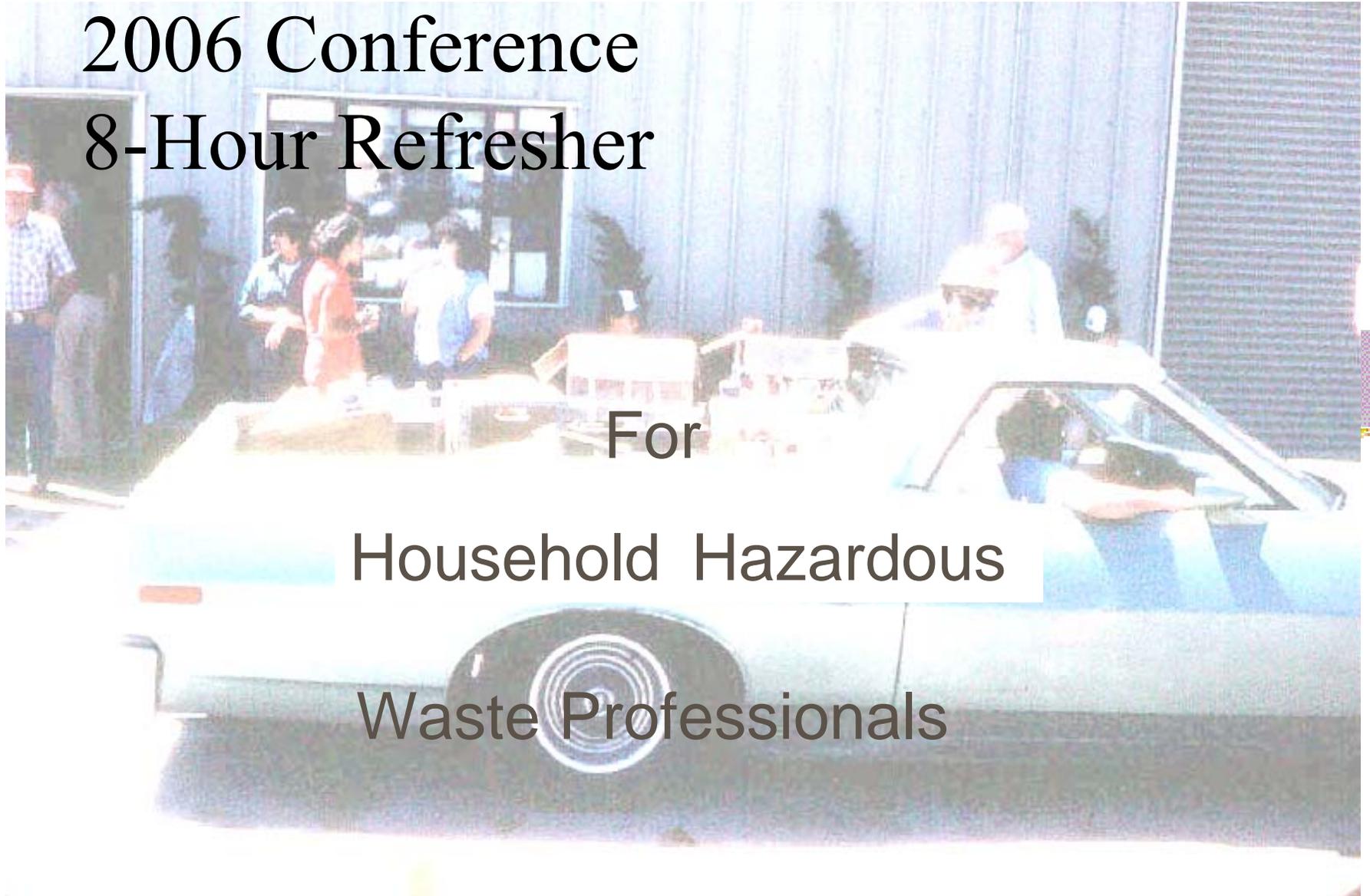


# Household Hazardous Waste 2006 Conference 8-Hour Refresher



For

Household Hazardous

Waste Professionals

# 2006 Training Committee

- Ionie Wallace
- Sharon Simpson
- Cherri Taylor
- Jaimy Jackson
- Lewis Perales
- Greg Coon
- Lyn Beurmann
- Larry Sweetser

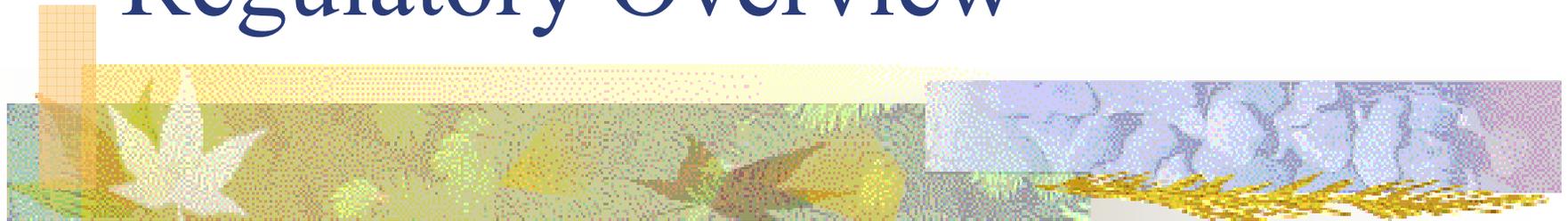


# Agenda

- Welcome, Introductions, Course Overview Larry
- Regulatory Overview, Current & New Larry
- Hazard Communication Sharon
- Personal Protective Equipment Sharon/ Jaimy
- Respiratory Protection Lewis
- Medical Surveillance Lyn
- LUNCH
- Flammable & Combustible Liquids Ionie
- Walk & Work Surfaces Ionie
- The CUPA (and others) is coming! Larry
- Managing Emergencies at HHW Facilities Cherri
- Review and evaluation Ionie



# Regulatory Overview



Larry Sweetser

Sweetser & Associates

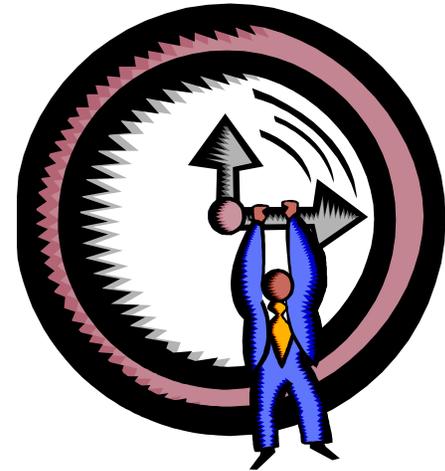


# Why Train?

- It's your Life
  - Protect yourself
- It's the Law
  - Regulatory Standards
  - Permit Requirements

# Training Frequency

- Initial
- Refresher/Annual
- Periodic
  - Change in process or new chemicals
  - In response to incidents
  - New requirements
  - Interest



# Trainer Requirements

- Credentials
- Knowledge
- Certification Rarely Required



# Training Methods

- This Refresher
- Tailgate Safety
- On-the-job training
- On-line Courses
- Site Specific Requirements
  - Must be included
- Equivalent documentation or certification of work experience or training



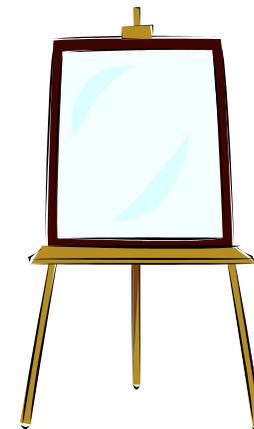
# Training Standards

- Title 8, §5192. Hazardous Waste Operations and Emergency Response.
  1. Names of personnel and alternates responsible for site safety and health;
  2. Safety, health and other hazards present on the site;
  3. Use of PPE;
  4. Work practices by which the employee can minimize risks from hazards;
  5. Safe use of engineering controls and equipment on the site;
  6. Overexposure symptoms and signs
  7. Decontamination procedures
  8. An emergency response plan
  9. Confined space entry procedures.
  10. A spill containment program
  11. critique of past year incidents related to work, and
  12. other relevant topics.



# Other HHW Training Requirements

- **Injury and Illness Prevention Plan**
- Universal Waste
- CRT Material Handlers (*T22 §66273.86*)
- Sorting, Bulking, or Packaging = PPE
  - (*Title 8, §3380*)
- Respiratory Protection (*Annual T8 §5144 (k)*)
- Bloodborne (*Annual T8 §5193 (g)(2)*)
- DOT HazMat Transportation
  - (*3 years 49CFR 172.704*)
- Hazard Communication (*T8 §5194 (h)*)
- Forklift (*3 years T8 §3650*)





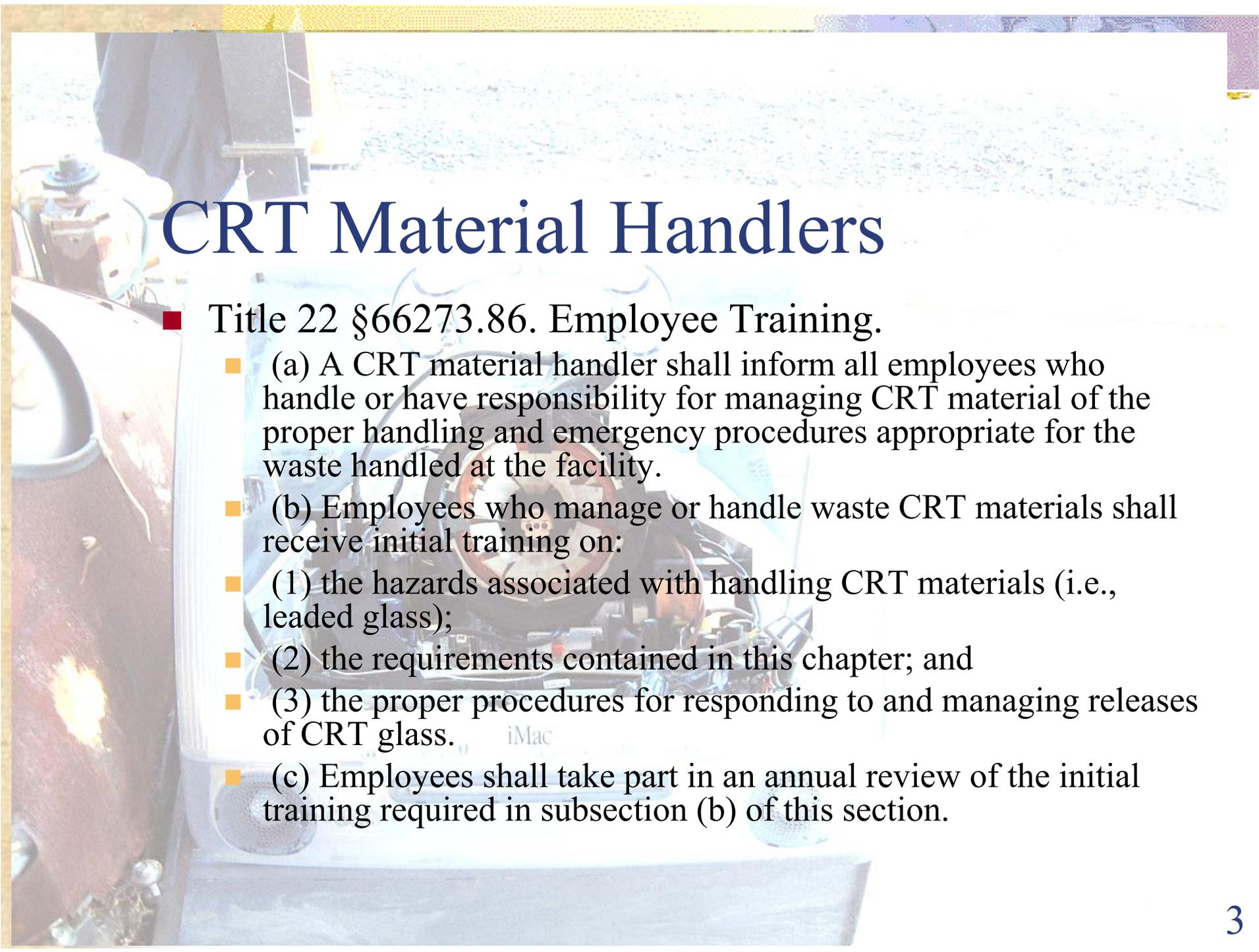
# Injury and Illness Prevention Plan (IIPP )

- To all employees given new job assignments for which training has not previously been received;
- Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;
- Whenever the employer is made aware of a new or previously unrecognized hazard; and,
- For supervisors to familiarize themselves with the safety and health hazards to which employees under their immediate direction and control may be exposed.
- **STAY TUNED FOR MORE LATER**



# Universal Waste Training

- Required for all employees handling or have responsibility for managing universal wastes
- Train on proper handling and emergency procedures appropriate to each type of universal wastes

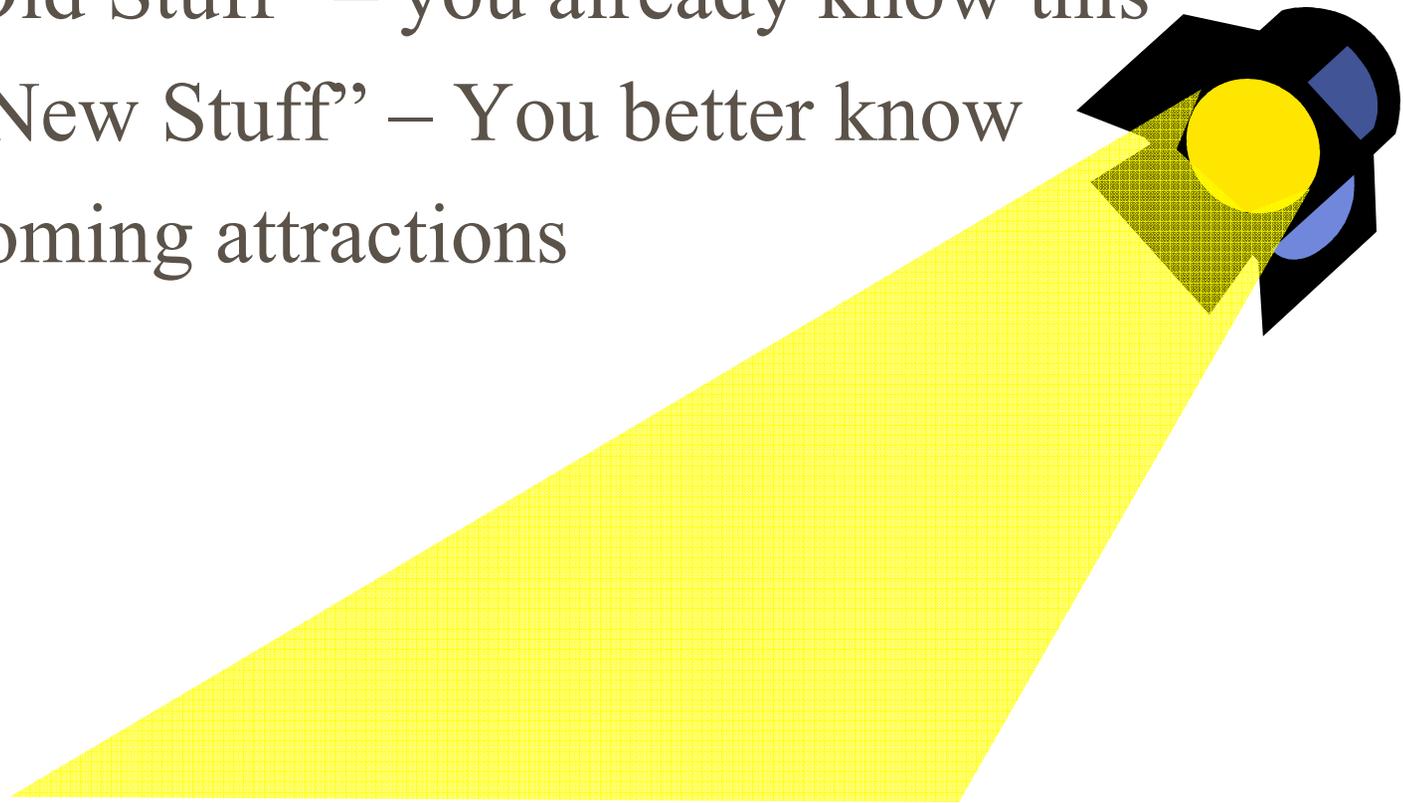


# CRT Material Handlers

- Title 22 §66273.86. Employee Training.
  - (a) A CRT material handler shall inform all employees who handle or have responsibility for managing CRT material of the proper handling and emergency procedures appropriate for the waste handled at the facility.
  - (b) Employees who manage or handle waste CRT materials shall receive initial training on:
    - (1) the hazards associated with handling CRT materials (i.e., leaded glass);
    - (2) the requirements contained in this chapter; and
    - (3) the proper procedures for responding to and managing releases of CRT glass.
  - (c) Employees shall take part in an annual review of the initial training required in subsection (b) of this section.

# Refresher Topics

- “Old Stuff” – you already know this
- “New Stuff” – You better know
- Coming attractions



# Old Stuff

- Laws/Regulations
- Universal Waste
- CESQG
- Material Exchange



# Laws/Regulations

## ■ Federal

- RCRA
- CERCLA/SARA
- TSCA

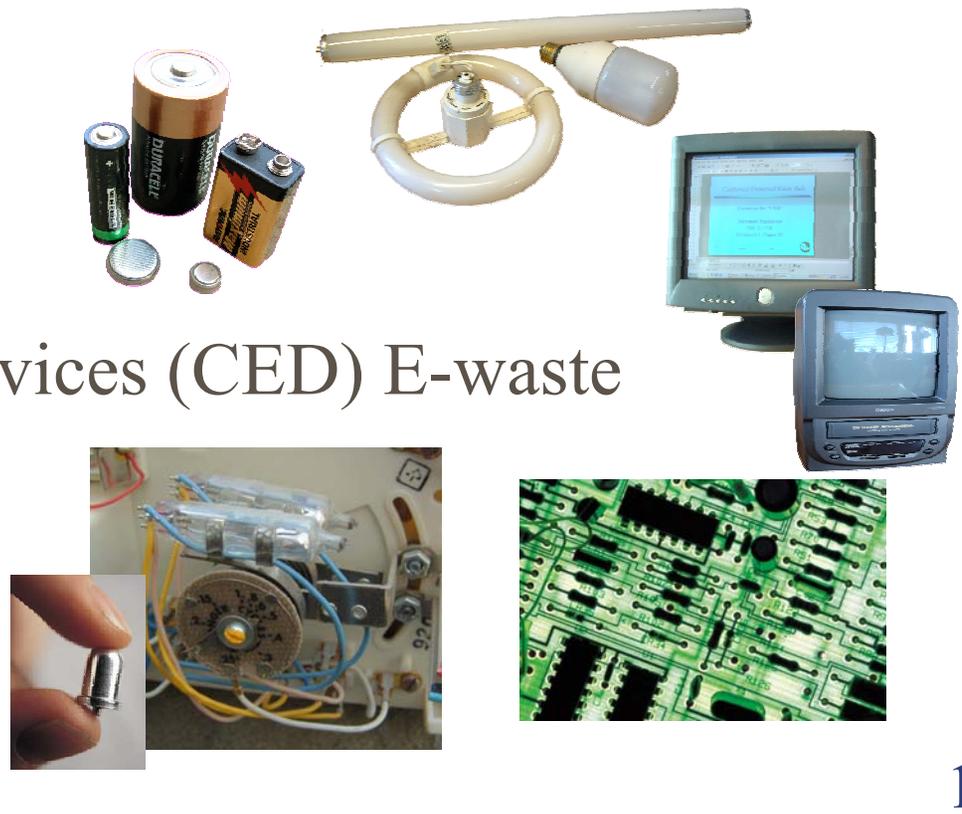
## ■ California

- Hazardous Waste Control Law
  - (Health and Safety Code)
- Certified Unified Program Agencies (CUPAs)
- California Occupational Safety and Health Act



# Universal Waste

- *"Universal waste" means a hazardous waste identified as a listed universal waste and is exempt from hazardous waste management requirements and, therefore, are not fully regulated as hazardous waste. [Health & Safety Code → 25123.8, CCR Title 22, →66261.9]*
- Fluorescent Lights
- Batteries, dry cell
- CRTs
- Consumer Electronic Devices (CED) E-waste
- Mercury devices
- Aerosol cans





# Universal Waste Handler

- A generator of universal waste; or
- The owner or operator of a facility, including all contiguous property, that receives universal waste from
  - Other universal waste handlers,
  - Accumulates universal waste, and
  - Sends universal waste to another universal waste handler, to a destination facility, or to a foreign destination.



# Universal Waste Handler

■ Does not mean:

- (1) A person who treats (except under the provisions of section 66273.13, section 66273.33, or section 66273.83(b) or (c)), disposes of, or recycles universal waste; or
- (2) A person engaged in the off-site transportation of universal waste by air, rail, highway, or water, including a universal waste transfer facility.
- (3) A CRT material handler, as defined in this section.

Title 22, §66273.9



# CESQG

- No more than 100 kg **RCRA** waste and no more than 1 kg acutely hazardous waste **per month**
- **Not including:**
  - Used oil, lead-acid batteries, universal waste
  - On-site recycling

Title 22, §25218.1

Title 40, §261.5



## CESQUWG - Conditionally Exempt Small Quantity **Universal Waste** Generator

- Generates universal waste
- Generates No more than 100 kg **RCRA** waste and no more than 1 kg acutely hazardous waste **per month**
- Generates five or less CRT devices in a calendar year
- Complies with 40 CFR §261.5 (CESQG)
  - On-site management inc. limited treatment
  - Less than 1,000 kg HW on-site
  - PCBs not included

Title 22, §66273.9



# SQHUU & LQHUU

- **Small Quantity Handler of Universal Waste**
  - Universal waste handler who **accumulates** <5,000 Kg total universal waste at any time
- **Large Quantity Handler of Universal Waste**
  - Universal waste handler who **accumulates** 5,000 kilograms or more total universal waste at any time

# Universal Waste Standards

- Handler Notification
- Storage
- Labeling
  - Container, Area, Prop 65
- Packaging
- Spills



# Universal Waste Concepts

- Must be sent for recycling otherwise it must be treated as hazardous waste
- Allowed exemptions from:
  - EPA Identification Number
  - Hazardous Waste Manifest
  - Hazardous Waste Transporter
  - TSDF
  - Storage
- Limitations on export – notifications and consent



# U-waste Handler Requirements

	CESQUWG	SQHUUW	LQHUUW
<b>Monthly Generates</b>	<100 kg ≤5 CRTs	<5,000 kg	≥5,000 kg
<b>EPA ID No.</b>	NA	NA	Required
<b>Labeling/Marking</b>	NA	Required	Required
<b>Accumulation Time</b>	NA	1 year	1 year
<b>Training</b>		Inform employees of proper handling & emergency procedures	Ensure employees thoroughly familiar with proper handling & emergency procedures
<b>Tracking</b>	NA	Record shipments	Record shipments



# Universal Waste Transporters

- No shipping record required &
- Complies with DOT transportation reqts.
- Store at transfer facility  $\leq 10$  days zoned industrial or  $\leq 6$  days other areas
- Containment required if greater than
  - $> 5$  CRTs or CRT devices
  - $> 100$  kg e-wastes
- Contain all releases

# Notification and Reporting

- Notification of Intent to Handle - Form 1382
- Annual report due to DTSC by February 1<sup>st</sup> each year for previous calendar year
- Keep shipping documents for 3 years
- See DTSC Fact Sheet



# Spill Response

- Immediately contain all releases and other residues
- Manage leaking, broken, or otherwise damaged wastes as universal wastes



Federal Prison, Texarkana, TX; UNICOR Recycling Business Group; Various pieces and parts from disassembled electronic and electric waste.  
Photo by Stephan Pollard, Environmental Dynamics Ph.D. Program, University of Arkansas, July 8, 2004.

# Shipping Document

- Shipment record can be a log, invoice, manifest, or bill of lading
- Contains
  - 1) The name and address of the universal waste handler, destination facility, or foreign destination to whom the universal waste was sent;
  - (2) The quantity of each type of universal waste sent (e.g., batteries, thermostats, lamps, mercury switches, etc.);
  - (3) The date the shipment of universal waste left the facility.
- Transporter not required to have in possession

# Notice of Intent to Handle Small & Large UWED & CRT



- **Universal Waste Electronic Devices (UWEDs) and/or Cathode Ray Tube (CRT) Materials**

## Materials to Be Handled

(Check all that apply)

- Cathode Ray Tube Materials
- Universal Waste Electronic Devices
- Universal Waste Batteries
- Universal Waste Lamps
- Exempt Circuit Boards
- Other Scrap Metal

Form 1382

If process U-waste, use form 1384.

# ABOP Notification Form



## COLLECTION FACILITY NOTIFICATION FOR "RECYCLE-ONLY" HOUSEHOLD HAZARDOUS WASTE

### 4. WASTE COLLECTED (PLACE AN X BY ALL WASTES ACCEPTED AT THIS FACILITY)

Lead acid batteries

Small household batteries

Latex paint

Used oil

Used oil filters

Antifreeze

Fluorescent lamps

High Intensity Lamps

CESQG Recyclables

DTSC Form 1171 (3/05)



## Electronics DTSC tested hazardous

- microwave ovens,
- VCRs,
- printers,
- CPUs,
- cell phones,
- telephones, and
- radios

# After the Sunset U-Waste Exemption Expires

- Household & Small Quantity

Temporary disposal exemption for batteries, thermostats, consumer electronic devices (CED), and lamps sunsets

**Sunset 2/8/2006**



Federal Prison, Texarkana, TX; UNICOR Recycling Business Group; Laptops, surge protectors, batteries, and other discarded electronic equipment.  
Photo by Stephan Pollard, Environmental Dynamics Ph.D. Program, University of Arkansas. July 8, 2004.

# Safer Alternative



# Material Exchange

- Product Suitability
- Quality Assurance Plan
- Waiver
- Liability Protection

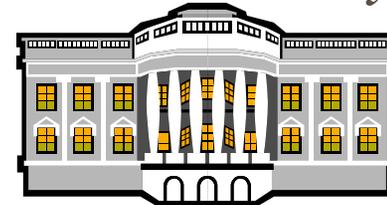


- H&SC §25218.1, 25218.12
- PRC §47550 amended

# New Stuff



- New Manifest
- Rejecting HW Shipments
- Certified Appliance Recycler
- Treated Wood Waste
- Lead Study
- Heat Stress
- **AB 1125** (Pavley)—*Rechargeable Battery Recycling Act*
- **AB 1415** (Pavley)—*Hazardous Waste: Mercury Relays and Switches*



# Waste of the Month Club

- Treated Wood



- Appliances



- Lead Study



- E-waste



# Uniform Hazardous Waste Manifest

- New Manifest Form Required September 5, 2006
  - Forms 8700-22 and 22a (New continuation sheet also)
- Rule effective September 6, 2005
  - Immediately use new manifest form
- No State versions or instructions

The image shows a sample of the Uniform Hazardous Waste Manifest form. It is a complex document with multiple sections. At the top, it says 'See instructions on back of page 4'. The form is divided into several parts, including 'Generator Information', 'Transporter Information', and 'Receiver Information'. There is a table with columns for 'Waste Description', 'Quantity', and 'Date of Manifest'. The form number '21612513' is visible in the top right corner.

**News Flash: New comment period until June 19, 2006**

- No "Generator to DTSC" copy
  - You need to copy and mail it (No address on form)
- Private companies will print & sell manifests
- New fields for load rejection, imports/exports

# New Uniform Hazardous Waste Manifest

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number		2. Page 1 of		3. Emergency Response Phone		4. Manifest Tracking Number			
		5. Generator's Name and Mailing Address						Generator's Site Address (if different than mailing address)			
Generator's Phone:											
6. Transporter 1 Company Name								U.S. EPA ID Number			
7. Transporter 2 Company Name								U.S. EPA ID Number			
8. Designated Facility Name and Site Address								U.S. EPA ID Number			
Facility's Phone:											
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes					
		No.	Type								
1.											
2.											
3.											
4.											
14. Special Handling Instructions and Additional Information											
15. <b>GENERATOR'S/OFFEROR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary											

GENERATOR



## Rejecting HW Shipments

- May be returned to generator as the “designated Facility”
- Use original manifest for full rejection
- If transporter left TSDF, or partial rejection use new manifest to return wastes

# Certified Appliance Recycler

- After January 1, 2006, a person who transports, delivers, or sells discarded major appliances to a scrap recycling facility must provide evidence that the person is a certified appliance recycler
- Requires removal hazardous wastes from major appliances in which they are contained **before the appliance is crushed, baled, shredded, sawed or sheared apart, disposed of, or otherwise processed to prevent release**
- Includes:
  - refrigerants
  - Used oil
  - Mercury switches





## AB 1353 (Matthews) Treated Wood Ban

- Treated wood is wood treated with a chemical preservative to protect against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to the decay of the wood and the chemical preservative is registered under FIFRA.
- On January 1, 2005 all existing variances are inoperative.
- Until January 1, 2007, require treated wood waste to be disposed of in either a class I hazardous waste landfill or in a composite-lined portion of a solid waste landfill unit that accepts designated wastes or treated wood is specifically listed in the WDR

# Lead Study



- DTSC assessing lowering lead TTLC limit from 1,000 ppm to 500 or 250
- Would potentially capture:
  - Costume jewelry,
  - Crystal
  - Crockery
  - Packaging
  - PVC
- Study workshoped and holding

# Heat Stress – New Cal/OSHA Reg

- Identifying, evaluating, and controlling exposures
- Types, signs and symptoms
- Prevention
- Treatment





# AB 1125 - Rechargeable Battery Recycling Act of 2006

- Requires on and after July 1, 2006, a retailer of rechargeable batteries sold in California have in place a system for the acceptance and collection of used rechargeable batteries for reuse, recycling, or proper disposal
- No cost to the consumer
- Prohibits the sale of a rechargeable battery to a consumer in this state after July 1, 2006, if the retailer is not in compliance with the Act.
- DTSC on or before July 1, 2007, and each succeeding July 1, to post on its Internet website the estimated amount, by weight, of each type of rechargeable battery returned for recycling in California during the previous calendar year



## AB 1415 - Hazardous Waste: Mercury Relays and Switches

- Bans the sale and distribution in California of all products with the mercury-containing switches, relays, measuring devices, and gastrointestinal tubes.
- Exemptions for mercury-added products required under a federal law or federal contract or if the only mercury-added component is a button cell battery.

# Hazard Communication



Sharon Simpson





# Hazard Communication

- What is it?
  - The communication of the chemical hazards that are present and how to protect yourself.
  
- Why Do it?
  - It's the Law
    - 29 CFR 1910.1200
    - CCR Title 8, section 5194



# Hazard Communication

## ■ Employers Responsibility

- Develop a hazard communication program
  - Provide effective information and training on hazardous chemicals in their work area at the time of initial employment.
  - Provide training when a new physical or health hazard is introduced.
  - Chemical specific information must always be available through labels and material safety data sheets.

## ■ Employees Responsibility

- Know the details of the program and follow them.
  - Be aware of the work practices, emergency procedures, PPE, and the specific chemicals they may be working with or around.



# Hazard Communication

- What is a health hazard?
  - A source of risk, danger, or peril capable of causing injury. This meaning refers to dusts, fumes, mists, vapors, gases or chemicals capable of producing adverse health effects.
    - **Chemical hazard** is a substances ability to pose harm based on its chemical properties.
    - **Physical hazards** are associated with equipment operations, use of PPE, and work site conditions (including temperature extremes).
    - **Biological hazards** are induced by biological things, such as animal bites, poisonous plants, and pathological microorganisms.



# Chemical Hazards

## Health Hazards You May Face

### ■ Acute

- Short-term effects
- Symptoms appear just after exposure
- High concentrations
- Corrosive, irritants
- Rashes, burns, respiratory irritation, poisoning

### ■ Chronic

- Long-term effects
- Symptoms appear long after exposure
- Low concentrations
- Neurotoxins, carcinogens
- Cancer, lung or liver damage, allergies



# Chemical Hazards

- Ways chemicals can enter the body
  - Inhalation: Breathe through mouth or nose
  - Absorption: Touches skin or is injected
  - Ingestion: Swallowed
  - Ocular Entry: Through the eyes



# Toxicology and interaction

- Everything is toxic at a certain concentration and duration of exposure
- Interactions and bodily reactions are dependent upon;
  - Routes of entry
  - Distribution mechanism: blood, Lymph, Mucous
  - Biotransformation: Metabolism/Detoxification
  - Routes of elimination: Exhalation, Perspiration, Excretion
  - Bioaccumulation



# Toxicology and interaction

- Two or more substances, when taken together may have 1 of five effects.
  - Additive= no interaction
    - $3+3=6$  (DDT and Chlordane)
  - Synergism= overall toxic response is greater than the sum of the individual responses.
    - $3+3=8$  (Asbestos & cigarette smoke)
  - Potentiation= non-toxic increases toxicity of the toxic.
    - $0+3=6$  (ethanol & carbon tetrachloride)
  - Coalitive= toxic response is entirely different from that of either of the compounds.
  - Antagonism= one substance decreases the toxic effect of another toxic agent.



# Hazard Communication

- There are many ways to identify these health hazards in the workplace.
  - Hazardous Waste Labels, DOT Labels, NFPA
    - NFPA has 4 areas: numbered 0-4, 0=low  
4=high
      - Blue = health
      - Red = flammability
      - Yellow = Reactivity
      - White = Special information
  - Container Label
    - Check Ingredients and precautions.
  - MSDS



# MSDS

- The best form of hazard communication is a Material Safety Data Sheet (MSDS)
- Employers must maintain copies of the MSDS for each chemical in the workplace at all times. It must be readily accessible during each work shift when they are in their work areas.

# MSDS Format

- All MSDS must have certain information and there are 8 Sections.
  - Section 1 Manufacturer's information and emergency contacts.

<b>Manufacturers name:</b> Acme chemical company	<b>Emergency Telephone Number:</b> (888) 111-0000
<b>Address:</b> Loony Toon Lane	<b>Telephone number for information:</b> (888) 111-0000
Universal, CA 98765	<b>Date Prepared:</b> January 2, 2006
	<b>Signature of Preparer (optional)</b> Bugs Bunny

# MSDS Format

- Section 2 Hazardous ingredients and exposure standards. (ingredients in excess of 1% or 0.1% if a cancer hazard)

## Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recomm ended	% (optional)
Methyl Ethyl Ketone (2-butanone) 100%		200 ppm	200ppm	N/A
CAS No. 78-93-3				

Permissible Exposure  
Limits (8hr 40hr week)

American Conference of Governmental  
Industrial Hygienists (ACGIH) Threshold  
Limit Values (TLV) (8hr 40hr week)

# MSDS Format

- Section 3 Physical and chemical characteristics.

The ratio of the mass of a substance to the mass of an equal volume of water under the same conditions.

the temperature at which it changes state from solid to liquid

Rate at which it will move from a liquid state to a gaseous state

The **boiling point** of a substance is the temperature at which it can change its state from a liquid to a gas throughout the bulk of the liquid

## Section III - Physical/Chemical Characteristics

Boiling Point @ 760 mmHG	175.3 °F	Specific Gravity (H <sub>2</sub> O = 1)	0.8061
Vapor Pressure (mm Hg) @ 20 °C	70mmHg	Melting Point	N/A
Vapor Density (AIR = 1)	2.5	Evaporation Rate (Butyl Acetate = 1)	5.7
Solubility in Water Appreciable = 24%			
Appearance and Odor Clear liquid with sweet odor similar to acetone			

the pressure of a vapor in equilibrium with its non-vapor phases

refers to the density of a vapor in relation to that of hydrogen.

# MSDS Format

## ■ Section 4 Fire and explosion hazard data.

lowest temperature at which it can form an ignitable mix with air

At concentrations in air below the LEL there is not enough fuel to continue an explosion; at concentrations above the UEL the fuel has displaced so much air that there is not enough oxygen to begin a reaction

### Section IV - Fire and Explosion Hazard Data

<p><b>Flash Point (Method Used)</b> Tag open cup = 22° F</p>	<p><b>Flammable Limits</b> In air % by volume</p>	<p><b>LEL</b> 1.8</p>	<p><b>UEL</b> 10</p>
<p><b>Extinguishing Media</b> Use carbon dioxide or dry chemical for small fires. Use alcohol type foams for large fires.</p>			
<p><b>Special Fire Fighting Procedures</b> Self-contained (NIOSH-approved) breathing apparatus and protective clothing should be used in all fires involving chemicals.</p>			
<p><b>Unusual Fire and Explosion Hazards</b> Vapors are heavier than air and may travel along the ground, or be moved by ventilation, and ignited by various ignition sources.</p>			

# MSDS Format

- Section 5 Reactivity data.

## Section V - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	None
<b>Incompatibility (<i>Materials to Avoid</i>)</b> May react with oxidizing agents and/or organic peroxides. Avoid alkaline materials, mineral acids and halogens.			
<b>Hazardous Decomposition or Byproducts</b> Burning can produce carbon monoxide and/or carbon dioxide.			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	None

# MSDS Format

## ■ Section 6 Health hazard data.

Route(s) of Entry:	Inhalation? Yes	Skin? Yes	Ingestion? Yes
<p><b>Health Hazards (<i>Acute and Chronic</i>)</b> Acute LD50 (oral rat) = 3,100 mg/kg.            Inhalation: lung irritation. central nervous system effects (dizziness and headaches). Skin: irritation, rashes, dermatitis. Eyes: irritation, redness, pain.</p>			
Carcinogenicity:	NTP? No	IARC Monographs? No	OSHA Regulated No
<p><b>Signs and Symptoms of Exposure:</b> Inhalation: irritation of respiratory tract, coughing, headache, nausea. Skin: dryness, redness, rashes. Eyes: irritation, pain, conjunctivitis (redness). Ingestion: abdomen spasms, nausea, vomiting.</p>			
<p><b>Medical Conditions</b>    <b>Generally Aggravated by Exposure:</b> None known.</p>			
<p><b>Emergency and First Aid Procedures:</b> Inhalation: move to fresh air, provide oxygen, obtain medical help. Eyes: flush with water for at least 15 minutes, obtain medical help if irritation persists. Skin: thoroughly wash affected areas with water, remove contaminated clothing, obtain medical help if irritation persists or large body areas are affected. Ingestion: give water to drink, obtain medical attention.</p>			



# MSDS Format

- Section 7 Precautions for safe handling during use and emergencies.

## Section VII - Precautions for Safe Handling and Use

### Steps to Be Taken in Case Material is Released or Spilled

Collect leaking liquid in sealable containers. Absorb spilled liquid in sand or inert absorbent and remove to a safe place. Cleanup personnel should wear protective clothing including a self-contained respirator. Avoid contact with skin. Remove all sources of ignition.

**Waste Disposal Method:** Consult a licensed waste disposal service firm for disposal in accordance with all federal, state, and local regulations.

**Precautions to Be taken in Handling and Storing:** Drums must be grounded and electrically bonded to the receiving vessel while dispensing in order to avoid static sparks. Store away from oxidizing agents, heat and ignition sources. Handle small quantities in approved safety cans. Handle as a Class 1B flammable liquid.

### Other Precautions:

Good personal hygiene practices should always be followed.

# MSDS Format

- Section 8 Control Measures.

## Section VIII - Control Measures

<p><b>Respiratory Protection (<i>Specify Type</i>)</b>          Not required if concentration is below PEL. At higher concentration NIOSH-approved respirator with organic vapor filter should be worn.</p>		
<p><b>Ventilation</b></p>	<p><b>Local Exhaust:</b>          Required for high concentrations.</p>	<p><b>Special:</b> All electrical equipment must be class 1, Group D; fans must be non sparking.</p>
	<p><b>Mechanical (<i>General</i>)</b></p>	<p><b>Other</b></p>
<p><b>Protective Gloves :</b>          Rubber</p>	<p><b>Eye Protection:</b> chemical goggles and/or face shield.</p>	
<p><b>Other Protective Clothing or Equipment</b>          Eye wash fountains, safety showers, barrier creams, etc.</p>		
<p><b>Work/Hygienic Practices</b></p>		



# Proposition 65

- Passed in 1986
- Requires the state
  - to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm.
- Requires Businesses
  - Notify Californians about significant amounts of chemicals in products purchased, in home or business, and that are released into the environment.
  - Prohibits CA businesses from knowingly discharging significant amounts of listed chemicals into the sources of drinking water.
  - They must provide “clear and reasonable” warning before knowingly and intentionally exposing anyone to a listed chemical.



# Proposition 65

- Example of a Prop 65 Sign

## WARNING

### PROPOSITION 65 COMPLIANCE STATEMENT

IT IS THE RESPONSIBILITY OF THIS BUSINESS TO  
WARN ITS CUSTOMERS AND EMPLOYEES THAT  
PRODUCTS SOLD OR USED ON THESE PREMESIS  
MAY CONTAIN CHEMICALS KNOWN TO THE  
STATE OF CALIFORNIA TO CAUSE CANCER OR  
BIRTH DEFECTS.

CALIFORNIA HEALTH & SAFETY CODE SEC. 25249.5 ET SEQ.



# Physical Hazards

- There are many different types of physical hazards. The most notorious are:
  - Slips, trips, and falls
  - Back injuries = Lifting and carrying
  - Inclement weather = heat stress
  - Electrical Hazards
  - Hearing damage



# Slips, trips, and falls

- **Slips can be caused by wet surfaces, spills, or other weather hazards.**
  - Taking shorter steps under wet conditions.
  - Clean spill immediately, even small ones.
  - Wear proper shoes, for your work area.
- **Trips occur when your foot hits an object and you are moving with enough momentum to be thrown off balance.**
  - Don't carry loads above your line of sight.
  - Keep areas well lit.
  - Proper housekeeping. Clean, tidy, and properly stored.
- **Falls**
  - Don't jump of loading docks or trucks.
  - Repair any broken steps.
  - Proper housekeeping.
  - Wear proper shoes and clothing for your job.



# Lifting and Carrying

- Most people will suffer some type of back injury in their life. Simple techniques can assure these do not happen.
  - Get a firm footing.
    - Keep your feet shoulder width apart and point your toes out.
  - Bend your knees.
    - Bend at your knees and hips not at your waist.
  - Tighten your stomach muscles.
    - Stomach muscles help support your spine.
  - Lift with your legs.
    - Maintain your backs natural three curves.
  - Keep the load close.
    - The closer it is to the spine the less stress on your back.
  - Keep your back upright.
    - Shoulders should be back and your back should always remain straight.
  - Maintain line of vision and proper housekeeping.



# Inclement Weather

- **Excessive heat and cold can effect the body's blood circulation, causes cramps, burns/rashes, loss of flexibility, and distraction/discomfort.**
- **A generally comfortable temperature range is 68 to 74 degrees Fahrenheit, with humidity between 20 and 60 %.**
- **When in heat:**
  - make sure you drink plenty of fluids,
  - maintain a proper rest schedule,
  - maintain physiological monitoring,
  - acclimatize the body (5-10 days)
- **When in Cold:**
  - Stay active
  - Dress in layers
  - Avoid cold surfaces
  - Maintain a good diet



# Inclement Weather: Heat

## ■ Heat Stress

- Mass amounts of sweat. This is a cooling mechanism.
- Signs of heat rash.
- Nauseous and dizziness.

## ■ Heat stroke

- No sweat at all. Your body is so dehydrated it can no longer waste energy on sweat.
- Immediately call 911 and try to cool while you wait.
- 104 °F are life-threatening. At 106 °F, brain death begins.



# Inclement Weather: Cold

## ■ Acute

- the body temperature drops very swiftly, often in a matter of minutes, such as when a victim falls through an ice-covered lake.

## ■ Subacute

- occurs on a scale of hours, most commonly by remaining in a cold environment for an extended period of time.
  - Shivering, tremors
  - Low blood pressure
  - Confusion
  - weakness



# Electrical Hazards

- Electrical hazards can be present from exposed wires, misusing equipment / broken equipment, and construction practices.
  - Bond and ground equipment
  - Don't use damaged power cords or tools.
  - Use proper lockout / tagout procedures.
  - Check for underground electrical lines before digging.



# Hearing damage

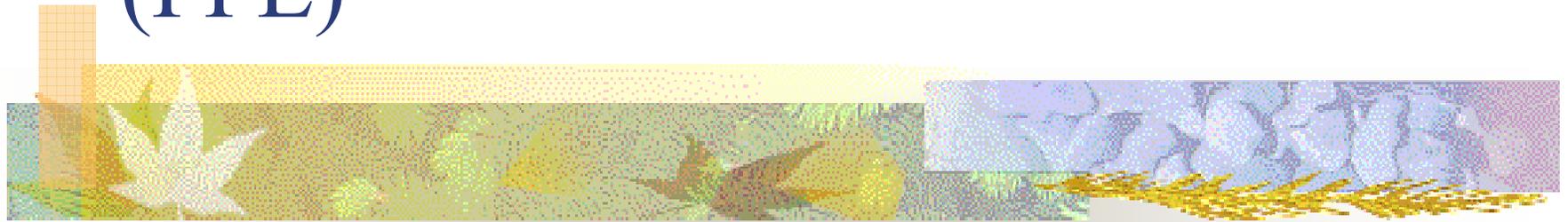
- Once 85dBA is reached in your work place you must initiate a hearing conservation program.
- Continuous noise levels at 90dBA or spikes of 100dBA can cause hearing damage (increase blood pressure, headaches, fatigue, and permanent loss).
- Safety precautions include;
  - Reduce source of loud noise
  - Use hearing protection
  - Reduce time of exposure
  - Increase distance from source of noise
  - Have an annual audiogram done to monitor changes



# Eating, Drinking, & Smoking

- Eating and Drinking areas – 29 CFR 1910.120 (g)(2)
  - No employee shall be allowed to consume food or beverage in a toilet room nor in any area exposed to toxic material.
- Smoking at HHW's
  - Don't do it!

# Personal Protection Equipment (PPE)



Jaimy Jackson  
Kern County



## Personal Protective Equipment (PPE)

- People have used PPE for centuries for protecting themselves
  - Medieval knights had armor
  - Blacksmiths had leather aprons
  - Cowboys wear chaps
  - Eskimos wear heavy parkas, gloves & boots
  - Firemen wear turn-outs and special boots



# Personal Protective Equipment

OSHA established the PPE standard,  
29 CFR 1910.132-138 in 1994

.

It requires employers to establish and administer an effective PPE program for employees, which includes training staff on the proper use of PPE.

# Personal Protective Equipment

- General Requirements
- Types of PPE
- Chemical Protective Clothing
- Respiratory Protection
- Levels of Protection



# PPE

## ■ Personal Protective Equipment (PPE) includes

- Clothing
- Accessories
  - Head Protection
  - Eye & Face Protection
  - Hand & Foot Protection
  - Hearing Protection
  - Respiratory Protection





# PPE

- PPE does not eliminate hazards found in the work place
  - PPE does Provide temporary protection against workplace hazards
  - No single combination of PPE and clothing provides protection against all hazards



## **PPE – EMPLOYER RESPONSIBILITIES**

- Assessment of workplace hazards
  - Health hazards
  - Physical hazards
- Providing PPE
- Recordkeeping
- Maintenance of PPE
- Training employees



## **PPE – EMPLOYEE RESPONSIBILITIES**

- Assess potential hazards prior to starting the job.
- Attend training sessions
- Follow ALL warnings & precautions
- Listen & follow directions from supervisor
- Report any & all safety hazards or conditions to supervisor

# Chemical Protective Clothing

- ... no one material affords maximum protection against all chemicals ...
- Chemical Protective Clothing (CPC) is intended only as a barrier between your skin and the hazard...





# Chemical Protective Clothing

- **Encapsulating chemical splash suit**
- **One or two piece chemical splash suit**
- **Vapor resistant totally encapsulating suit**
- **Chemical protective gloves and boots**

*They may be made of the following materials*

*Nitrile, Tyvek, Saranex, Butyl rubber,  
Polyurethane, Natural rubber, Viton*



# Chemical Protective Clothing

- *Degradation*- Visible, gross damage to the material such as blistering, cracking, swelling or dissolving.
- *Penetration*- Chemicals leaking through seams, stitching or zippers.
- *Permeation*- Chemicals soaking into and through the material.
- *Breakthrough time*- The time it takes before enough permeation occurs so that the chemical can be measured. Tested in Laboratory.



# Level of Protection

Adequate Levels of Protection are Determined By Evaluating The:

- Skin hazards present
- Respiratory hazards present
- Duration of tasks
- Concentrations of chemicals



# Level of Protection

## Use Level “A” When

- Selected when the greatest level of skin, respiratory and eye protection is required
- Maximum protection provided through encapsulating suits and positive pressure demand air supply



**Level "A"**



# Level of Protection

## Use Level “B” When

- Selected when the highest level of respiratory protection is necessary
- Lower level of skin protection is required



**Level "B"**



# Level of Protection

5

## Use Level “C” When

- Skin contact with air contaminants is not hazardous
- O<sub>2</sub> level between 19.5 & 23.5
- All chemical & LEL levels are known
- All chemicals have good warning properties
- There are no IDLH concentrations



**Level “C”**



# Level of Protection

## Level “D”

- Work Uniform
- No Respiratory Protection
- Gloves (optional)
- Hearing Protection
- Hard Hat
- Boots Chemical Resistant
  - Steel Toe & Shank



**Level "D"**



# PPE – HEAD PROTECTION

## **Common causes of head injury include:**

- Falling or flying objects
- Falling or walking into hard objects

## **Injury prevention methods include:**

- Wearing a hardhat
- Warning signs such as “low head room”



## PPE – EYE & FACE PROTECTION

**Commons causes of eye & face injury include:**

- Flying objects & particles
  - Grinding, sanding, chiseling
- Toxic gases, vapors & chemical splashes
  - Testing of chemicals, opening containers
- Being struck by a swinging object
  - Overhead crane hoist, chains, cables



# PPE – EYE & FACE PROTECTION

## **Injury prevention methods include:**

- Eye protection
- Use of machine guards
- Barriers
- Good lighting
- Signs & warnings



# PPE – EYE & FACE PROTECTION

## **Emergency Eyewash Station Requirements**

Title 8, §5162

“Emergency eyewash facilities and deluge showers shall be in accessible locations that require no more than 10 seconds for the injured person to reach”



## PPE – HAND PROTECTION

Approximately 20% of all disabling accidents on the job involve the hands.

### **Types of injuries include:**

- Traumatic Injury
- Contact Injury
- Repetitive Motion Injury



# PPE – HAND PROTECTION

## Preventative Measures

- Engineering Controls
- Housekeeping & Hygiene
- Gloves



# PPE – FEET PROTECTION

## TYPES OF HAZARDS

- Impact Injuries
- Injuries from spills & splashes
- Compression Injuries
- Electrical Shock
- Extreme weather conditions



# PPE – FOOT PROTECTION

## PREVENTIVE MEASURES

- Good housekeeping practices
- Steel toed & metatarsal protective boots
- Rubber sole shoes
- Chemical resistant shoes
  - PVC, Butyl, Vinyl, Nitrile
- Electrical resistant shoes



# PPE – HEARING PROTECTION

A hearing protection device should be worn whenever a person is exposed to noise that is 85 decibels or greater for an 8 hour period of time.

## TYPES OF HEARING PROTECTION DEVICES

- Foam Earplugs
- PVC Earplugs
- Earmuffs



# PPE - SUMMARY

- HAZARDS MUST BE ASSESSED IN ORDER TO CHOOSE THE RIGHT PPE FOR THE JOB ASSIGNMENT
- PPE IS NOT FAIL SAFE. GOOD WORK PRACTICES MUST ACCOMPANY USE OF PPE
- WEARING PPE CAN PRESENT ITS OWN HAZARDS
- USING THE BUDDY SYSTEM IS A MUST
- PPE MUST BE INSPECTED AND MAINTAINED IN ORDER TO PROVIDE THE MAXIMUM BENEFIT
- STAFF MUST BE TRAINED IN ALL ASPECTS OF PPE USE

# The End



# Safety Requirements



Sharon Simpson

■ *City of Sacramento PHHWCF / BLT Enterprises*



# Illness Injury Prevention Program (IIPP)

- Required by law

- Cal/OSHA IIPP (8CCR Section 3203/GISO)

- Provide a safe and Healthful workplace for employees.
    - California Employers required to have an effective program in writing.
    - Required to implement and enforce the plan.

- Incentive

- Accidents cost money & Time
  - It's a way to control losses



# Illness Injury Prevention Program (IIPP)

## ■ Required Elements

- Management commitment/assignment & responsibilities
- Safety communications system with employees
- Assuring employee compliance with safe working practices
- Scheduled inspections/evaluation systems
- Accident investigation
- Procedures for correcting unsafe/unhealthy conditions
- Safety and health training and instruction
- Recordkeeping and documentation



# Illness Injury Prevention Program (IIPP)

- Developing Your Program Plan
  - Assign Responsibilities
  - Evaluate Existing Conditions & Work Practices
  - Safety & Health Survey
  - Workplace Assessment
  - Review
  - Develop an action Plan
  - Communicate with Employees
  - Maintain Plan & Schedule Reviews



# Illness Injury Prevention Program (IIPP)

- Safety & Health Recordkeeping
  - Injury & Illness Records
  - Exposure Records
  - Documenting Activities
  
- Period for maintaining records
  - Written IIPP.....Indefinitely
  - OSHA Log 200 Forms .....5 years
  - Inspection Forms.....1 year
  - Investigation Forms.....1 year (5 years for Log 200/300)
  - General Training Records.....Length of employment
  - Training Rosters.....3 years
  - Safety Meeting Rosters.....3 years
  - Medical & Exposure Records.....Employment + 30 years
  - Hazwoper Records.....5 years



# Illness Injury Prevention Program (IIPP)

## ■ Training

- Upon hire
- Change in assignment
- New process, substance, procedures, & equipment are introduced.
- Whenever the IIPP is changed or new or previous unrecognized hazard becomes known.
- Supervisors/Managers must be aware of all hazards and operations with which their employees may be exposed.



# Ergonomics

- Performing your duties using the most neutral body position.
- HHW considerations
  - Drum/pallet movement
  - Vehicle unloading
  - Bulking
  - Lab Packing



# Ergonomics

- Drum/pallet movement
  - Drum dollies
  - Pallet jacks
  - Conveyers
  - Forklifts
- Vehicle unloading
  - Carts
  - Drum/pallet placement
- Bulking
  - Opening tools
  - Length of operations
  - Lifting tables
- Lab packing
  - Work area placement



# Lock Out/Tag Out

## ■ Purpose

- Protect employees and contractors from injury due to the unexpected energization, start-up or release of stored energy.
- Ensure the machine or equipment are isolated from all potential hazardous energy sources before anyone performs servicing or maintenance.
- It's the Law CCR Title 8, section 3314

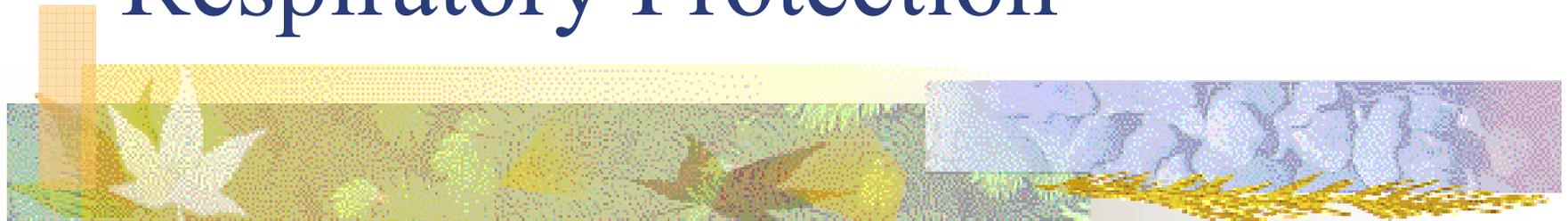


# Lock Out/Tag Out

## ■ Requirements

- Employers must maintain a written copy of procedures and make it available to employees.
  - This must include safe procedures for deenergizing equipment.
- Locks must be attached as to prevent persons from operating equipment.
- Tags and locks can be used separately but under very specific conditions, most circumstances require both be used simultaneously.
- Only the person who places the lock may unlock it, unless certain circumstances apply.
- If more than one person is working on the equipment, each person must apply his or her own lock/tag.
- All employees affected must be lockout/tagout trained.

# Respiratory Protection



Lewis Perales

Clean Harbors Environmental, Inc.

# Respiratory Protection





# Respiratory Protection

*There are 2 basic types of respirators*

- ***Air Purifying Respirators*** (APRs). With these you breath in the air around you and cartridges filter the air before you breath it.
- ***Atmosphere Supplying Respirators***. These provide a separate clean air supply from a cylinder on your back (SCBA) or through an airline from a cylinder or compressor (SAR). In O<sub>2</sub> deficient atmosphere you must have an atmosphere supplying respirator.

# Respiratory Protection



- *Respirators come in several styles*
- Half-Face *APR*. Covers the chin, mouth and nose, but not the eyes.
- Full-Face *APR*. Covers the chin, mouth, nose and eyes.
- Powered Air Purifying Respirator (*PAPR*). This has a fan which blows air through the filters or cartridges.



# Respiratory Protection

**Before an APR is used, asked these questions !**

**Contaminants are known and identified?**

**Contaminant levels are known?**

**Atmosphere O<sub>2</sub> levels known?**

**Contaminant level below IDLH?**

**Cartridge selection appropriate?**

**Contaminants have adequate warning properties?**



# Respiratory Protection

## ■ *Limitations*

- APRs do not supply  $O_2$
- Cannot be used in IDLH atmospheres
- Must know chemical & levels
- Chemicals must have good warning properties

## ■ *Failures*

- Vapor breakthrough of cartridges
- Clogged/spent cartridges



# Respiratory Protection

## User Limitations To Obtain An Air-Tight Facial Fit

- Eyeglasses
- Facial Hair
- Impaired Facepiece Seal
- Medical Condition



# Respiratory Protection

## ■ SAR

### ■ Air Line Respirators

- Provides breathing air through an air line connected to an “oil-less” delivery system
- Maximum air lines length limited to 300 feet
- Air line respirators **MUST** have a 10 minute escape air bottle ready for immediate use in case the primary system fails



# Respiratory Protection

- Self Contained Breathing Apparatus (SCBA)

- Combines Four Critical Elements

- Back Pack & Harness
- Air Bottle
- Pressure Regulator
- Full-Face Mask





# Respiratory Protection

- SAR & SCBA

- Pressure Demand

- Pressure is maintained inside the mask at all times
    - Positive pressure delivery system
    - SCBAs used today must be **pressure demand** for hazardous environments

- Demand only

- Air enters the mask only when the user needs it



# Respiratory Protection

## **Conditions Requiring SAR's**

Oxygen Levels below 19.5% ?

Atmospheric conditions are at or near IDLH ?

Contaminants have poor warning properties ?

Contaminants unknown ?

Atmospheric contaminants too high for an APR ?

Contaminants are harmful to skin or can be absorbed through the skin ?



# Respiratory Protection

## Equipment Inspection

- **After Each Use Check For**
  - Proper Cartridges & Air Bottle Level
  - Face Piece Integrity
  - Couplings, Regulator, Fittings, Gaskets
  - Harness Integrity
  - Alarm Operation

# Respiratory Protection

## Fit Testing

(Tight-Fitting Facepiece Only)

- Also Required for firefighters
  - Positive Pressure Fit Check
  - Negative Pressure Fit Check
  - Qualitative or Quantitative Fit Test





# Respiratory Protection

## Medical Surveillance

- Follow provisions of 29 CFR 1910.134 Respiratory Protection Standard & California Title 8 §5144
- Certification by a Physician or Licensed Health Care Professional
  - Pulmonary function test and/or equivalent physical evaluation
  - Ability to wear a “tight-fitting” mask

# Questions & Answers Time



# Lunch Time

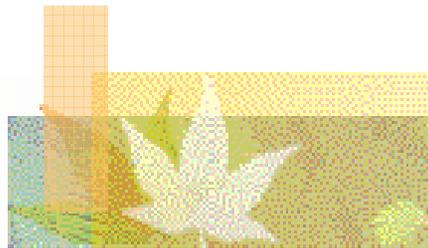


# *Medical Surveillance*



Lyn Beurmann

# *Flammable and Combustible Liquids*



Ionie Wallace  
San Bernardino County

# Introduction

- Primary hazards
  - *explosion and fire*
  
- Safe handling and storage
  - approved equipment and practices per OSHA standards
    - 8CCR section 5531 et. al.





# Flash Point

## ■ Flash point

- minimum temperature at which a liquid gives off enough vapor to form an ignitable mixture
- the lower the flash point, the greater the hazard

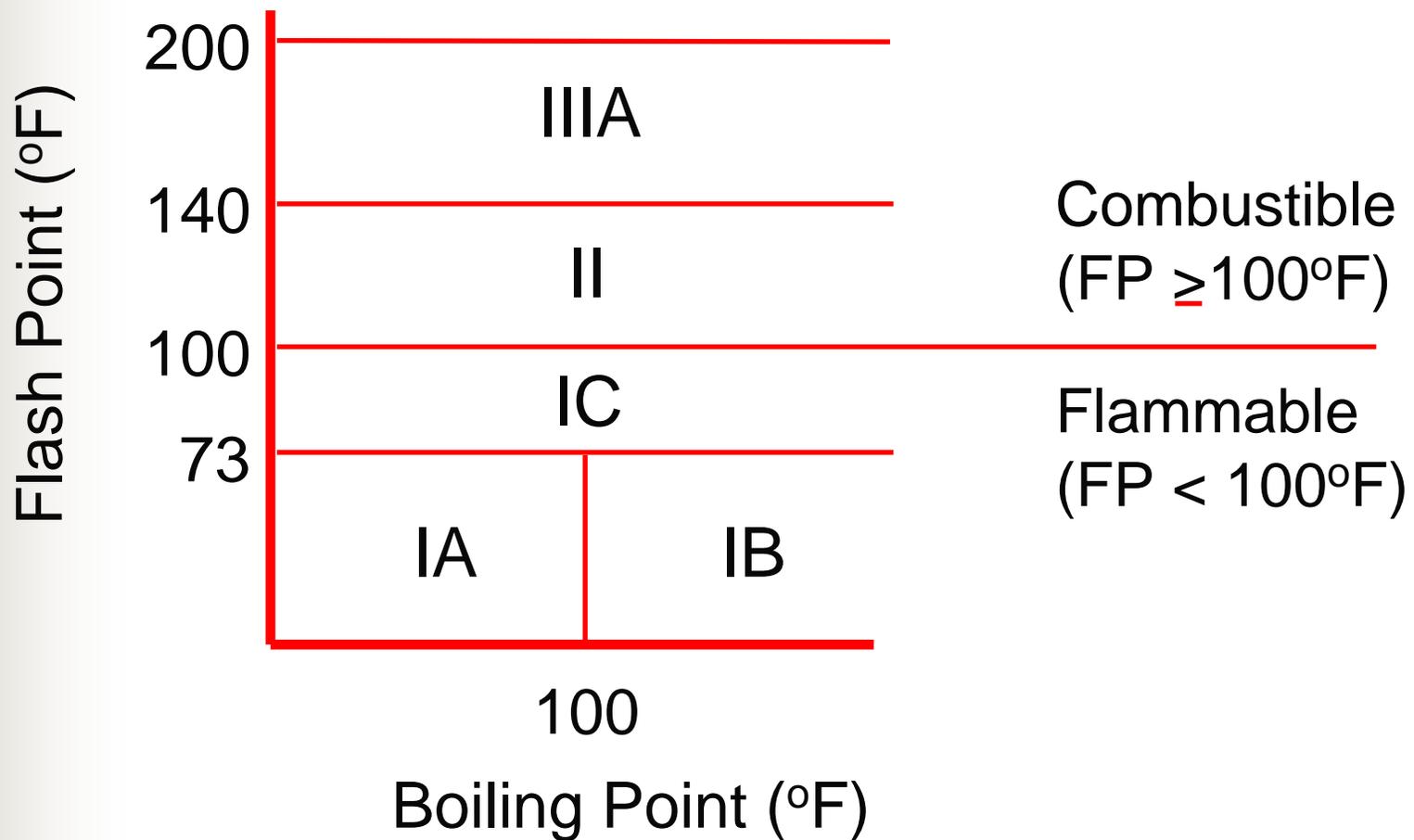
## ■ OSHA and NFPA

- Flammable liquids have flash points below 100°F
- Combustible liquids have flash points above 100°F

## ■ DOT

- Flammable liquids have flash points below 141°F
- Combustible liquids have flash points above 141°F

# Classes of Flammable and Combustible Liquids





# Classes of Some Flammable Liquids

	Common Name	Flash Point (°F)
<b>CLASS IA</b>	Ethyl Ether	-49
<b>CLASS IB</b>	Gasoline	-45
	Methyl Ethyl Ketone	21
	Toluene	40
<b>CLASS IC</b>	Xylene	81-115
	Turpentine	95



# Program Components

A good plan for safe use of flammable and combustible liquids contains at least these components:

- Control of ignition sources
- Proper storage
- Fire control
- Safe handling

# Sources of Ignition

Must take adequate precautions to prevent ignition of flammable vapors. Some sources of ignition include:

- Open flames
- Smoking
- Static electricity
- Cutting and welding
- Hot surfaces
- Electrical and mechanical sparks
- Lightning



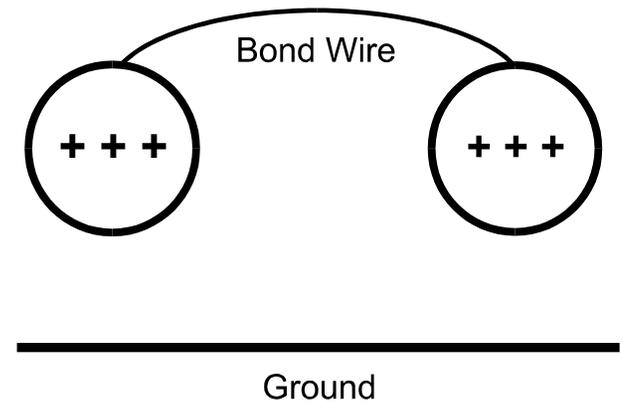
# Static Electricity

- Generated when a fluid flows through a pipe or from an opening into a tank
- Main hazards are fire and explosion from sparks containing enough energy to ignite flammable vapors
- Bonding or grounding of flammable liquid containers is necessary to prevent static electricity from causing a spark



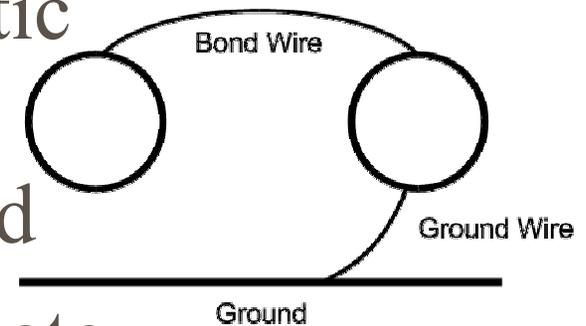
# Bonding

- Physically connect two conductive objects together with a bond wire to eliminate a difference in static charge potential between them
- Must provide a bond wire between containers during flammable liquid filling operations, unless a metallic path between them is otherwise present



# Grounding

- Eliminates a difference in static charge potential between conductive objects and ground
- Although bonding will eliminate a difference in potential between objects, it will not eliminate a difference in potential between these objects and earth unless one of the objects is connected to earth with a ground wire





# Ventilation

Always provide adequate ventilation to reduce the potential for ignition of flammable vapors.



# Storage Fundamentals

- Identify incompatible chemicals – check the Material Safety Data Sheet
- Isolate and separate incompatible materials
  - Isolate by storing in another area or room
  - Degree of isolation depends on quantities, chemical properties and packaging
  - Separate by storing in same area or room, but apart from each other

# Storage of Flammable and Combustible Liquids

- Storage must not limit the use of exits, stairways, or areas normally used for the safe egress of people
- In office occupancies:
  - Storage prohibited except that which is required for maintenance and operation of equipment
  - Storage must be in:
    - closed metal containers inside a storage cabinet, or
    - safety cans, or
    - an inside storage room

*Inside storage room*



# Safety Cans for Storage and Transfer

- Approved container of not more than 5 gallons capacity
- Spring-closing lid and spout cover
- Safely relieves internal pressure when exposed to fire



# Flame Arrester Screen

- Prevents fire flashback into can contents
- Double wire-mesh construction
- Large surface area provides rapid dissipation of heat from fire so that vapor temperature inside can remains below ignition point



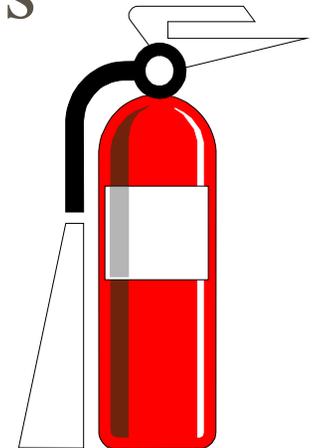
# Storage Cabinets

- Not more than 60 gal of Class I and/or Class II liquids, or not more than 120 gal of Class III liquids permitted in a cabinet
- Must be conspicuously labeled, “Flammable - Keep Fire Away”
- Doors on metal cabinets must have a three-point lock (top, side, and bottom), and the door sill must be raised at least 2 inches above the bottom of the cabinet



# Fire Control

- Suitable fire control devices, such as small hose or portable fire extinguishers must be available where flammable or combustible liquids are stored
- Open flames and smoking must not be permitted in these storage areas
- Materials which react with water must not be stored in the same room with flammable or combustible liquids





# Transferring Flammable Liquids

Since there is a sizeable risk whenever flammable liquids are handled, OSHA allows only four methods for transferring these materials:

- Through a closed piping system
- From safety cans
- By gravity through an approved self-closing safety faucet
- By means of a safety pump

# Self-Closing Safety Faucet

- Bonding wire between drum and container
- Grounding wire between drum and ground
- Safety vent in drum



# Safety Pump

- Faster and safer than using a faucet
- Spills less likely
- No separate safety vents in drum required
- Installed directly in drum bung opening
- Some pump hoses have integral bonding wires



# Waste and Residue

Combustible waste and residue must be kept to a minimum, stored in covered metal receptacles and disposed of daily.



Waste  
disposal



# Safe Handling Fundamentals

- Read label on the flammable liquid container before storing or using
- Practice good housekeeping
- Clean up spills immediately
- Only use approved or original container to store flammable liquids
- Keep the containers closed when not in use and store away from exits or passageways
- Use flammable liquids only where there is plenty of ventilation
- Keep flammable liquids away from ignition sources such as open flames, sparks, smoking, cutting, welding, etc.



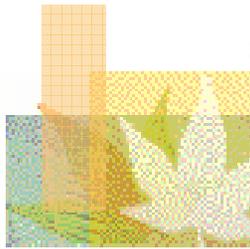
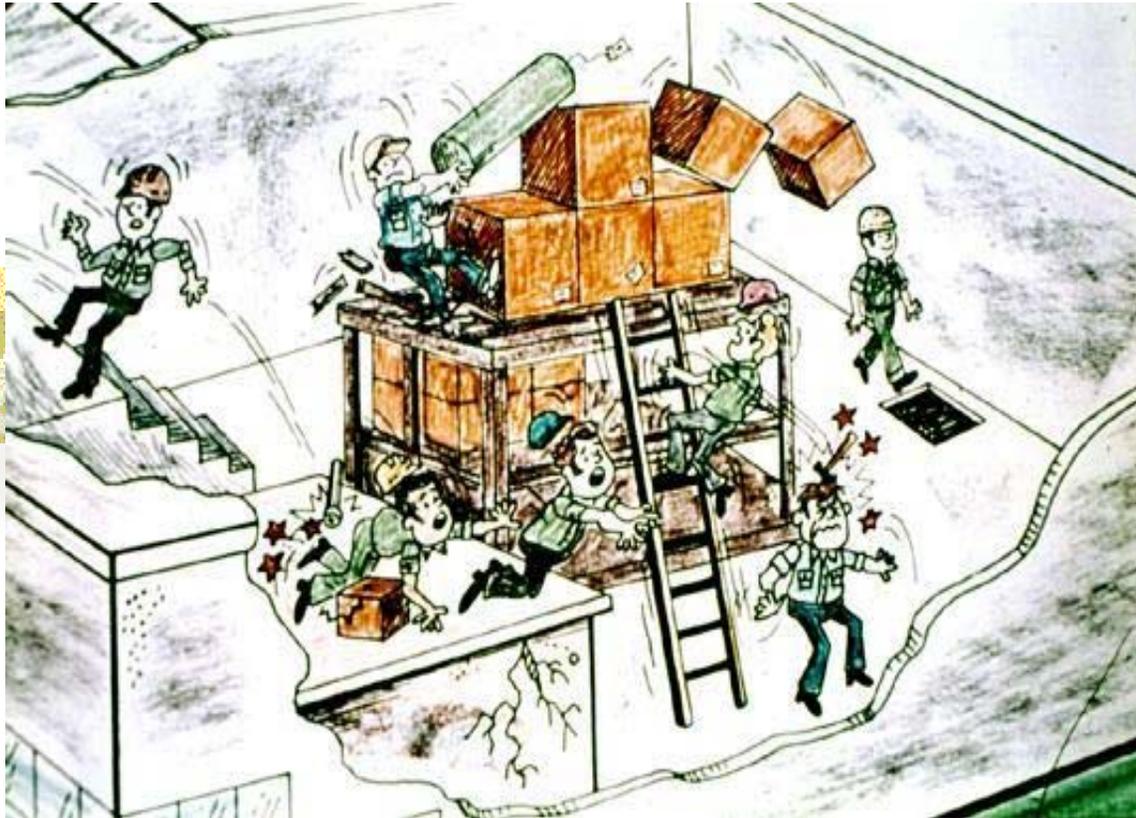




# Summary

- The two primary hazards associated with flammable and combustible liquids are explosion and fire
- Safe handling and storage of flammable liquids requires the use of approved equipment and practices per OSHA standards
- An excellent reference on this topic is National Fire Protection Association Standard No. 30, *Flammable and Combustible Liquids Code*

# *Walking-Working Surfaces*





# Introduction

- 8 CCR, Article 2, section 3209 et sec.
- Slips, trips and falls cause:
  - 15 percent of all accidental deaths
  - CA-62 deaths from falls and 10 from ladders
- OSHA's standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed

# General Requirements Housekeeping

- Workplaces must be kept clean, orderly, and sanitary
- Workroom floors must be maintained as clean and dry as possible



# General Requirements

## Aisles and Passageways

- Keep clear and move obstructions that could create a hazard
- Mark permanent aisles and passageways
- Aisles must be sufficiently wide where mechanical handling equipment is used



# General Requirements

## Covers and Guardrails

Provide covers and/or guardrails to protect workers from the hazards of open pits, tanks, vats, ditches, and the like.



# General Requirements

## Floor Loading Protection

- Load ratings must be marked on plates and be conspicuously posted
- Do not exceed the load rating limit



# Floor Opening

An opening measuring 12 inches or more in its least dimension in a floor, platform, pavement, or yard, through which persons may fall.



# Stairway Floor Openings

Must be guarded by a standard railing on all exposed sides (except at entrance).



# Floor Hole

- An opening measuring less than 12 in. but more than 1 in. in its least dimension, in a floor, platform, pavement or yard, through which materials but not persons may fall
- Every floor hole into which persons can accidentally walk must be guarded by either:
  - standard railing with toeboard
  - cover



# Wall Openings

- Opening at least 30 in. high and 18 in. wide, in a wall or partition, through which persons may fall
- Wall openings from which there is a drop of more than 4 feet must be guarded





# Open-Sided Floors, Walkways, Platforms, and Runways

Regardless of height, a standard railing and toeboard must be used to guard:

- open-sided floors
- walkways
- platforms, or
- runways

above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and similar hazards.

# Stairways

Flights of stairs with four or more risers must have standard stair railings or handrails.



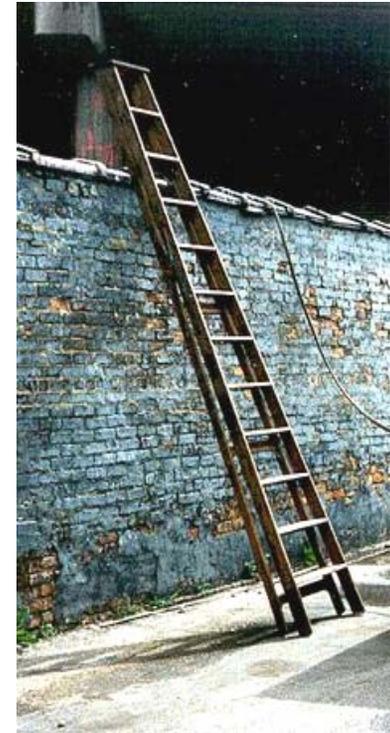
# Fixed Industrial Stairs

- Treads must be slip resistant with uniform rise height and tread width
- Must be able to carry 5 times expected load; minimum of 1000 pounds
- Minimum width of 22 inches



# Portable Ladders

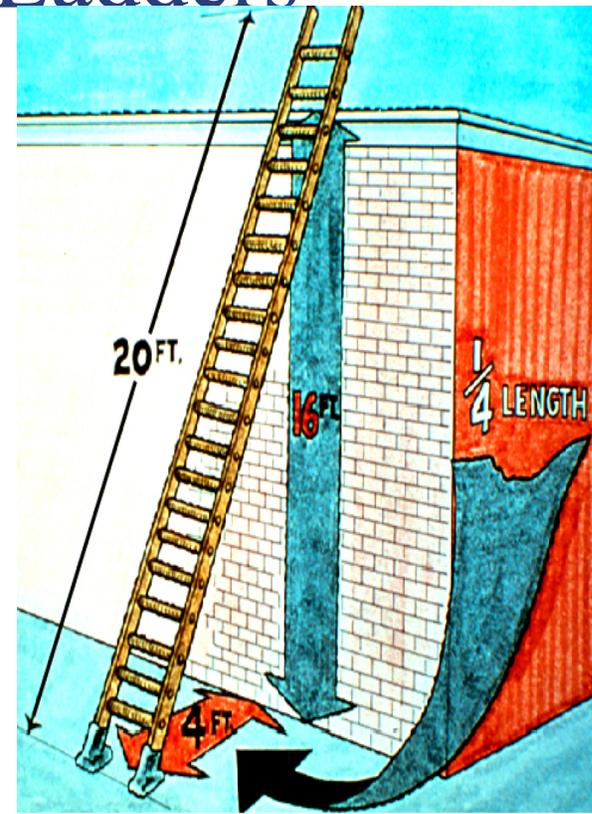
- Ladders used to gain access to a roof or other area must extend at least 3 feet above the point of support
- Withdraw defective ladders from service and tag or mark "Dangerous, Do Not Use"
- Never use ladders in a horizontal position as scaffolds or work platforms
- Never use metal ladders near electrical equipment



# Ladder Angle

## Portable Rung and Cleat Ladders

Use at angle where the horizontal distance from the top support to the foot of the ladder is  $\frac{1}{4}$  the working length of the ladder (length along ladder between the foot and top support).



# Fixed Ladders

- Permanently attached to a structure, building or equipment
- Cages or wells required if longer than 20 ft. to a maximum unbroken length of 30 ft.
- Ladder safety devices may be used on tower, water tank and chimney ladders over 20 ft. in unbroken length instead of cage protection

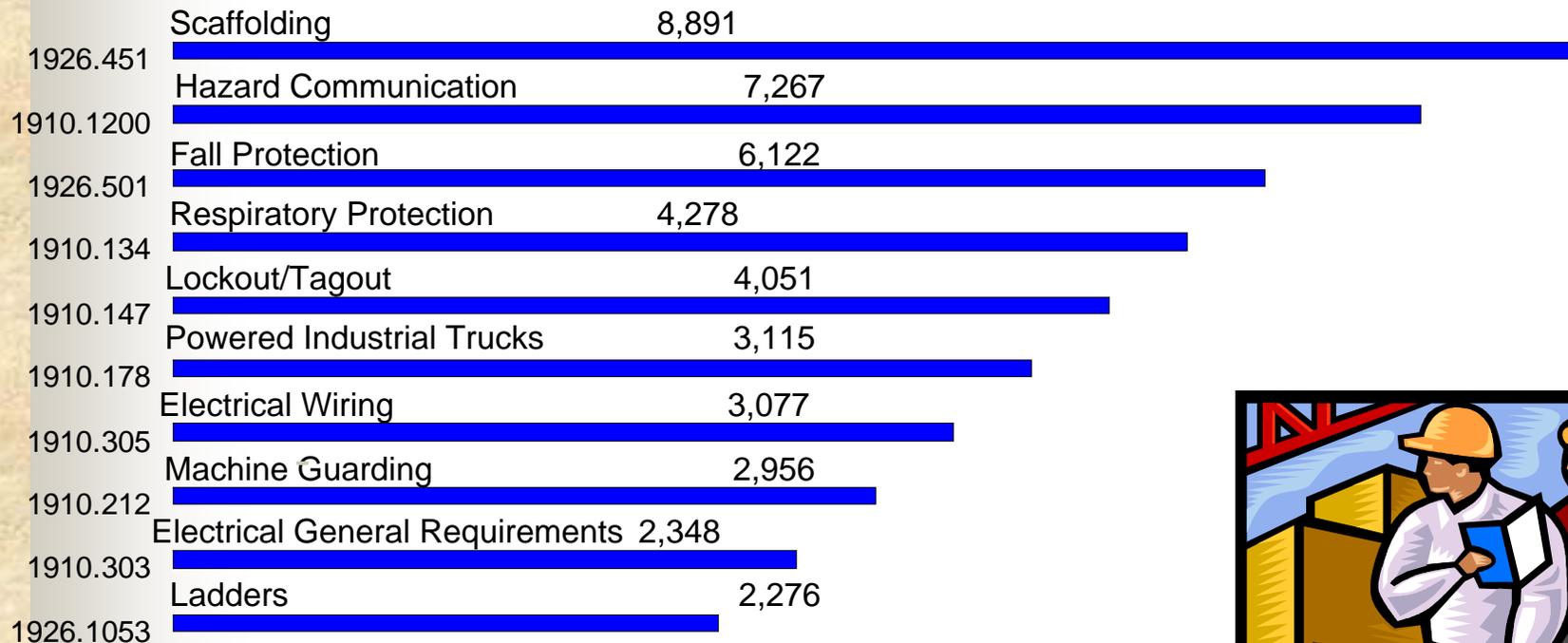




# Summary

- Slips, trips, and falls constitute the majority of general industry accidents
- OSHA's standards for walking and working surfaces include requirements for housekeeping, guarding floor and wall openings and holes, industrial stairs and ladders
- Keeping working surfaces clean, dry, and uncluttered can prevent many workplace accidents

# Most Frequently Cited Serious Violations FY 2005





# References

- <http://www.dir.ca.gov/> (Dept of Industrial Relations)
- <http://www.dir.ca.gov/dosh/> (Div. Of Occ. Safety & Health)
- [InfoCons@dir.ca.gov](mailto:InfoCons@dir.ca.gov) (Cal/OSHA Consultation Service)
- [www.californiaosha.info](http://www.californiaosha.info) Employer Records - Injury & Illness

The CUPA (and others) is  
coming!



Larry Sweetser  
Sweetser & Associates

# HHW is HW

■ HHHWCFs are subject to inspections by all of the same agencies as other TSDFs

- CUPA
- DTSC
- Fire
- Cal/OSHA
- Air Board
- LEA/CIWMB
- CHP

HAZARDOUS WASTE	
STATE AND FEDERAL LAW PROHIBIT IMPROPER DISPOSAL. IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY, THE U.S. ENVIRONMENTAL PROTECTION AGENCY OR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.	
GENERATOR INFORMATION:	
NAME	ANARCHIST, INC.
ADDRESS	1976 ALCHEMY LANE
CITY	NO WERE
STATE	CA
ZIP	99000
PHONE	(800) 927-8333
EPA MANIFEST NO.	CAZ 987654321
DOCUMENT NO.	
EPA WASTE NO.	K000
CA WASTE NO.	612
ACCUMULATION START DATE	2/29/99
CONTENTS, COMPOSITION: BAD STUFF	
PHYSICAL STATE: <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID	
HAZARDOUS PROPERTIES: <input type="checkbox"/> FLAMMABLE <input checked="" type="checkbox"/> TOXIC <input checked="" type="checkbox"/> CORROSIVE <input type="checkbox"/> REACTIVITY <input type="checkbox"/> OTHER	
1.4.S-DI-FORSUREANDL, NA 9999	
D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX	
<b>HANDLE WITH CARE!</b>	
STYLE 587654	
Printed by Laborman, An American Laborman Co., Chicago, IL 60646 (800) 671-6009	

# Purpose of Inspections



- Verify compliance
- Complaint based inspections
- Injury, accident or death investigations
- Permit application or revision
- Employee or neighbor complaints
- Referral from other agencies
- Targeted and random

# Penalties

- Hazardous Waste
  - Minor, Class I, ClassII
- Cal/OSHA - Safety Citations
  - Regulatory, General Serious, Repeat, or Willful
- Hazardous Materials Transportation
  - Max Civil - up to \$27,500 per violation
  - Max Criminal – up to \$500,000 &/or up to 5 years imprisonment



# Inspection Protocol

- Be Prepared
- When the inspector arrives
- During the walk through
- Closing conference
- Post inspection



# Be Prepared

- Designate management contact
- Know operations and permits
- Records accessible and organized
  - Training
  - Permits
- Staff trained and alert
- Regular internal inspections
- Camera available
- Legal contact



# When the Inspector Arrives

- Sign in log
- Pre-meeting
- Cooperate
- Confirm credentials
- Verify purpose
- Confirm scope/area
- Determine if legal needed



# During the Walk Through

- Escort
- Safety rules
- Duplicate documentation
  - Notes
  - Photos
  - Samples
- Limit scope to stated objective
- Answer truthfully or defer
- Immediately correct issues



# Closing Conference

- Verify results
  - Issues found and remedies
  - Violations issued
- Request copy at closing
- Determine
  - When final report due
  - Actions including penalties



# Post Inspection

- Confirm inspection
- State issues resolved
- Challenge concerns
- Resolve issues ASAP
- Prepare your report
- Respond to all items
- Notify senior management &/or legal

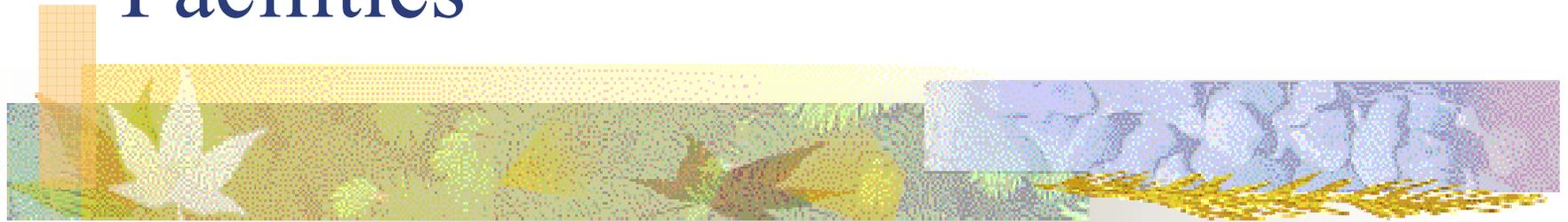


# Share your experience

- Circumstances
- Issues
- Resolution
- Lessons learned



# Managing Emergencies at HHW Facilities



Cherri Taylor

# Emergency Response Actions For Household Hazardous Waste Collection Center Staff



# Accidents Happens

- It's a fact that spills will happen. You work in a environment where you handle, lift, store and dispose of hundreds of pounds of hazardous waste daily. Unsafe transportation methods and leaky containers only intensify the risk that a spill may happen.



# Lets Keep the Chemicals Contained



# What's Your Role

Household hazardous waste collection staff need to be able to recognize the presence of a hazardous material incident, protect themselves & others, secure the area and call 911.

**EMERGENCY**  
**DIAL 9-1-1**



# Be A Sinner

- S-afety
- I-solation
- N-otification



# HHW Staff Response Goals

**Protect:** *Life, Environment, Property*





# Hands Off!

- Until the nature of the incident is clearly determined.
- Scene is released back to you by the Incident Commander.

# Haz-Mat Response Levels

First Responder Awareness Level

First Responder Operations Level

Hazardous Materials Technician

Hazardous Materials Specialist

On Scene Incident Commander

Hazwoper



# First Responder Awareness

- OSHA definition



- Likely to witness/discover a release
- Can initiate notifying authorities
- Take no further actions
- State requires 8 hours of training

# First Responder Operations

- OSHA Definition
  - One who responds to Haz Mat release
    - As part of the initial response
    - In a defensive fashion
      - Doesn't try to actually stop the release
  - Contains release from a safe distance
  - State requires 24 hours of training



# Other Responders

- Technicians “provide support”
  - ❖ State requires 180 hours of training
- Specialists “stop the release”
  - ❖ State requires 240 hours of training
- Incident Commander “assume control”
- Hazardous Waste site Operator & Emergency Response “HAZWOPER”



# What Can You Do In a Emergency



# Identify

- Vapor clouds
- Smoke
- Injured persons
- Surrounding populations
- Dispersion pathways
- Environmental damage



# Secure the Area

- Direct all non-essential personnel and general public away from the collection center and surrounding area.
- Establish a secure zone around the incident scene and set-up an access point.
- Use warning devices if necessary.



# Communicate

It is imperative to communicate information gathered during approach and initial scene survey to the dispatcher to ensure actions are taken.



# Provide as much information as can be gathered

- Chemical names
- Chemical numbers
- Site conditions
- Leaks, fires, fumes
- Describe involved area
- Are there victims



**SuperClean Anything Cleaner**

MSDS #: 84945    PPE: Gloves  
Mix: 1 oz. /32 oz.  
Super Chemical Corporation  
123 Chemical Drive  
New York, NY 34344

**Emergency Phone: 800-555-5555**

Target: Lungs, Stomach  
Contents:  
Sodium Chloride, Benzine, Petroleum

Directions:  
IF SWALLOWED: Induce vomiting, contact physician.  
IF SKIN CONTACT: Wash thoroughly with cold water and soap,  
contact physician if irritation occurs.

ABC Cleaning Corporation

The label features a diamond-shaped hazard symbol with four colored sections: red (top) with '0', blue (left) with '1', yellow (right) with '0', and white (bottom) with 'COR'.

First Opera

*Safety*

*-first*

*-last*

*-always*





# 1<sup>st</sup> Operational Thought—Safety

- Think safety with every breath you take
- Must go slow in Haz Mat event
- Have Positive vs. Negative safety attitude
- Inexperienced responders think safety is overkill

***Safety***

*-first*

*-last*

*-always*

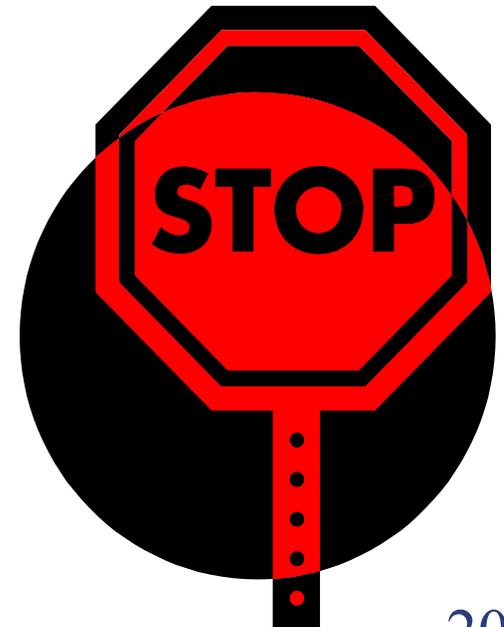


# First Operational Thought

- Use recognized safety procedures
- Develop awareness of possible secondary & tertiary hazards
- Treat all Haz Mat events with respect & anticipate problems

# First Operational Priority –

- Isolate
- Deny Entry



# Isolation and Deny Entry Objectives

- Control all entry points
- Control Area around Hazard
- Control Access Inside Perimeter





# Control Access to Perimeter

- 
- Deny entry to all
  - Stage responders not assigned
  - Establish emergency exit procedures
  - Establish control zones
  - Watch for wind shifts

# NOTIFICATIONS



# Notification Requirements

- You must make “Mandatory” notifications
  - To proper authorities
  - Possible civil / criminal penalties for non notification





# Notification Requirements

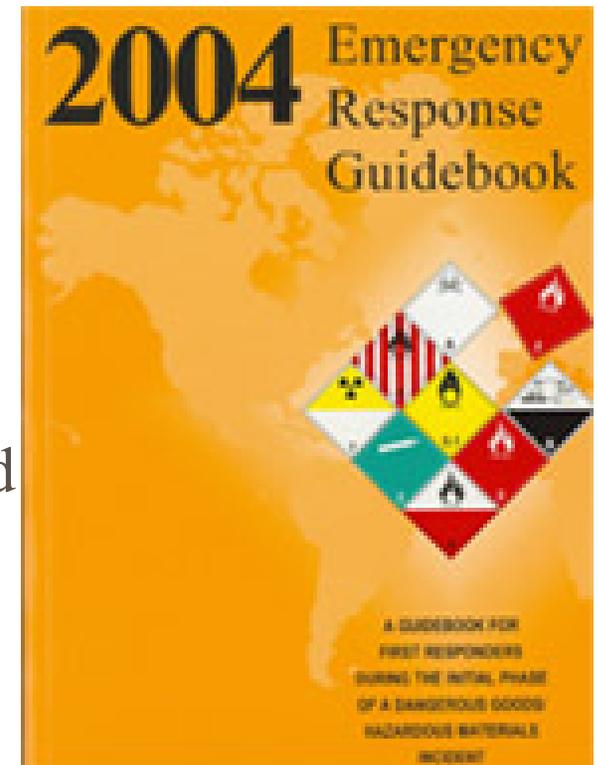
- “Mandatory” notifications
  - Local 911 — Local dispatch
  - CUPA/Administering Agency — ???
  - State Warning Center — (800) 852-7550
  - National Response Center — (800) 424-8802

# Hazard Recognition

## ■ Emergency Response Guide Book

- Developed for First Responders involved with transportation incidents
- Fire Fighters
- Police
- Emergency Responders

*Haz-Mat transportation workers are required to have training in how to use the ERG.*



# ERG Organization

- White — Basic info & instructions
- Yellow — UN #, guide # & material name
- Blue — Material name, guide # and UN #
- Orange — Guide number pages
- Green — Isolation & Protective Actions



UN #	Guide #	Material Name
101	111	Acetylene
102	111	Acetylene, dissolved in acetone
103	111	Acetylene, dissolved in dimethyl ether
104	111	Acetylene, dissolved in methyl acetone
105	111	Acetylene, dissolved in methyl ethyl ketone
106	111	Acetylene, dissolved in propylene carbonate
107	111	Acetylene, dissolved in tetrahydrofuran
108	111	Acetylene, dissolved in toluene
109	111	Acetylene, dissolved in xylene
110	111	Acetylene, dissolved in ethyl acetate
111	111	Acetylene, dissolved in acetone
112	111	Acetylene, dissolved in dimethyl ether
113	111	Acetylene, dissolved in methyl acetone
114	111	Acetylene, dissolved in methyl ethyl ketone
115	111	Acetylene, dissolved in propylene carbonate
116	111	Acetylene, dissolved in tetrahydrofuran
117	111	Acetylene, dissolved in toluene
118	111	Acetylene, dissolved in xylene
119	111	Acetylene, dissolved in ethyl acetate
120	111	Acetylene, dissolved in acetone

*Best book for First Responders within first few minutes of emergency.*

# Portable Fire Extinguisher Training



Initial employment and at least annually.

# Portable Fire Extinguisher Training



## What is Fire?

A rapid chemical reaction.

The self-sustaining process of rapid oxidation of a fuel, which produces heat and light.

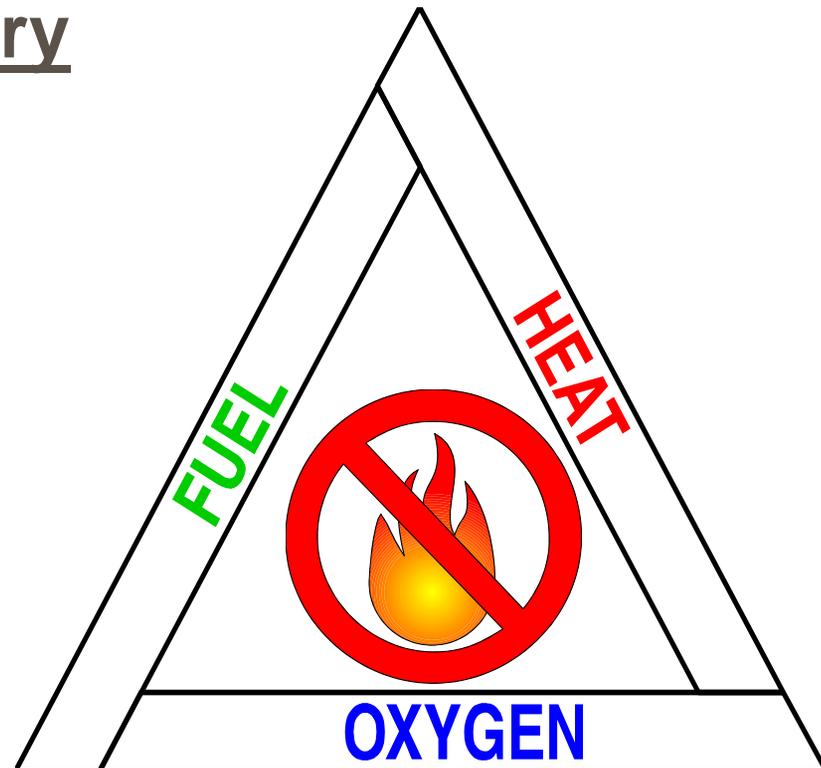
# Portable Fire Extinguisher Training

## Extinguishment Theory

- Removing Heat
- **Removing Fuel**
- Reducing Oxygen

**WILL**

- **Inhibit Chemical Chain Reaction**



# Environmental Concerns

**At your collection Center,  
know the location of:**

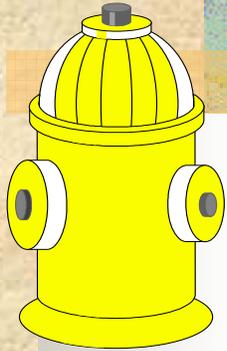
- 1. The nearest exit.**
- 2. A secondary route of escape.**
- 3. The location of fire extinguishers.**
- 4. The location of fire alarm pull stations.**



# Portable Fire Extinguishers

- **All maintenance and testing of all portable fire extinguishers in the workplace shall be certified by a state licensed contractor.**
- **The employer shall assure that portable fire extinguishers are subjected to an annual maintenance check.**





# Fire Protection

2

## Class A fire



A fire involving ordinary combustible materials such as paper, wood, cloth, and some rubber and plastic materials. *Use H<sub>2</sub>O or Dry Chem.*

## Class B fire



A fire involving flammable or combustible liquids, flammable gases, greases and similar materials, and some rubber and plastic materials. *Use Dry Chem., Co<sub>2</sub> or AFFF*



# Fire Protection

2

## Class C fire



**A fire involving energized electrical equipment where safety to the employee requires the use of electrically nonconductive extinguishing media** *Use Dry Chem., Halon or Co2*

## Class D fire



**A fire involving combustible metals such as magnesium, titanium, zirconium, sodium, lithium and potassium.** *Use Purple K*



# Portable Fire Extinguisher Training

## Some Causes of Fire ?

Electricity

Housekeeping

Cleaning Supplies

Flammable Liquids

Machinery

Improper Storage

Space Heaters

Construction

Combustible Liquids

Unattended Cooking

Careless smoking

**Prevention is the best way to  
fight a fire!**

# Portable Fire Extinguisher Training

## Characteristics



Water extinguisher 30-40 ft. 60 sec.



Dry chemical 5-20 ft. 8-25 sec.



CO2 extinguisher 3-8 ft. 8-30 sec.



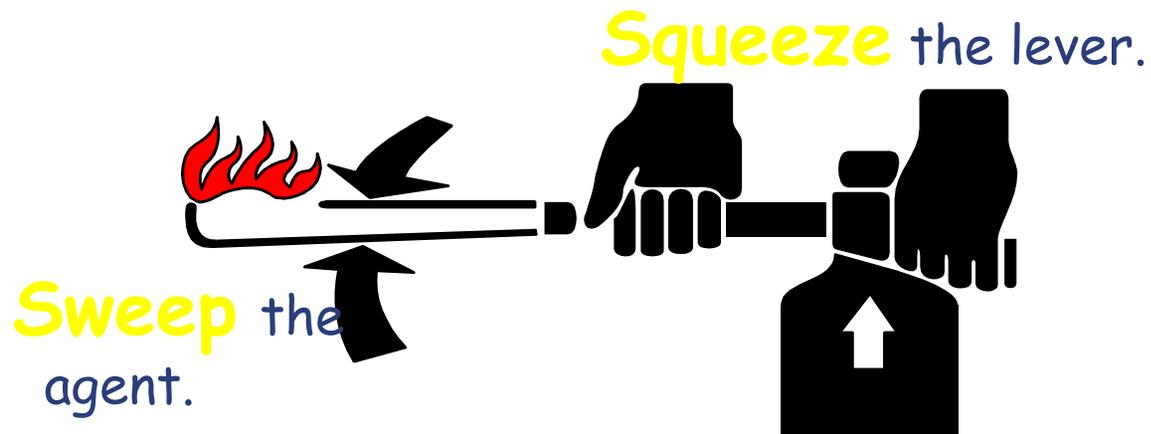
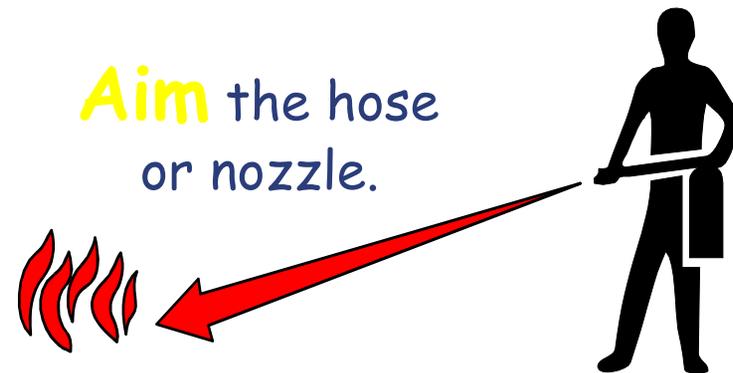
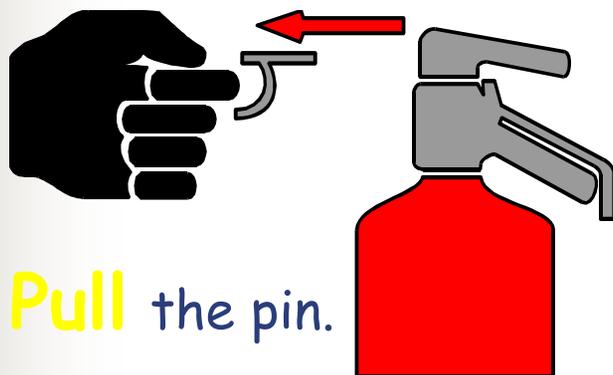
# **“Quick-Check”**

## **Is It Ready To Use ?**

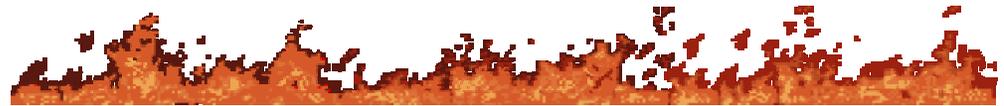
- 1. Check the gauge. The pressure indicator should be in the green zone. (CO<sub>2</sub> extinguishers do not have pressure gauges.)**
- 2. The extinguisher should have a current inspection tag.**
- 3. The pin and handle should be secured with a plastic tab seal.**
- 4. The extinguisher and hose should be free of any visible damage.**

# Portable Fire Extinguisher Training

## The P.A.S.S. Method



# Portable Fire Extinguisher Training



**You are not  
expected  
to be **Firefighters!**  
Do not take  
unnecessary risks!**



# Fitting this all Together

Know your limitations

Make a positive difference

Be a part of the solution – Not part of the problem!



# Questions ???



# References





# References

- California Integrated Waste Management Board  
<http://www.ciwmb.ca.gov/HHW/>
- Department of Toxic Substances Control  
<http://www.dtsc.ca.gov/PublicationsForms/index.html>
- California Regulations <http://www.calregs.com/>
- California Statutes <http://www.leginfo.ca.gov/calaw.html>
- DOT Hazmat Safety <http://hazmat.dot.gov/>
- EPA Region 5  
<http://www.epa.gov/grtlakes/seahome/housewaste/src/open.htm>
- Washington, Kings County  
<http://www.metrokc.gov/hazwaste/house/cleaners.html>
- University of Missouri <http://outreach.missouri.edu/owm/hhw.htm>
- Household Products Database <http://householdproducts.nlm.nih.gov/>
- MSDS Databases <http://www.msdssearch.com/DBLinksN.htm>



# Where to Get More Information

- <http://www.atsdr.cdc.gov/> (ATSDR)
- <http://www.cdc.gov/> (Center for Disease Control)
- <http://www.epa.gov/> (EPA)
- <http://www.cdc.gov/niosh/> (NIOSH)
- <http://www.dtsc.ca.gov/> (DTSC)
- <http://www.1800cleanup.org/> (800 Cleanup)
- <http://www.aaohn.org/> (Occup. Health Nurses)
- <http://www.aiha.org/> (Amer. Industrial Hygiene)
- <http://www.nrc.org/> (U.S. Nuclear Reg. Comm.)
- <http://www.nei.org/> (Nuclear Energy Institute)



# Instructors

## *Larry Sweetser, Sweetser & Associates*

- *Telephone: (510) 703-0898, Fax: (510) 405-2020*
- *Email: [sweetser@aol.com](mailto:sweetser@aol.com)*

## ■ *Sharon Simpson, City of Sacramento PHHWCF / BLT Enterprises*

- *Telephone: (916) 379-0500 ext.209*
- *Email: [ssimpson@blt-enterprises.com](mailto:ssimpson@blt-enterprises.com)*

## ■ *Jaimy Jackson, Kern County Waste Management*

- *Telephone: (661) 863-0628, Fax: (661) 328-1682*
- *Email: [jacksonj@co.kern.ca.us](mailto:jacksonj@co.kern.ca.us)*



# Instructors

- *Lewis Perales, Clean Harbors Environmental, Inc.*
  - *Telephone: (323) 216-6034*
  - *E-mail: [perales.lewis@cleanharbors.com](mailto:perales.lewis@cleanharbors.com)*
- *Lyn Beurmann, Kern County Waste Management*
  - *Telephone: (661) 863-0628, Fax: (661) 328-1682*
  - *Email: [lynb@co.kern.ca.us](mailto:lynb@co.kern.ca.us)*
- *Ionie Wallace, San Bernardino County Household Hazardous Waste Program*
  - *Telephone: (909) 382-5401, Fax: (909) 382-5413*
  - *Email: [iwallace@sbcfire.org](mailto:iwallace@sbcfire.org)*

# Testing

