



UNIVERSAL WASTE TRAINING

H2-3/31 Andy Smith

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24th California Unified Program
Annual Training Conference
March 22, 23, 24, 29, 30, 31 - 2022

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- Most of last week's Sessions are available as "Watch Now"
- Slido for Polls/Q&A for 90% of Sessions
- Check for Post Zoom meeting follow up link in Q&A
- Zoom meetings – Use Q&A/Stay in meeting for post Session...there will be NO "Are you still watching?" in Zoom
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Universal Waste Management

Presented by:



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Introduction

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Objectives

- Define what a universal waste is
- Define categories of UW facilities
- Identify rules for managing universal waste as handlers and transporters

In the Beginning.....

- Universal waste rules didn't exist
 - Anything that met a HW definition was regulated
 - Fluorescent bulbs and batteries routinely ended up in landfills (illegally)

In the Beginning.....

- EPA (soon followed by DTSC) recognized a need for new, less complicated, rules
- Designed to encourage (but not require) recycling

recycle these wastestreams. Conversely, limiting the rule to universal waste destined for recycling only, may discourage the use and development of recycling technologies as universal waste handlers may be hesitant to participate in a program that requires knowledge that their universal waste is recycled.

Recycling Vs. Disposal

- EPA wanted to encourage recycling of UWs
 - Easier to collect as handlers
 - Able to accumulate longer (larger quantities)
 - Easier to transport (no manifest)
- Disposal (as a HW) is still preferred to mismanagement (improper disposal)

Recycling Vs. Disposal

- You're thinking, "But wait, we're in California, does that apply here, or just federally?"

Article 3 Standards for Universal Waste Handlers

§66273.30 Applicability

This article applies to universal waste handlers (as defined in section 66273.9).

§66273.31 Prohibitions

A universal waste handler is:

- (a) Prohibited from disposing of universal waste [however, a universal waste handler may send or take batteries, thermostats, mercury-added novelties containing no liquid mercury, mercury-containing rubber flooring, and PV modules that are universal wastes to a destination facility for disposal]; and

Recycling Vs. Disposal

- Even if disposed, Land Disposal Restriction Treatment Standards must still be met prior to disposal

Types of Universal Wastes

- Batteries
- Electronic devices
- Mercury containing equipment
- Lamps
- Cathode ray tubes
- CRT glass
- Aerosol cans
- Photovoltaic modules

Batteries

- EPA feels it is simpler to manage *ALL* battery types as UW, and not make individual determinations
- From FR “the agency hopes the UW regulations are sufficiently improved to allow batteries to be managed as UW without placing too much emphasis on if they are hazardous or not.”

Batteries in CA

- DTSC does not include automotive-type lead acid batteries in UW classification
 - These batteries are managed under 22 CCR 66266 as a recyclable hazardous waste
- Small sealed lead acid batteries are included as UW
 - See “1996 Battery Act” for discussion of SSLA batteries

Electronic Devices

- Any electronic device that is (or could be) hazardous waste for the toxicity characteristic or is listed in 66261 Article 4.1 (M-list)

Electronic Devices Q&A (04/2008 memo)

- Yes...but what does it mean to be an “electronic device”?

Question 1: Are all devices that use or transfer electrical power Universal Waste Electronic Devices (UWEDs)?

Answer 1: No. Electronic equipment/devices contain ***circuitry***, such as printed circuit boards, that provide a variety of functions not found in simpler electrical equipment/devices. Electrical equipment/devices can usually be switched on or off, but generally *cannot* perform other functions.

Programmable devices contain electronic circuitry and are therefore UWEDs, whereas ***non-programmable devices*** would generally be considered electrical equipment. For example, programmable toasters or coffee makers would be considered *UWEDs*, but non-programmable toasters or coffee makers would be considered *electrical equipment*.

Electronic Devices Q&A (04/2008 memo)

Q2: Can you provide some examples of UWEDs vs. non-UWEDs?

A2: Examples of UWEDs include: 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.

Examples of wastes that DTSC does not consider to be UWEDs include: oil-filled transformers, metal switch gear, electrical power distribution and transmission equipment, large metal microwave ovens, and other items that are not predominantly plastic, and/or hazardous for toxicity.

Mercury containing equipment

- Thermostats
- Mercury switches
- Dental amalgam
- Pressure or vacuum gauges
- Mercury added novelties
- Mercury counterweights and dampers
- continued...

Mercury containing equipment

- Thermometers
- Dilators and weighted tubing
- Mercury containing rubber flooring
- Gas flow regulators

Lamps

Lamp, means the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infrared regions of the electromagnetic spectrum. Examples of common lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

Lamps

- But what about LEDs? They're not "bulbs" and don't contain mercury.
 - "light producing portion of a light fixture"
- LED (light emitting diodes) could still fail the TCLP, or WET, for other metals
- Like other UW's, EPA encourages collecting all lamps and not worrying about classification

In general, lamp models in the study had levels of federally-regulated elements below most state landfill restrictions. California's more stringent thresholds for hazardous waste were also considered, and nearly all of the lamps, regardless of the type of lighting technology, exceeded at least one California restriction, either copper, zinc, antimony, or nickel.

Cathode Ray Tubes

- A vacuum tube or picture tube used to convert an electrical signal into a visual image
 - Lots of lead in the glass



Cathode Ray Tube Glass

- Glass released from the treatment or breakage of...cathode ray tubes



Aerosol Cans

- A container in which a gas under pressure is used to aerate and dispense any material through a valve in the form of a spray or foam



Photovoltaic (PV) Modules

- Device consisting of one or more electrically...nah
- **Solar Panels**
 - includes integrated components that cannot be separated without breaking the panels



UW Facilities

- Destination Facilities
- UW Transporters
- UW Handlers

Destination Facility

Destination facility means a facility that treats, disposes of, or recycles a particular category of universal waste pursuant to section 66273.60. A facility at which a particular category of universal waste is only accumulated is not a destination facility for purposes of managing that category of universal waste.

Article 6 Standards for Destination Facilities

§66273.60 Applicability

(a) Except as provided in subsections (b) and (c) of this section, the owner or operator of a destination facility (as defined in section 66273.9) is subject to all applicable requirements of chapters 14, 15, 16, 18, 20, and 22 of this division, and the notification requirement pursuant to Health and Safety Code section 25153.6.

Destination Facility

➤ Meaning...

- Unless excepted, if you treat or dispose of UW, you are either an Interim Status or Permitted TSDF.

UW Transporter

Universal waste transporter means a person engaged in the offsite transportation of universal waste by air, rail, highway, or water.

UW Handler *means*

- A generator, or
- Facility that receives, accumulates, ships UW, or
- Facility authorized to treat UW under Article 7

UW Handler *does not mean*

- Person who treats, recycles (except as allowed), or disposes of UW
- Person that transports UW off-site
- Owner or operator of a destination facility

UW Transporter

➤ Prohibitions

- Disposal
- Treatment (except when responding to releases)
- Transporting large quantities of certain UW without them being “contained”
 - 5 CRTs
 - 100 KG of electronic materials
 - 100 KG of PV modules

UW Transporter

- Waste Management
 - Follow all applicable DOT rules
 - Do not include “waste” as part of proper shipping name (not required on manifest)

UW Transporter

- Storage Time Limits
 - If zoned “industrial”, ≤ 10 days
 - Not “industrial”, ≤ 6 days
- If exceed these limits, now considered a UW Handler

UW Transporter

➤ Response to releases

- Contain
- Clean up
 - If residue is HW, transporter is “Generator” of this HW
- Leaking, broken, damaged UW may still be managed as UW

(c) Hazardous waste consisting only of residues of leaking, broken, or otherwise damaged universal waste may be managed as universal waste provided that the leaking, broken, or otherwise damaged universal waste is repackaged according to the standards of section 66273.33 or 66273.33.5.

UW Transporter

- Shipments must go to one of these:
 - UW handler
 - Destination facility
 - Foreign destination

UW Handler

- Originally two categories
 - Large Quantity Handler of UW
 - Accumulates $\geq 5,000$ kg of UW onsite at any one time
 - Small Quantity Handler of UW
 - Never accumulates $5,000$ kg of UW onsite at any one time
- DTSC eliminated different categories, now just “Handlers”

UW Handler On-Site Management



UW Handler Prohibitions

- Prohibited from
 - On-site disposal
 - Diluting or treating, with few exceptions

UW Handler Allowable Treatment

- Batteries (provided cells remain intact and closed except to remove electrolyte)
 - Sorting by type (*is that really treatment?*)
 - Mixing types into one container (*see question above*)
 - Discharging
 - Regenerating
 - Disassembling batteries or battery packs into individual cells or batteries
 - Removing batteries from consumer products
 - Removing electrolytes from batteries

UW Handler Allowable Treatment

- If removing electrolyte
 - Any removed material, or residue, must be properly classified, and if HW, managed accordingly

UW Handler Allowable Treatment

➤ Lamps

- Removal of lamps from product or structure in a manner to prevent breakage

UW Handler Allowable Treatment

- Mercury containing equipment
 - Removal of user-replaceable components from electronic devices or PV modules
 - Removing CRTs from electronic devices
 - Dismantling electronic devices and removing yokes from CRTs
 - Removing ampoules and/or switches from MCE
 - Dismantling PV modules

UW Handler Allowable Treatment

- Aerosol can puncturing, provided:
 - Handler is not an off-site commercial processor
 - Punctured in a safe manner with proper equipment
 - Written training plan for personnel
 - Spill kit readily available
 - Drained contents managed in appropriate container
 - Area is well ventilated
 - Notify the CUPA or other appropriate local agency

UW Handler Notifications / Reports

➤ Notifications

- EPA, if accumulating $\geq 5,000$ kg of federal UW
- DTSC, if accumulating $\geq 5,000$ kg of federal AND California UW, but less than 5,000 kg of federal
- DTSC, if receiving electronic devices and CRTs/CRT glass from off-site sources
- DTSC, at least 30 days prior to receiving PV Modules from off-site sources

UW Handler Notifications / Reports

- Annual reports no later than February 1 if:
 - Receive > 100 kg of electronic devices, CRTs, CRT glass, or PV modules, from off-site sources in a calendar year
 - Generate 5,000 kg or more of electronic devices, CRTs, CRT glass (collectively) in calendar year
 - Generate 5,000 kg or more of PV modules in calendar year

UW Containers

- Good condition
- Compatible
- Closed, except:
 - Non-leaking batteries not required in a container (closed or otherwise)
 - Non-broken electronic devices, CRTs, CRT glass, and PV Modules

UW Lamp Containers

- Common violation, open containers



UW Aerosol Can Containers

- Good condition
- Compatible
- Closed, except:
 - When adding or removing, or
 - Open until the end of the workday
- Location must be adequately vented
- On a floor or surface free of cracks or gaps and impervious and bermed to contain leaks and spills

UW Labeling/Marking

➤ Mark the device *or* container holding the devices with the words “Universal Waste –
_____”

- Battery (ies)
- Mercury containing equipment
- Lamp(s) (*not bulbs*)
- Electronic device(s) (*not e-waste*)
- CRT(s)
- PV Module(s) (*not solar panels*)

UW Labeling/Marking

- For packages (or clearly demarcated areas) containing consolidations of electronic devices, CRTs, and CRT glass, mark:
 - Universal Waste – electronic device(s) / universal waste – CRT(s) / universal waste – CRT glass

UW Labeling/Marking

- Mark the container holding aerosol cans with the words “Universal Waste – Aerosol Cans”, or
 - “Waste Aerosol Cans”
 - “Used Aerosol Cans”

UW Time Limits

- No longer than one year from date of generation, or from date of receipt from another UW handler
- Must be able to demonstrate compliance by:
 - Date the container
 - Date the individual item
 - Inventory system
 - Place the UW in an area and mark/label the area with the start date
 - Any other method...

UW Personnel Training

- Two categories of UW employees
 - Personnel who consolidate, sort, treat, recycle, package for transport, offer for transport, or physically relocate containers of UW
 - Referred to as “personnel who manage UW”
 - People who just incidentally handle UW (an office worker with a burned-out lamp or dead battery)
 - No training for these people

UW Personnel Training

- Personnel who manage UW
 - Initial training
 - Annual refresher training
 - Types of UW and hazards
 - Proper disposition
 - Procedure for release response
 - Applicable requirements from this chapter
 - Applicable DOT requirements for “hazmat employees”

UW Personnel Training

- Must be in written media
 - Brochures
 - Letter
 - Email
 - Posters
- Keep records of training for at least three years

UW Release Response

- Immediately contain all releases, and residues, to the environment
- If residues from release to the environment meet definition of HW, manage as a HW (*handler becomes generator*)
- Broken, damaged, leaking UW may still be managed as UW

UW Off-Site Shipments

- Uniform hazardous waste manifest not required except if state-only UW is being shipped out of state
- Otherwise, any form of shipping paper is acceptable

UW Off-Site Shipments

- Only allowed to ship to:
 - Another UW handler
 - Destination facility
 - Foreign destination (must comply with HW export regulations)
- Handler can self-transport UW, becomes a “UW transporter”
- If UW meets DOT hazmat definition, ship accordingly

UW Off-Site Shipments

- Prior to shipment, ensure receiving facility agrees to receive the shipment (verbal or written communication)
- If shipment rejected, either:
 - Agree with receiving facility on new destination facility, or
 - Return to handler

UW Off-Site Shipments

- If receiving shipment of UW and need to reject, see previous screen
- If received shipment of UW contains a hazardous waste (that is not UW), notify the DTSC of the illegal shipment

Tracking UW Shipments

- Receipt of shipment, keep the following records:
 - Name and address of original UW handler
 - Quantity of each type of UW received
 - Appropriate descriptions, by count or weight
 - Date of receipt

Tracking UW Shipments

- Shipments off site, keep the following records:
 - Name and address of receiving UW handler or destination facility
 - Quantity of each type of UW received
 - Appropriate descriptions, by count or weight
 - Date of shipment
- Keep records for at least three years

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Thank You!

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