

# Inspecting Industrial/Commercial Facilities For Pollutants Of Concern



Presented by Chris Donaldson; City of San Jose– based on original BASMAA training materials

# Presentation Overview

- Regulatory Requirements
- Pollutants of Concern (POC)
  - Copper
  - Mercury
  - PCBs

# Regulatory Requirements

- Stormwater Municipal Regional Permit
  - *Provision C.11 Mercury Controls*
  - *Provision C.12 Polychlorinated Biphenyls (PCBs) Controls*
  - *Provision C.13 Copper Controls*
- BASMAA Regional Training Materials
  - *Guidance Manual for SW Inspectors*

**Pollutant of Concern**


**COPPER**



# Provision C.13 Copper Control

- Identify commercial/industrial businesses likely to use copper or have sources of copper and include them in the inspection programs
- Inspectors need to ensure that proper BMPs are in place to minimize discharge of copper to storm drains
- Special emphasis on roof runoff that might accumulate copper deposits from on-site ventilation systems at industrial businesses

# Sources of Copper in Stormwater

- Vehicle brake pads
  - Copper air emissions
  - Architectural copper
  - Industrial copper use
  - Improper discharge of pool and spa water
  - Potable water discharged to storm drains
  - Soil erosion
  - Copper pesticides
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# Architectural Copper

- Source of copper in stormwater, particularly during:
  - Installation
  - Cleaning
  - Treating
  - Washing.



# Best Management Practices

- Block storm drain inlets during activities that generate wash/rinse water.
- Collect all wash/rinse water and discharge to:
  - Landscaping
  - Sanitary sewer (may require authorization)

# Industrial/Commercial Sources

- Electroplating
- Semiconductor manufacturing
- Metal finishers
- Auto dismantlers
- Car Washes
- Automotive Services

# Copper in Roof Runoff

- Metal finishing, electroplating and semiconductor manufacturing industries
- Processes - copper chloride etchers, ammonia etchers, and acid plating bath exhaust vents

# Inspection for Copper Deposition

- Look for chemical deposition around vents, pipes, and other roof surfaces to determine if there is a potential source of copper.
- If discolorations or deposits are seen, implement BMPs to minimize the contamination of roof runoff.



# Inspection for Copper Deposition


- If roof top access not possible, check downspout discharge areas



# Best Management Practices

- Install vent covers and drip pans
- Prevent leaks in pipe fittings and containment vessels with routine maintenance
- Properly dispose of condensate from ventilation
- Promote condensation of ammonia etchant vapor
- Install scrubber system to treat ammonia etchant vapors

# Auto Dismantlers and Vehicle Service Facilities (incl. carwashing)

- Source of copper in stormwater:
    - Vehicle brake dust
    - Copper in used vehicle fluids leaking or spilling on ground
    - Outdoor material storage
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# Best Management Practices

- Wash water contained and discharged to sanitary sewer.
- Move used parts inside or store under cover and off ground.
- Use drip pans for vehicle fluid leaks.
- Use absorbent for vehicle fluid spills/leaks.
- Proper storage of wastes with secondary containment
- Frequent sweeping/housekeeping

# Pools, Spas, and Fountains

- Copper in algaecides
- BMPs
  - Minimize algae with proper chlorine levels and regular maintenance
  - Non-copper algaecide alternatives
  - Sanitary sewer discharges

**Pollutant of Concern**

**MERCURY**



## Provision C.11

Permittees shall promote, facilitate, and/or participate in collection and recycling of mercury containing devices and equipment at the consumer level

# Industrial/Commercial Sources

- Facilities that use mercury in processes and equipment
  - metal finishing/electroplating facilities
  - auto dismantlers/recyclers.
- Facilities that have mercury containing products that need to be disposed properly.

# Mercury Containing Products

## Fluorescent Bulbs



Tubular and  
Circuline lamps



Compact  
Fluorescent bulbs



Tanning Lamps



Germicidal Lamps

## High Intensity Discharge (HID) Lights



Metal Halide  
lamp



High Pressure  
Sodium Lamps



Mercury Vapor  
Lamps

**Source:** Northeast Waste Management Official's Association ([www.newmoa.org](http://www.newmoa.org))

# Mercury Containing Products

## Other Types of Lighting



Mercury Short Arc  
Metal Halide Lamp



Mercury Xenon  
Short-arc Lamps



Mercury Capillary  
Lamps



Neon Lights

**Source:** Northeast Waste Management Official's Association ([www.newmoa.org](http://www.newmoa.org))

# Mercury Containing Products

## Relays and Tilt Switches



Root Switch from  
Sump Pump



Tilt Switch from  
Washing Machine



Mercury  
Displacement Relay



Mercury Wetted  
Relay



Flame Sensor from  
Gas Range



Mercury Contact  
Relay

**Source:** Northeast Waste Management Official's Association ([www.newmoa.org](http://www.newmoa.org))

# Mercury Containing Products

Batteries – Standard Mercury Batteries, Alkaline Batteries



Zinc Air Miniature Batteries



Silver Oxide Button Cell Batteries



Alkaline Manganese Oxide Button-Cell



Mercury Thermostat



Mercury Switch inside Thermostat



Mercury Thermostat

**Source:** Northeast Waste Management Official's Association ([www.newmoa.org](http://www.newmoa.org))

# Best Management Practices

- Proper Disposal
- Spill Management

# Proper Disposal

- Regulated by recycling and disposal requirements of the universal hazardous waste rules in the State of California
- Small business may qualify as a Conditionally Exempt Small Quantity Universal Waste Generator (CESQUWG).
- CESQUWGs can recycle their lamps at their local government sponsored Hazardous Waste Recycling and Disposal Program's sites or they can contract with a hazardous waste hauler to properly dispose of their hazardous waste.

# Spill Management

- Never touch mercury with bare hands
- Never use vacuum cleaners or brooms to clean up mercury spills
- Use cardboard pieces, a squeegee, or an eyedropper to gather and draw up the mercury
- Place the mercury and the items used to clean up the spill in a bag and dispose off as hazardous waste.

# Pollutant of Concern

**PCBs**

The bottom right portion of the slide features a decorative graphic of several concentric, light blue ripples, resembling water droplets on a surface, set against the solid blue background.

# PCBs

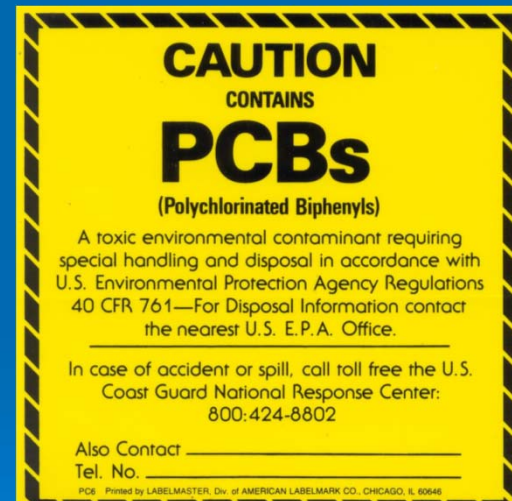
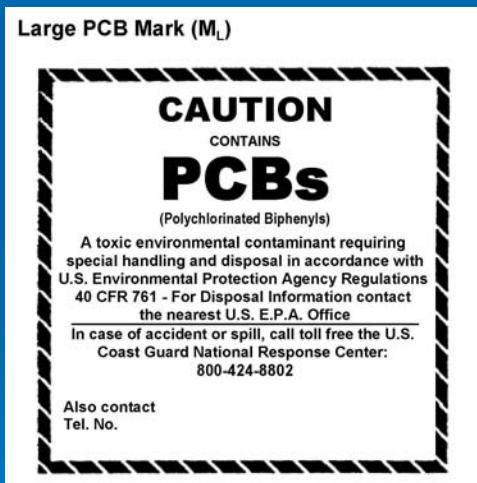
- Synthetic chemicals
- Manufacture of PCBs was stopped in the U.S. in 1977 because of evidence they build up in the environment and can cause harmful health effects
- Regulated under the Toxic Substances Control Act (TSCA)

# Identification of PCBs Containing Equipment

- Look at Records
- Recordkeeping Requirements include
  - PCB weights
  - identification and numbers of items
  - storage, transfer, and disposal dates
  - identification of shippers and receivers
- Manufacturer's label/PCB Fluid trade names
  - Aroclor, Askarel, Eucarel, Pyranol, Dykanol, Clorphen, Clorinol, Chlorextol, Diaclor, Hyvol, Asbestol, Inerteen, Elemex, Saf-T-Kuhl, No-Flanol, Nepolin, EEC-18

# Identification of PCB Containing Equipment

- Equipment will be marked



# Transformers



PCB Transformer

Source: EPA

# Capacitors



PCB Capacitor

**Source:** EPA

# Hydraulic Systems



Hydraulic Systems

Source: EPA

# Fluorescent Light Ballasts



Source: National Lamps and Components

## Other Equipment, Products and Materials containing PCBs

These will be unmarked and possibly found in older facilities (before the 1979 ban):

- Heat transfer systems
- Electric Motors
- Electromagnets
- Carbonless copy paper
- General sealants and coatings, including windshield sealant and silo sealant
- Investment casting wax
- Lubricants, used motor oil, hydraulic fluid and additives to transmission fluids
- Plastics
- Floor finish
- Old electrical devices or appliances with PCB capacitors
- Paint, including marine paint
- Electrical cable insulation (If electrical cable contains liquids or damp insulation, PCBs should be suspected.)
- Gaskets
- Roofing materials
- Thermal insulation materials, including fiberglass, felt, foam and cork
- Oil-based paint
- Caulking materials
- Old electrical equipment such as: voltage regulators, switches, re-closers, bushings and electromagnets

# Best Management Practices

- Employee Awareness
- Spill Containment Provisions in Work Area
- Proper Storage
- Proper Disposal
- No Leaks

# WRAP UP

- POC inspections to be integrated into existing inspection programs.
  - Use Guidance Manual for quick reference
  - Use Outreach Material for educating business operators

# Questions?

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