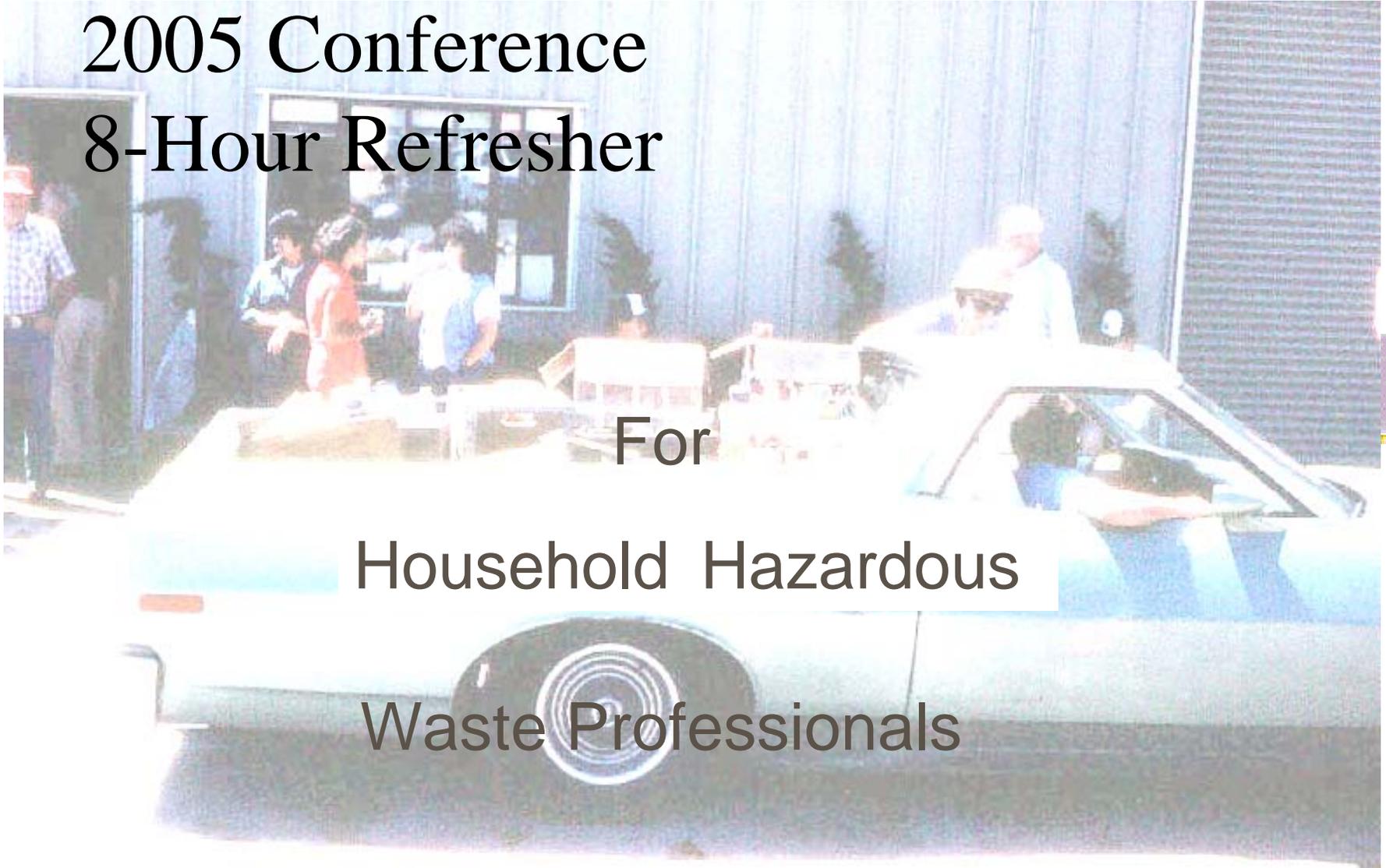


Household Hazardous Waste 2005 Conference 8-Hour Refresher



For

Household Hazardous

Waste Professionals

2005 Training Committee

- Greg Coon
- Jaimy Jackson
- Elaine Jacobs
- Lewis Perales
- Rajkumar “Vijit” Singh
- Ionie Wallace
- Larry Sweetser



Agenda

- Welcome, Introductions, Course Overview Larry
- Icebreaker Vijit & Lewis
- Regulatory Overview Larry
- Health Hazard/Toxicology Ionie
- OSHA's Top Ten – Not a Guessing Game Jaimy
- Safety Issues – What is Really Important To You? Vijit
- LUNCH
- Personal Protective Equipment Elaine
- Respiratory Protection Lewis
- Managing Emergencies at HHW Facilities Greg
- Review and evaluation



Regulatory Overview



Larry Sweetser

Sweetser & Associates

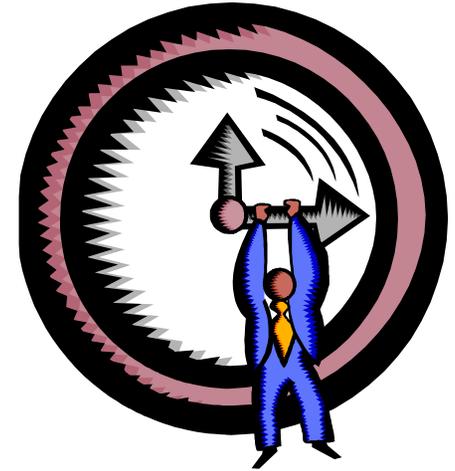


Why Train?

- 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



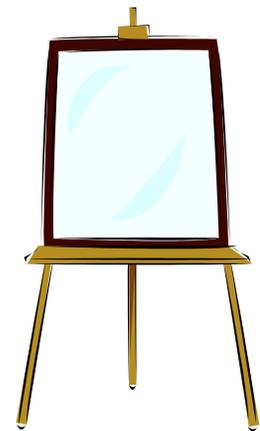
Training Standards

- 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**
- **Sorting, Bulking, or Packaging = PPE**
 - *(Title 8, §3380)*
- **CRT Material Handlers** (*T22 §66273.86*)
- **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)

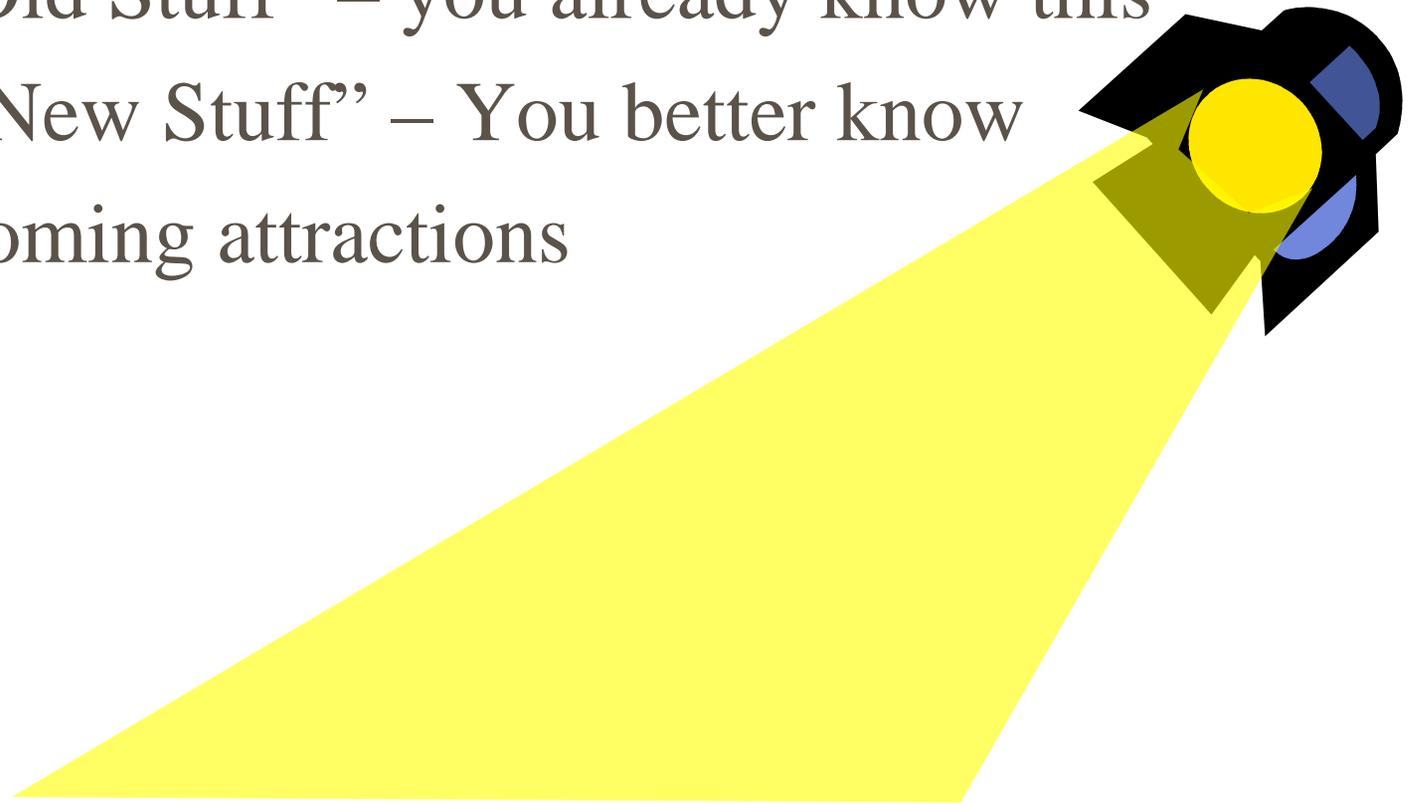
- To all employees given new job assignments for which training has not previously been received;
- Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;
- Whenever the employer is made aware of a new or previously unrecognized hazard; 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**

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
- Material Exchange



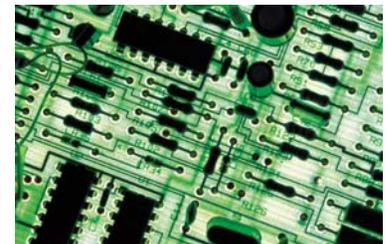
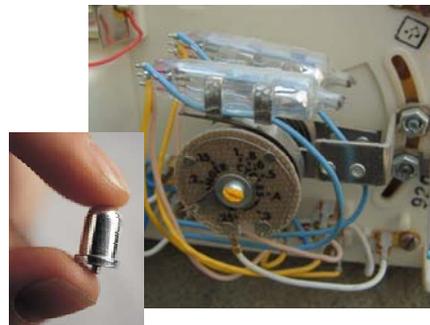
Laws/Regulations

- 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



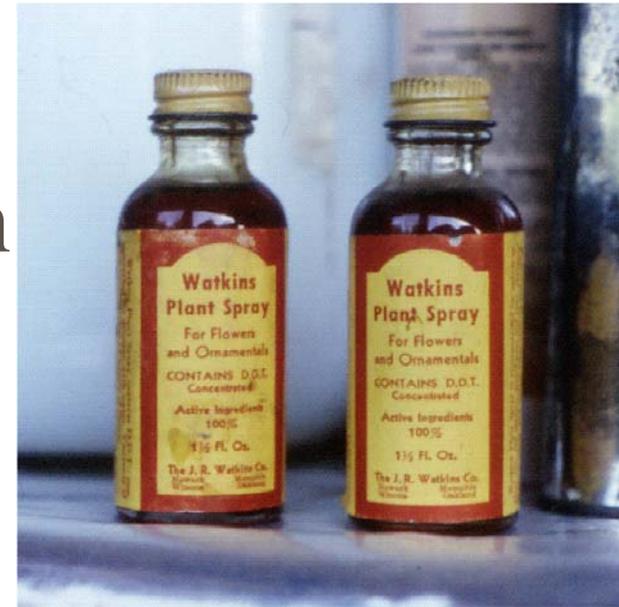
Universal Waste Standards

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



Material Exchange

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

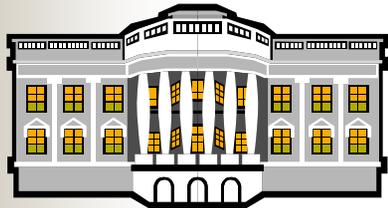


- H&SC §25218.1, 25218.12
- PRC §47550 amended

New Stuff



- CUPA Cal/EPA Enforcement
- UWED Notification Form
- AB 1348 – Rejecting HW Shipments
- AB 1353 - Treated Wood Ban
- AB 2254 – Used Oil/Diesel Filters
- AB 3041 - Transportation
- SB 50/AB 901 – Electronics Recycling



CUPA Cal/EPA Enforcement

■ Cal/EPA Environmental Enforcement Assessment identified:

- a need to increase compliance rates,
- employ enforcement resources towards the areas of highest environmental risk and highest non-compliance,
- increase statewide consistency in enforcement response and
- ensure that there are clear and enforceable rules.



UWED

- Universal Waste Electronic Devices (UWEDs) and/or Cathode Ray Tube (CRT) Materials
- Notice of Intent to Handle filed with DTSC
 - DTSC 1382



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

AB 1348 (Lowenthal)

- On January 1, 2005, an offsite hazardous waste facility operator that rejects an entire shipment or partial shipment of hazardous waste,
 - Before signing, original manifest is to be used to transport the rejected load
 - after signing, prepare a new manifest
- Waste must be returned to either the generator or a facility designated by the generator





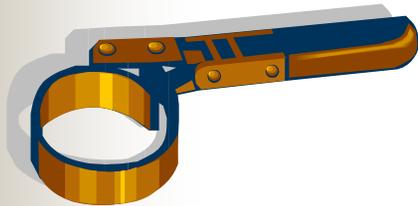
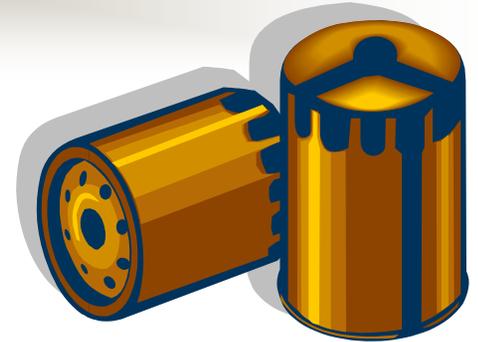
AB 1353 (Matthews)

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

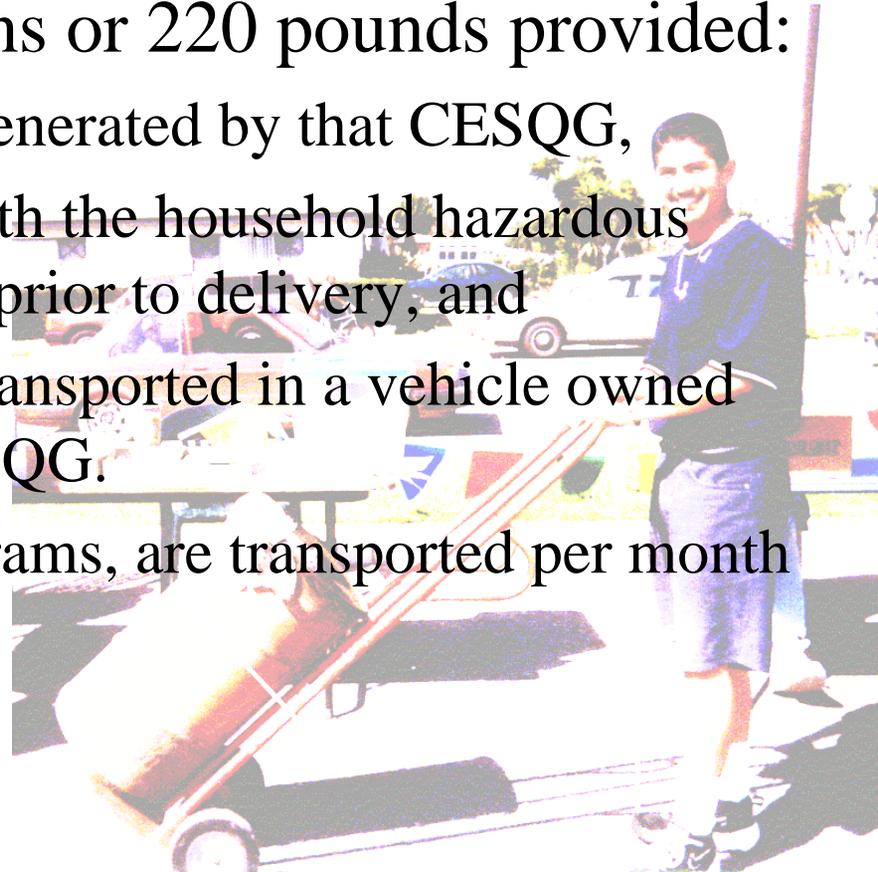
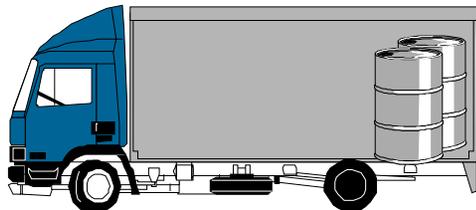
AB 2254 (Aghazarian)

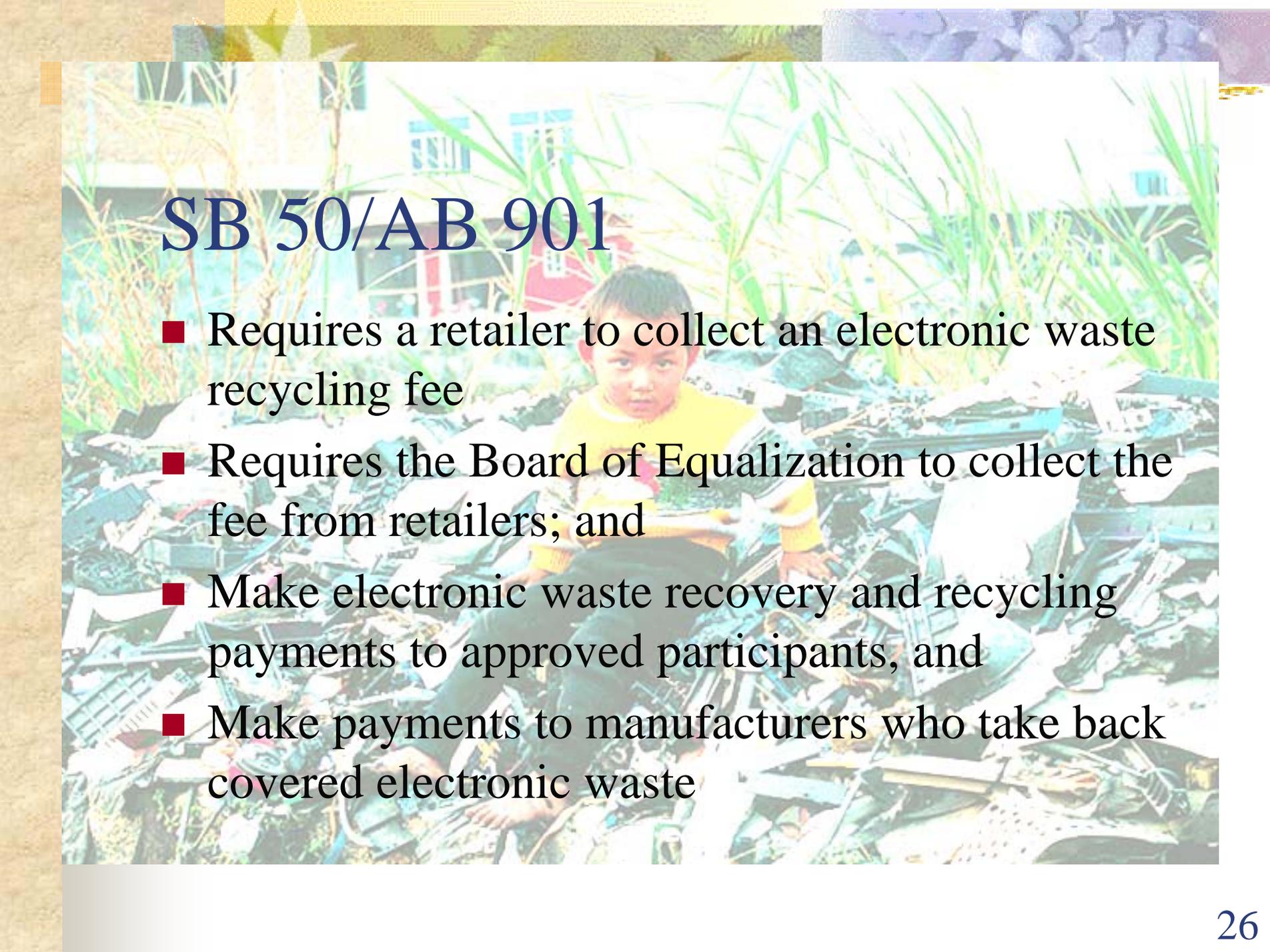
- Used oil filters: management
- Allows gasoline filters to be managed in accordance with the requirements governing used oil filters. Filters must be packaged, marked, and labeled per DOT regulations and stored and managed with applicable state and local fire codes.



AB 3041 (Hazardous Waste Transportation)

- Allows CESQG to transport hazardous waste to a HHWCF up to 27 gallons or 220 pounds provided:
 - the hazardous waste is generated by that CESQG,
 - the CSEQG contracts with the household hazardous waste collection facility prior to delivery, and
 - the hazardous waste is transported in a vehicle owned and operated by the CESQG.
 - not more than 100 kilograms, are transported per month



A young child with dark hair, wearing a yellow and black patterned sweater, sits amidst a large, chaotic pile of electronic waste. The waste includes various types of old computer monitors, keyboards, and other electronic components. The child is looking directly at the camera with a neutral expression. The background shows some green plants and a building with windows, suggesting an outdoor or semi-outdoor setting. The overall scene highlights the issue of electronic waste management.

SB 50/AB 901

- Requires a retailer to collect an electronic waste recycling fee
- Requires the Board of Equalization to collect the fee from retailers; and
- Make electronic waste recovery and recycling payments to approved participants, and
- Make payments to manufacturers who take back covered electronic waste

New

- Appliances - AB 2277
- NEW Uniform Hazardous Waste Manifest
- Universal Waste Disposal
Exemption Sunset



AB 2277 (Dymally)

- 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



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
- Designated Facility to Generating State
- 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

The image shows a sample of the Uniform Hazardous Waste Manifest form. It is a complex document with multiple sections and a large table for tracking waste. The form includes fields for the generator's name and address, the transporter's name and address, and the receiving facility's name and address. It also contains a table with columns for waste description, quantity, and dates. The form is titled "UNIFORM HAZARDOUS WASTE MANIFEST" and includes a reference number "21612513".

New Uniform Hazardous Waste Manifest

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

Form Approved. OMB No. 2050-0039

GENERATOR	UNIFORM HAZARDOUS WASTE MANIFEST	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. **GENERATOR'S/OFFEROR'S CERTIFICATION:** 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

U-Waste Exemption Expires

- Household & Small Quantity

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

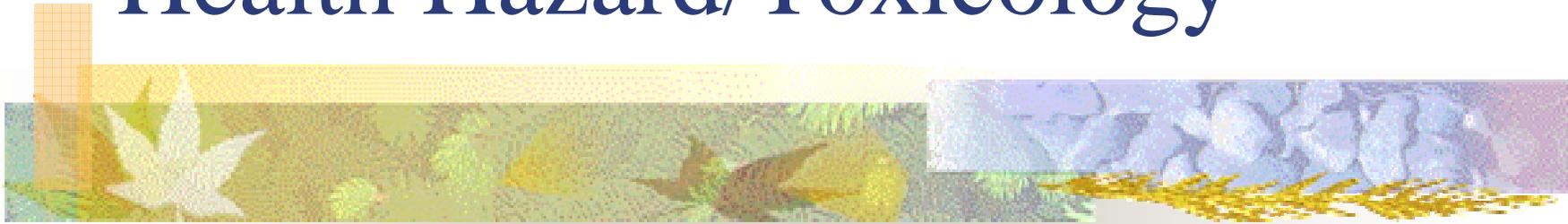
Sunsets

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.

Health Hazard/Toxicology



Ionie Wallace, REHS

San Bernardino County

Household Hazardous Waste



Legal Definition

- **8CCR, 5192, 29CFR 1910.120, 8 CCR, 5194**
 - **Chemical, mixture of chemicals or pathogen**
 - **Statistically significant evidence**
 - **Based on at least one study conducted in accordance with established scientific principles showing acute or chronic health effects in exposed employees**



Legal Definition

- **Includes: Carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, Nephrotoxins, Neurotoxins, agents which act on the Hematopoietic system, agents which damage the lungs, skin, eyes, or mucous membranes. Includes stress due to temperature extremes.**



STAMPS

- **S-** statistical significant evidence
- **T-** toxic or highly toxic agents
- **A-** at least one study
- **M-** mixture of chemicals
- **P-** pathogens
- **S-** scientific principles

Definitions of terms



- Highly Toxic Agents

- LD_{50} 50mg/Kg or less orally on albino rats weighing 200-300 grams each
- LD_{50} 200mg/Kg or less, continuous 24 hour contact or less, if death occurs within 24 hours
- LC_{50} 200 PPM or less or 2 Mg/L or less of dust, fume or mist, continuous inhalation for one hour, if death occurs in albino rats



Definitions of terms

- Irritant-reversible inflammatory effects eg Ammonia
- Sensitizer-allergic reactions eg. Formaldehyde
- Hepatotoxin-liver eg. CCL_4
- Nephrotoxin-kidneys eg. Arsenic, Lithium
- Neurotoxin-CNS eg Chlorinated hydrocarbon
- Hematopoietic System-decrease hemoglobin function, chemical asphyxiants eg HCN



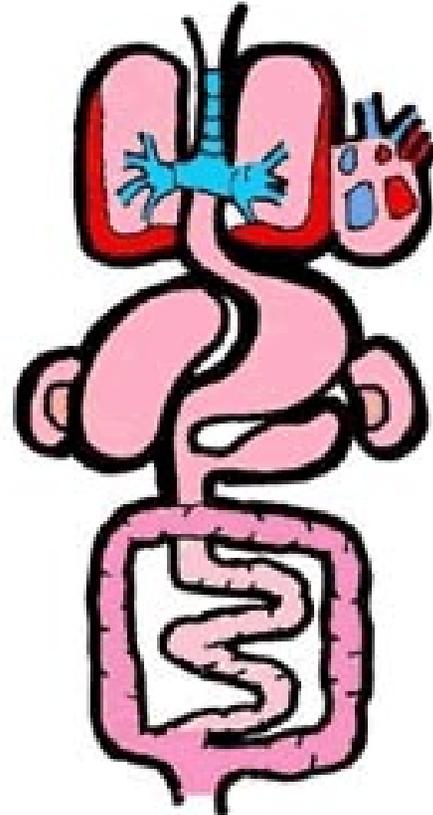
Definitions of terms

■ Carcinogen

- IARC, NTP, OSHA, Prop 65
 - IARC-1-carcinogen
 - IARC- 2A-probably carcinogenic
 - IARC- 2B-possible carcinogenic
 - IARC-3-unclassified as carcinogen
 - IARC-4 probably not carcinogenic

Elimination Organs

- Kidneys
- Liver
- Skin
- Lungs





Substances Interaction

- Additive-sum of toxicity
 - $3+3=6$
 - DDT and Chlordane

- Synergism-effects of two greater than one
 - $3+3=8$
 - asbestos fibers and cigar/cigarette smoke



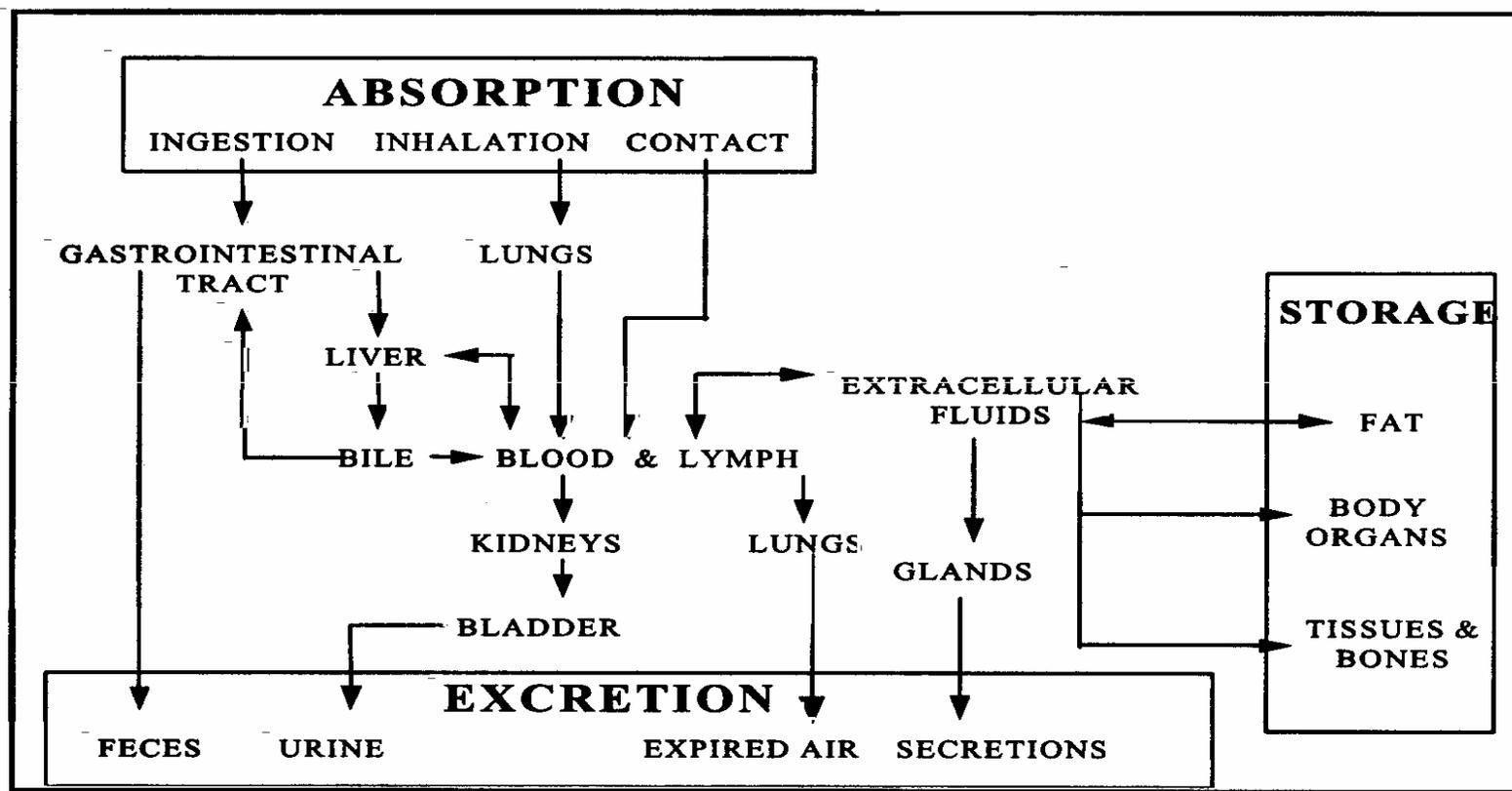
Substances Interaction

- Potentiation-non-toxic increases toxicity of toxic
 - $0+3=6$
 - ethanol and carbon tetrachloride

- Antagonism-two chemicals react-reduced toxicity
 - $3+3=4$
 - lead and phosphate

Absorption, Distribution, Excretion

KEY ROUTES OF CHEMICAL ABSORPTION, DISTRIBUTION AND EXCRETION





Barium

- element that occurs naturally in the earth's crust
- soft, silver-white metal in its pure form
- Not present in environment in pure form but in combination with other metals-Zn, Pb, Cu
- Used mainly in batteries, pigments, metal coatings, plastics and in CRT



Barium

- enters the environment through weathering of rocks
- forest fires and volcanoes
- mining activities
- burning of fossil fuels
- burning of household waste
- CRTs de-manufacturing



Barium and Cadmium

- PEL is 5–10 mg/m³
- Breathing air with very high levels of cadmium can severely damage the lungs and may cause death
- Breathing air with low levels of cadmium can severely damage the lungs and may cause death



Lead

- naturally occurring bluish-gray metal found in small amounts in the earth's crust
- Metallic lead does not dissolve in water and does not burn
- combine with other chemicals to form lead compounds or lead salts.
- Some lead salts dissolve in water better than others
- Some burn—for example, organic lead compounds in some gasoline.



Lead

- PEL is $50 \mu\text{g}/\text{m}^3$
- a worker with blood lead level of $50 \mu\text{g}/\text{dL}$ OSHA shall be removed from Pb contamination area
- main target for is the nervous system, both in adults and in children
- A child who swallows large amounts of lead will develop blood anemia, kidney damage, colic (severe “stomachache”), muscle weakness, and brain damage which can kill the child
- weakness in fingers, wrists, or ankles and anemia

(Source:ATSDR-Agency for Toxic Substances and Disease Registry)

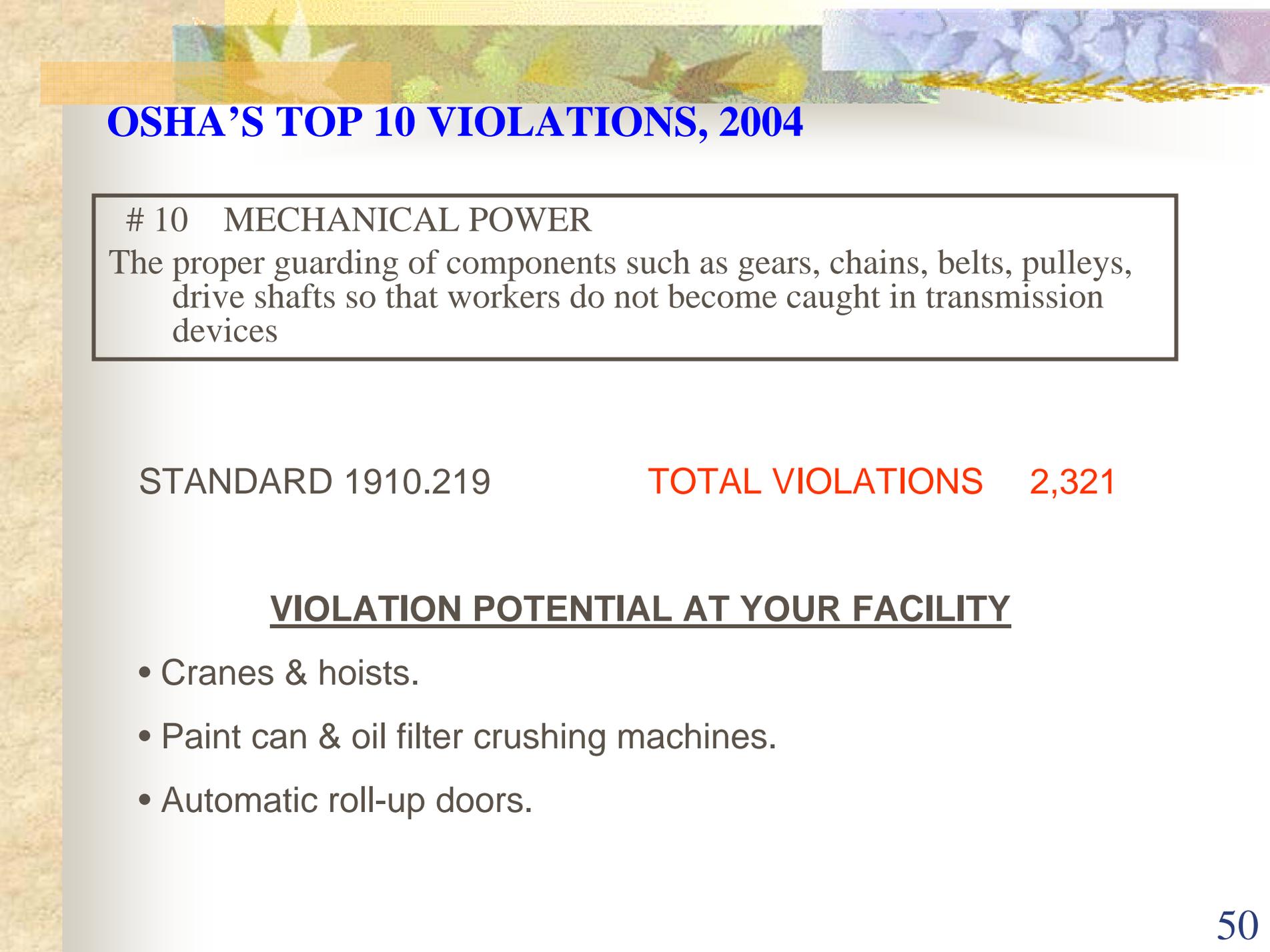


OSHA's Top Ten – Not a Guessing Game



Jaimy Jackson

Kern County Waste Management



OSHA'S TOP 10 VIOLATIONS, 2004

10 MECHANICAL POWER

The proper guarding of components such as gears, chains, belts, pulleys, drive shafts so that workers do not become caught in transmission devices

STANDARD 1910.219

TOTAL VIOLATIONS 2,321

VIOLATION POTENTIAL AT YOUR FACILITY

- Cranes & hoists.
- Paint can & oil filter crushing machines.
- Automatic roll-up doors.

OSHA'S TOP 10 VIOLATIONS, 2004

9 ELECTRICAL SYSTEMS

General safety requirements for designing electrical systems

STANDARD 1910.303

TOTAL VIOLATIONS 2,399

VIOLATION POTENTIAL AT YOUR FACILITY

- Are disconnections, circuits and emergency stop devices identified... such as the main breaker?
- Is there a clear, unobstructed path to the main breaker?
- Does all of your electrical equipment have the proper guard?
- Is staff trained on the electrical hazards for each piece of electrical equipment including drills, saws, etc.

OSHA'S TOP 10 VIOLATIONS, 2004

8 POWERED INDUSTRIAL TRUCKS

Covers design, maintenance and operation of industrial trucks from forklifts to motorized hand trucks.

STANDARD 1910. 178

TOTAL VIOLATIONS 3,130

VIOLATION POTENTIAL AT YOUR FACILITY

- Do you evaluate operator competency?
- Do you provide and document annual operator training?
- Do you regularly inspect and maintain equipment ?
- Do you document inspections and maintenance?

OSHA'S TOP 10 VIOLATIONS, 2004

7 MACHINE GUARDING

General safety requirements for how and when to use machine guards. Employers must place guards over or in front of a machine's moving parts.

STANDARD 1910.212

TOTAL VIOLATIONS 3,245

VIOLATION POTENTIAL AT YOUR FACILITY

- Is fixed machinery anchored ... such as a paint can crusher?
- Are machine blades covered?
- Are guards placed at the point of operation?

OSHA'S TOP 10 VIOLATIONS, 2004

6 ELECTRICAL WIRING

Covers grounding of electrical equipment, wiring and insulation. Covers temporary wiring, splicing, lighting fixtures, switches, flexible cords & cables.

STANDARD 1910.305

TOTAL VIOLATIONS 3,337

VIOLATION POTENTIAL AT YOUR FACILITY

- Are there covers on outside electrical boxes?
- Are extension cords (flexible cords) used properly?
- Are lighting fixtures properly wired?

OSHA'S TOP 10 VIOLATIONS, 2004

5 RESPIRATORY PROTECTION

Contains requirements for program administration, work-site specific procedures, respirator selection, training, fit testing, medical surveillance, use, cleaning and maintenance.

STANDARD 1910.134

TOTAL VIOLATIONS 4,302

VIOLATION POTENTIAL AT YOUR FACILITY

- Do you have a written Respiratory Protection Program?
- Do you provide and document annual training ?
- Do you conduct a medical evaluation ?

OSHA'S TOP 10 VIOLATIONS, 2004

4 LOCKOUT TAGOUT

Identifies the minimum performance requirements for the control of hazardous energy during maintenance and servicing of machinery.

STANDARD 1910.147

TOTAL VIOLATIONS 4,304

VIOLATION POTENTIAL AT YOUR FACILITY

- Do you have a written program for your electrical and hydraulic machinery: crushing machine, air compressor, oil tank pump?
- Are employees properly trained on their responsibilities ?



OSHA'S TOP 10 VIOLATIONS, 2004

3 FALL PROTECTION

Identifies where fall protection is required for workers –
6 feet above the ground.

STANDARD 1926.501

TOTAL VIOLATIONS 5,680

VIOLATION POTENTIAL AT YOUR FACILITY

- Pallet racking: make sure employees are not climbing on the racks.
- Tall equipment that requires climbing a ladder for maintenance.
- Changing lights in a warehouse with a high ceiling.

OSHA'S TOP 10 VIOLATIONS, 2004

2 HAZARD COMMUNICATION

Addresses the hazards of chemicals produced and imported into a workplace and the communication of those hazards to workers.

STANDARD 1910.1200

TOTAL VIOLATIONS 7,318

VIOLATION POTENTIAL AT YOUR FACILITY

- Failure to have a written plan.
- Failure to maintain and document training.
- Failure to have an MSDS for chemicals used.
- Failure to label each container with identity of chemical.



OSHA'S TOP 10 VIOLATIONS, 2004

1 SCAFFOLDING

Covers the general safety requirements for construction, maintenance and use of scaffolding.

STANDARD 1926.451

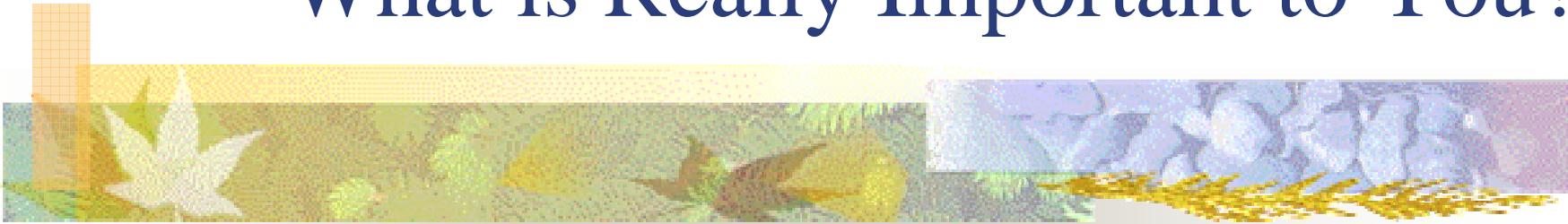
TOTAL VIOLATIONS 8,682

VIOLATION POTENTIAL AT YOUR FACILITY

- Failure to provide fall protection.
- Failure to provide proper access.
- Failure to properly support scaffolding.

Safety Issues

What is Really Important to You?



R. VIJIT SINGH
CITY OF SIMI VALLEY



Switch to video

- [Vijit ontheroadagain.mpeg](#)



Safety Issues:

What is Really Important to you?

- Worker Protection Hierarchy
- Illness Injury Prevention Program (IIPP)
- Inclement Weather: Heat Stress
- Ergonomics
- Eating, Drinking, Smoking
- Bonding & Grounding



Worker Protection Hierarchy

- Most Effective to Least Effective
 - Substitution
 - Engineering Controls
 - Ergonomics
 - Administrative Controls
 - Personal Protective Equipment (PPE)



Worker Protection Hierarchy

- Substitution
 - Hazard Evaluation & Assessment
 - Prevent hazards from entering workplace
 - Safer chemicals or products

Worker Protection Hierarchy

- Engineering Controls
 - Using Devices to Make Work Safer





Worker Protection Hierarchy

- Ergonomics
 - Fit the job to the worker
 - Reduce Repetitive Motions
 - Rotate Jobs



Worker Protection Hierarchy

- Administrative Controls
 - Change the way workers do their jobs
 - Avoid Bending, Reaching & Lifting if possible
 - Lifting is shared by more than one worker
 - Reducing Exposure to Heat & Cold
 - Taking Frequent Breaks



Worker Protection Hierarchy

- Personal Protective Equipment (PPE)
 - When no other solution available
 - Determine Conditions & hazards
 - Select PPE for Specific Hazard
 - Workers Trained to Use Equipment
 - Equipment Maintenance Program



Illness Injury Prevention Program (IIPP)

- Why Have It?
- Cal/OSHA IIPP (8CCR Section 3203/GISO)
- Required Elements
- Developing Your Program



Illness Injury Prevention Program (IIPP)

- **Why Have It?**
 - **Accidents Cost Money**
 - **Controlling Losses**



Illness Injury Prevention Program (IIPP)

- Cal/OSHA IIPP (8CCR Section 3203/GISO)
 - Provide a safe and healthful workplace for his/her employees
 - California employers to have an effective program in writing



Illness Injury Prevention Program (IIPP)

■ Required Elements

- Management commitment/assignment & responsibilities
- Safety communications system with employees
- Assuring employee compliance with safe work practices
- Scheduled inspections/evaluation system
- 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
-
- **Model IIPP from Cal/OSHA**



Illness Injury Prevention Program (IIPP)

- Information & Assistance

- Cal/OSHA Consultation Service
- National Safety Council (NSC)
- Hazard Evaluation System and Information Services (HESIS)

- Appendix

- A Model Policy Statements
- B Non Mandatory Checklist Evaluation
- C Code of Safe Practices
- D Title 8, Section 3203 and 1509



Inclement Weather: Heat Stress

- What is Heat Stress?
- How the Body Handles Heat
- Minor Heat Disorders
- Major Heat Disorders
- Controlling Heat Stress
- Other Factors



Inclement Weather: Heat Stress

- What is Heat Stress?
 - Those at Risk
 - Hazards
 - Coping with Hazards



Inclement Weather: Heat Stress

- How the Body Handles Heat
 - Body Heat Conditions
 - Heat Gain or Loss
 - Effects of Heat Stress
 - Body Cooling System



Inclement Weather: Heat Stress

- Minor Heat Disorders
 - Sunburn
 - Heat Rash



Inclement Weather: Heat Stress

- Major Heat Disorders

- Cramps
- Exhaustion
- Stroke



Inclement Weather: Heat Stress

- Controlling Heat Stress
 - Acclimatization
 - Work Procedures
 - Food and Water Intake



Inclement Weather: Heat Stress

■ Other Factors

- Age
- Fatigue
- Medications
- Drugs and/or Alcohol
- Physical Conditioning



Ergonomics

- Repetitive Motion Injuries (RMIs)
- Prevention & Care
- Neutral/Natural Position
- Using Tools/Less Force/No Pressure
- Lifting Properly
- Work Area Adjustments



Eating, Drinking, Smoking

- Eating and Drinking Areas - 29CFR1910.120(g)(2)
 - No employee shall be allowed to consume food or beverages in a toilet room nor in any area exposed to a toxic material

- Smoking at HHW Events
 - Don't Do It!



Smoking

- Smoking – Don't Do It! 29CFR1910
 - Dip Tanks / 29CFR1910.108(f)(4)
 - Dual Component Coatings/29CFR1910.107(m)(2)
 - Explosives / 29CFR1910.109(e)(1)
 - Flammable Liquids / 29CFR1910.106(d)(7)(iii)
 - Powder Coatings / 29CFR1910.107(g)(7)
 - Spraying / 29CFR1910.107(8)(7); (1)(4)(iii);(m)(2)



Smoking

- Smoking – Don't Do It! (Title 8CCR)
 - No Smoking (S. 5148)
 - Smoking /PSO (S. 6518)
 - Smoking, Matches & Lighters (S. 6772)
 - Fire Prevention & Control (S. 7055)



Bonding & Grounding

- Dispensing Liquids (8CCR 1934)
 - Transferring from one container to another
- Static Electricity (8CCR 5168)
 - Hazardous Substances and Processes
- Static Electricity (8CCR 6775)
 - Fire and Explosions



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 (Cal/OSHA Consultation Service)
- www.californiaosha.info Employer Records - Injury & Illness

Questions & Answers Time



Lunch Time



Personal Protection Equipment (PPE)



Elaine Jacobs

Contra Costa Sanitation District

Personal Protective Equipment

General Requirements

Types of PPE

Chemical Protective Clothing

Respiratory Protection

Levels of Protection



PPE

5

■ 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

Chemical Protective Clothing

... no one material affords maximum protection against all chemicals ...



Chemical Protective Clothing

*Chemical Protective Clothing (CPC) is intended only as a **barrier** between your skin and the hazard...*





Chemical Protective Clothing

6

- **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

4

- ***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
- O₂ 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

6

Level “D”

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



Level "D"

PPE Summary

5

PPE

- Presents only a barrier between your skin and the hazards
- Proper selection depends on hazardous assessment
- No PPE provides perfect protection
- Wearing PPE presents it's own hazards
- Must use buddy system

The End



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 O₂ 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 O₂ levels known?

Contaminant level below IDLH?

Cartridge selection appropriate?

Contaminants have adequate warning properties?



Respiratory Protection

■ *Limitations*

- APRs do not supply O₂
- 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

Managing Emergencies at HHW Facilities



Greg Coon

Victorville Fire Department

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

3

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



HHW Staff Response Goals

Protect: *Life, Environment, Property*





Hands Off!

2

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

Haz-Mat Response Levels

6

First Responder Awareness Level

First Responder Operations Level

Hazardous Materials Technician

Hazardous Materials Specialist

On Scene Incident Commander

Hazwoper



First Responder Awareness

4

■ 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

4

■ 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

3

- 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.



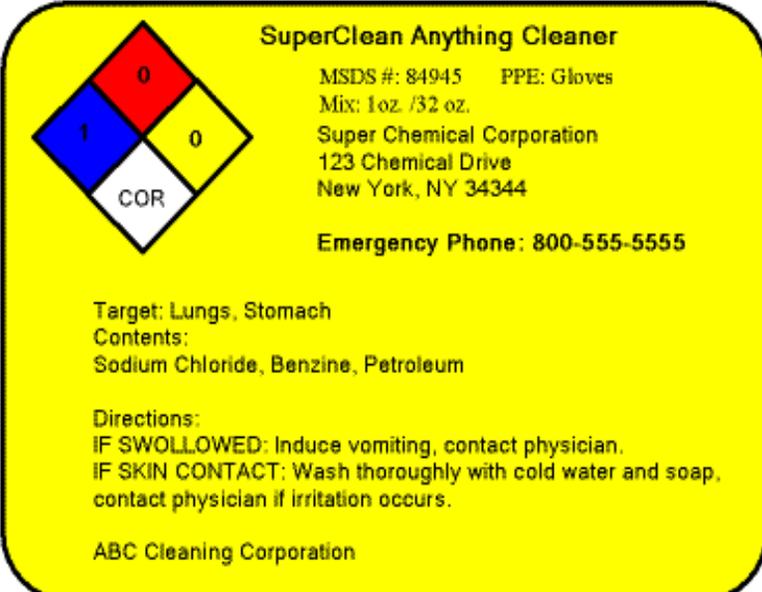
Communicate

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: 1oz /32 oz.
Super Chemical Corporation
123 Chemical Drive
New York, NY 34344
Emergency Phone: 800-555-5555

Target: Lungs, Stomach
Contents:
Sodium Chloride, Benzene, 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

First Operational Thought -

Safety

-first

-last

-always





1st 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

3

- 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

3

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





Notification Requirements

5

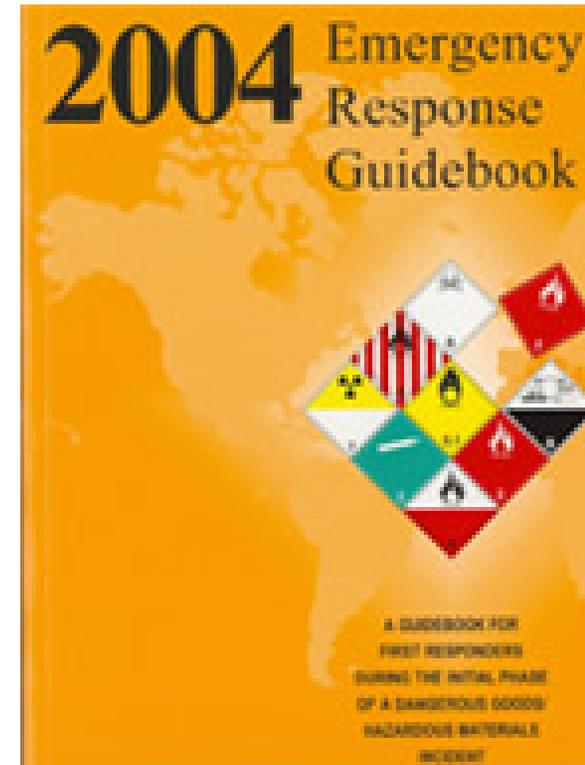
- “Mandatory” notifications
 - Local 911 — Local dispatch
 - CUPA/Administering Agency — ???
 - State Warning Center — (800) 852-7550
 - National Response Center — (800) 424-8802

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.





Plan an Emergency Drill

- “Exercise” defined as an activity to —
 - Promote preparedness
 - Test plans, operations & SOP’s
 - Train personnel in proper response

Value & Purpose of Exercises

Training tool to improve performance

Critiques:

Identify lessons learned



Why Exercise?

4

- Reveal planning weaknesses
- Identify resource gaps
- Clarify real roles and capabilities
- Improve coordination, performance and confidence
- Builds teamwork

Types of Exercises

2

- Functional Exercise —
 - “Partial Practice” exercise
- Full Scale Exercise —
 - “Full Practice” exercise

Follow-up

Start with positive “No Fault” critique.

Evaluators recommendation

What went well, what needs improvement.



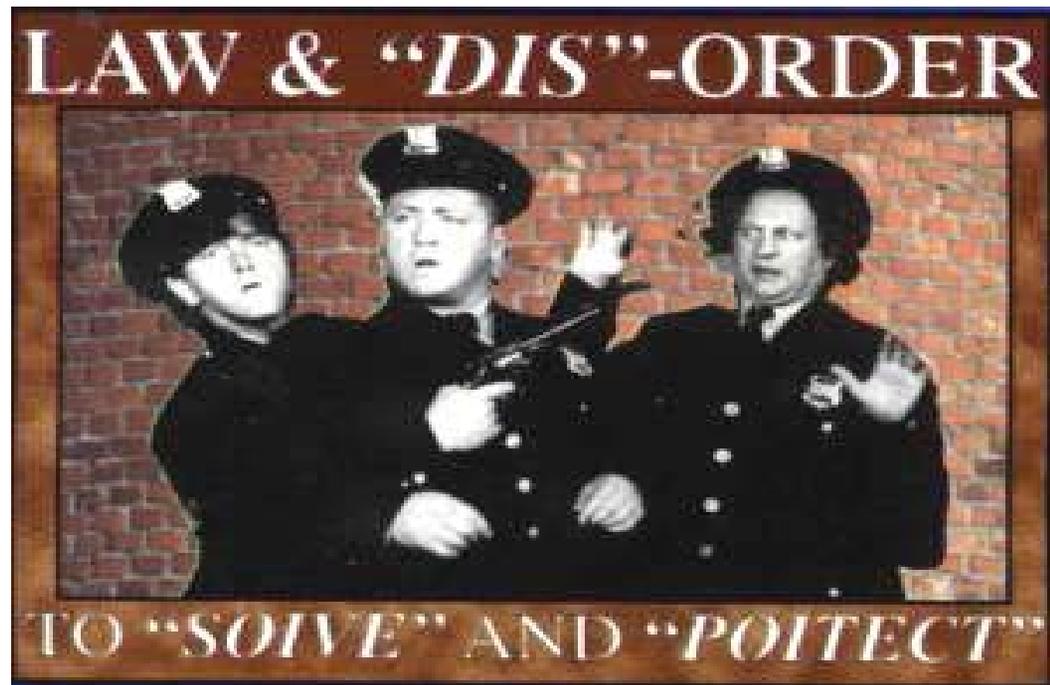
Fitting this all Together

3

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

- *Jaimy Jackson, Kern County Waste Management*
 - *Telephone: (661) 863-0628, Fax: (661) 328-1682*
 - *Email: jacksonj@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*
- *R. Vijit Singh, City of Simi Valley, Department of Public Works*
 - *Tel.: (805) 583-6433, Fax: (805) 583-6402*
 - *Email: vsingh@simivalley.org*

Instructors

- *Greg Coon, Victorville Fire Department*
 - *Telephone: (760) 955-5229*
 - *Email: gcon@ci.victorville.ca.us*
- *Elaine Jacobs, Contra Costa County San. Dist.*
 - *Telephone: (925) 229-7395*
 - *E-mail: EJACOBS@centralsan.dst.ca.us*
- *Lewis Perales, Clean Harbors Environmental, Inc.*
 - *Telephone: (323) 216-6034*
 - *E-mail: perales.lewis@cleanharbors.com*
- *Larry Sweetser, Sweetser & Associates*
 - *Telephone: (510) 703-0898, Fax: (510) 405-2020*
 - *Email: sweetser@aol.com*

Testing

