation need to be controlled.

Typical Wastes in Miscellaneous Units (cont'd)

- Carbon Regeneration
  - Carbon filters
- Vitrification
  - In ground wastes
- Composting
  - Explosives or organic wastes
- Oxidation
  - Molten salt

Composting and vitrification are technologies that have been used more frequently in RCRA corrective action and CERCLA cleanups. U.S.EPA's Office of Research and Development (www.epa.gov/ord) should be utilized for more information on unique technologies.

Policies Concerning X Units

- Clarifications on units regulated under 40 CFR §264, Subpart X.
  - Oxidation Processes
  - Vacuum Systems
  - Salt Domes/Mines
  - Drum Shredders
  - Incineration versus Miscellaneous
  - Carbon Regeneration
  - Fuel Blending
  - Open Burning
  - Sludge Dryers

All of the permit policy compendium memos are available on the EPA website at www.epa.gov/rcraonline.

EPA has issued three separate policy memos addressing the permitting of oxidation processes. In a memo dated March 10, 2000, EPA addressed permitting requirements of molten salt oxidation processes. A memo dated October 23, 1998 addresses permitting of catalyzed electrochemical oxidation process and a third memo dated August 2, 1995 provided a determination of whether a Detox (sm) wet oxidation process would be regulated under Subpart X or Subpart O.

A September 22, 1991 memo addresses performance standards for disposal in salt domes.

In a June 24, 1988 policy memo (9441.1988(28)), EPA indicated that the shredding of drums which contained hazardous waste would be regulated under RCRA.

Policies Concerning X Units (cont'd)

- Definition of an empty container
- Subpart CC Applicability
- Units within Units
- Solvent Handling
- Fire Training Exercises
- Ammunition Firing Ranges
- Military Ranges
- Emergency Responses

An empty container is defined in 40 CFR §261.7. The standards for non-acute wastes are that a container must contain less than or equal to 1 inch or ≤ 3.0 wt% (≤ 100 gallons); ≤ 0.3 wt% (>110 gal) of residue and has been emptied by commonly employed practices.

Section 261.7(b)(3)(ii) states that containers that managed P-wastes may also be rendered empty "by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal." EPA guidance states that "EPA requires no formal approval process if an alternative cleaning method is used to empty the container and no variance is necessary under the federal regulations… It is suggested that if you do use an alternate cleaning method, you document the method used and keep this record as part of your facility's operating record."

Residues remaining in an "empty" container are exempt from regulation under Subtitle C as a hazardous waste.

Is it Regulated? How?

Subpart X applies.

Example is open burning of Class 1.4g fireworks during an emergency permit situation. Unit is constructed of a wood pan with a wire mesh cover to reduce paper popout.

Is it Regulated? How?

Container storage regulations apply.

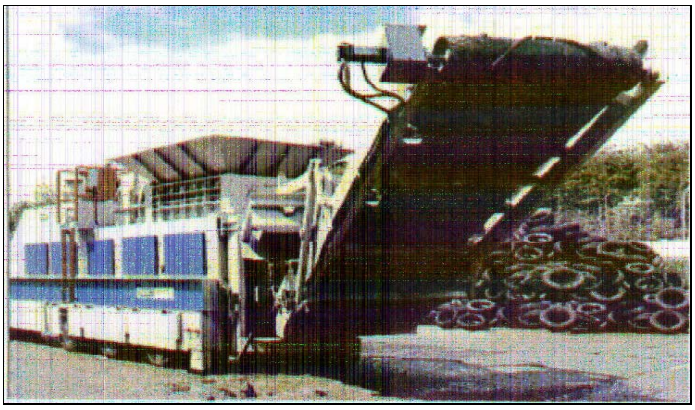
The example is a drum storage area.

Is it Regulated? How?

Subpart X regulations apply.

The example is open detonation of blasting caps during an emergency permit or exemption.

Is it Regulated? How?



Subpart X regulations do not apply.

The example is a shredder of solid waste tires. If the unit was used to shred hazardous wastes, then Subpart X would apply.

Is it Regulated? How?

Subpart X applies.

Example is open detonation of well perforators no longer needed as a product.

Is it Regulated? How?

Subtitle C does not apply.

Example is a solid waste tire waste pile. Subtitle D would apply.

Is it Regulated? How?

Landfill regulations apply.

Example is construction of a new expansion of a hazardous waste landfill.

Is it Regulated? How?

Subpart X applies.

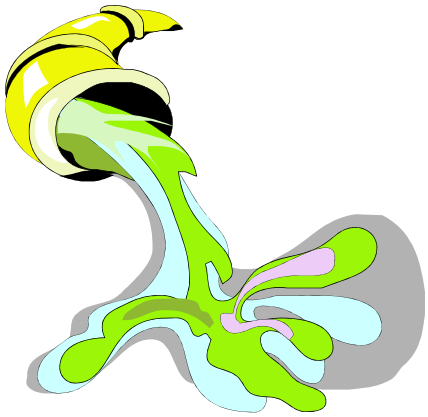
Example is open burning of Class 1.4g fireworks. In this case the RCRA exemption was applied but an emergency permit should have been issued, due to the safety of the material.

Is it Regulated? How?

Storage tank regulations may apply.

The example is a hazardous waste storage tank. The use of waste records needs to be assessed to determine if solid or hazardous wastes are within the unit.

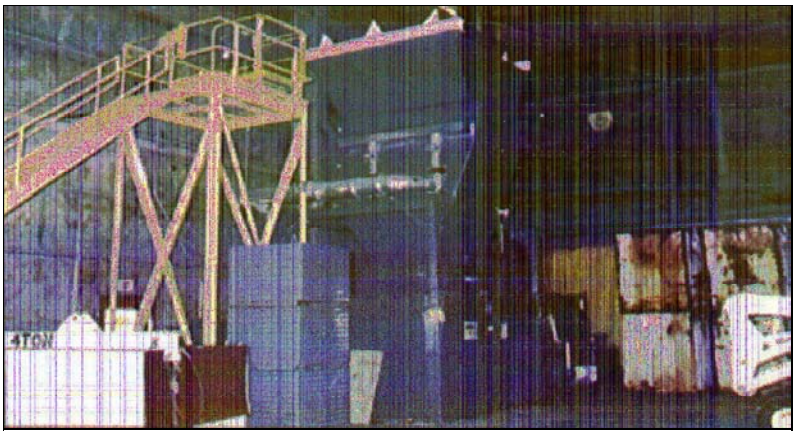
Is it Regulated? How?



RCRA Subtitle C does not apply.

Example is an national pollutant discharge elimination system (NPDES) discharge to a surface water. Clean Water Act regulates these discharges. RCRA corrective action may apply if a solid waste management unit is associated with the discharge or the pipe.

Is it Regulated? How?



Subpart X may apply.

Example is a hazardous waste drum shredder. Waste types must be verified to determine if Subtitle C or D applies.

Is it Regulated? How?

Subpart X applies.

Example is open burning of dynamite during an emergency permit or exemption.

Is it Regulated? How?

Subpart X applies.

Example is open detonation of reactive hazardous wastes on the ground surface.

Is it Regulated? How?

Subpart X may apply.

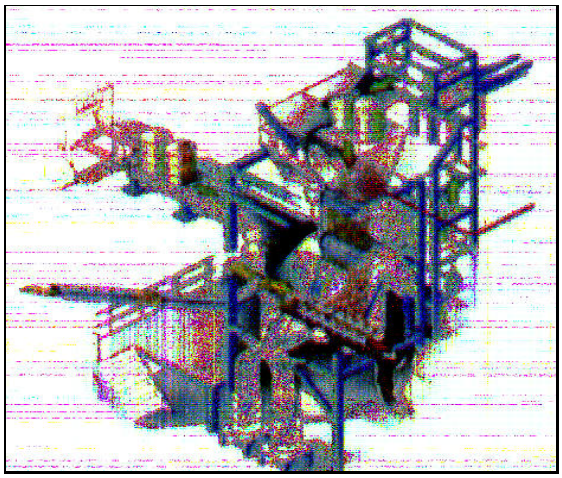
Example is a glass crusher. Waste types need to be determined to establish Subtitle C or D applicability.

Is it Regulated? How?

Yes, as a miscellaneous unit.

Example is of burn pans at a military installation. Pans have a secondary containment, but do not appear to have berms around them.

Is it Regulated? How?



Subpart X may apply.

Example is a drum shredder. Waste types must be determined to see if Subtitle C or D applies.

Is it Regulated? How?

Tank regulations apply.

Example is a hazardous waste cyanide treatment tank at a commercial facility. The NPDES tank exemption does not apply in this case.

Is It Regulated? How?

Container storage regulations apply.

Example is a hazardous waste storage area. Length of time wastes have been stored determines if it is a generator storage area or >90 day storage area that needs a permit.

Is it Regulated? How?

Subpart X maybe, or container storage?

Example is of Townsend duds placed in a unit split at the top with no lid. Does treatment take place? If only storage, improved storage compliance in order?

End of Overview