

COMMON SENSE FIRE PREVENTION MEASURES FOR SOLID WASTE OPERATORS

Presented by the Sacramento County LEA Program and Sacramento Fire Department



FIRES AT SOLID WASTE FACILITIES CAN BE VERY DESTRUCTIVE

Archie Crippen C&D Facility Fire Fresno County, January 11, 2003



5 acre facility with over 100,000 cubic yards of construction debris took 26 days and cost approximately \$2.5 Million to extinguish

Solid Waste Regulations

Compost Facilities - 14CCR §17867 (a) (8) “The operator shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. Fire lanes shall be provided to allow fire control equipment access to all operation areas”.



In-Vessel Composters -14CCR, §17896.49:
Each in-vessel digestion facility shall have fire suppression equipment continuously available, properly maintained, and located as required by the local fire authority.

Transfer Stations/MRFs: -14CCR, §17415.2:
Each Facility shall have fire suppression equipment continuously available, properly maintained and located as required by the local fire authority.



Solid Waste Regulations

Landfills 27CCR, §20680: All municipal solid waste landfill units shall cover disposed solid waste with a minimum of six inches of compacted earthen material at the end of each operating day, or at more frequent intervals if necessary, to control vectors, fires, odors, blowing litter, and scavenging.

Closed landfills 27CCR, §20680: Emergency response/plan

C&D Facilities - 14CCR, §17383.3

(f): The operator shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. Fire lanes shall be provided to allow fire control equipment access to all operation areas. These requirements are in addition to the requirement for a Fire Prevention, Control and Mitigation Plan



RISK FACTORS



HEAT FROM COMPOSTABLE MATERIALS

Any material containing organic material has the potential for elevated temperatures and combustion



FUEL

Large quantities of dry, flammable material



POOR ACCESS

Large piles of flammable materials without separations between piles create the additional risk of impeding access and make fires more difficult to extinguish



HOT LOADS

Loads may arrive containing embers, ash, and other sources of combustion



Fireworks found in fire debris following July 4 holiday:

SPARKS

Activities such as welding, torch cutting, and even sparks from pushing metal on pavement can ignite a fire



CARELESS WORK HABITS



SMOKING IN OR AROUND WORK AREA



POOR SITE SECURITY



DRY VEGETATION



COMMON SENSE MEASURES

Workplace:
FIRE PREVENTION

FLAMMABLES

- 1) Use approved containers that are designed to prevent sparking activity.
- 2) Keep area free of drips and spills.
- 3) Follow rules for spacing of containers and items containing flammable wastes.

CHECK EQUIPMENT

- 1) Check and maintain machinery at regular intervals.
- 2) Check that fire fighting equipment and extinguishers are recharged and in operational condition.

WORK SAFELY

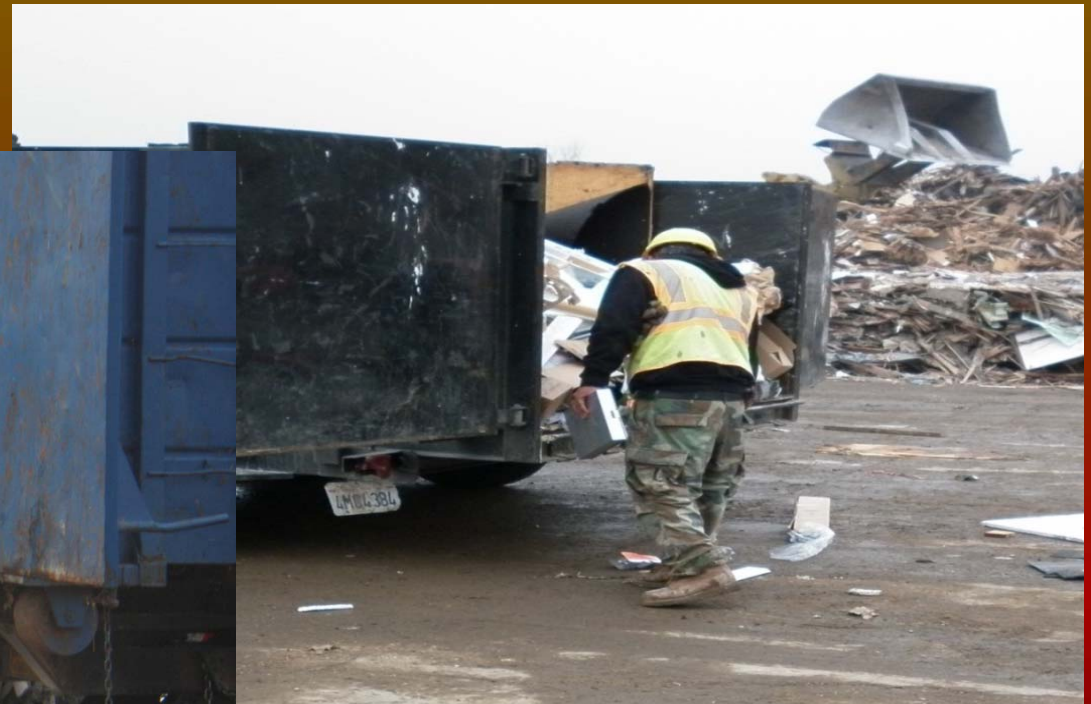
- 1) Keep work area clean and tidy.
- 2) Show care in handling combustible materials.
- 3) Use safety cans for oily or flammable rags.
- 4) Smoke only in designated areas.



**YOUR LIFE MAY DEPEND
ON BEING SAFE**

VIGILENCE / LOAD CHECKING

Provide periodic refresher training to spotters to monitor incoming loads for signs of ash, embers, smoke, and fire



Training is key

PROCESS MATERIALS PROMPTLY LIMIT WASTE VOLUMES



Timely first-in first-out processing helps to prevent over-accumulation of flammable materials

KEEP SEPARATIONS BETWEEN PILES



- Easier to monitor for smoldering materials
- Can help slow the spread of a fire
- Provides easier access for fire fighting

CLOSELY MONITOR WASTE PILES
and other flammables to help ensure the best
chance of catching fires early



Did we mention that training is key?

WATER SUPPLY

Ensure adequate water supply and ready access to hoses of adequate length



KEEP IT DAMP



To reduce flammability of materials during dry weather

MONITOR TEMPERATURES

Compostable materials should not exceed 160° F
- Break down and spread hot piles to cool them.



Note: Applying water may cool down temperatures
in the short term but raise them later.

BEWARE OF WET/DRY INTERFACE



Dry, flammable material which come in contact with material that is wet and composting robustly has a good chance of catching on fire

MANY TYPES OF ADC CAN GO TO TEMPERATURE



MAINTAIN A HOT LOAD BUNKER or other appropriate place to isolate burning or smoldering loads



KEEP DRY VEGETATION UNDER CONTROL



NO SMOKING!



INSTALL A KNOX BOX

For Fire Department access to your facility should a fire or emergency occur during non-business hours



SUMMARY OF KEY ASPECTS OF FIRE PREVENTION:

- **Load Checking/Vigilance/Pile monitoring**
- **Temperature monitoring (compostable materials)**
- **Process materials promptly**
- **Maintain moderate pile sizes with adequate separations**
- **Control vegetation**
- **Maintain site security**
- **Ensure adequate water supply, hoses, etc.**
- **Train employees to work fire safe**

LANDFILL FIRES

SURFACE FIRE: most common type of landfill fire

May be caused by:

- Facility accepting hot objects (barbeque coals or other ashes)
- Arson
- Spontaneous combustion
- Discarded cigarette
- Overdrawing landfill gas collection system.

To manage fire, immediate actions may include using heavy equipment to remove the burning material to a safe area, the application of soil to suffocate the fire, or the use of suppression agent and firefighting activities.

LANDFILL SUBSURFACE FIRES

May be caused by:

- Overdrawing a gas collection system
- Spontaneous combustion

Subsurface fires in gas collection systems are detected by elevated temperature at the well head or by the detection of soot in the gas collection system.

At times, underground combustion/oxidation will go undetected until a sinkhole or smoke appears.

Normally you will never see an actual flame during this type of fire unless the subsurface fire is excavated and exposed to the atmosphere

SIGNS OF SUBSURFACE FIRE:

- Substantial settlement over a short period of time
- Smoke or smoldering odor emanating from the gas extraction system or landfill
- Levels of CO in excess of 1000 ppm
- Combustion residue in extraction wells and/or headers
- Increase in gas temperature in the extraction system (above 140° Fahrenheit) or
- Temperatures in excess of 170° Fahrenheit.

FIRE SUPPRESSION AT LANDFILLS:

- Extinguish by smothering with soil
- Use heavy equipment and a suppressant agent, and
- Temporarily shut down the gas extraction system.

No one method will work for all conditions. Each suppression plan will be unique due to site-specific conditions. At times, only an interim cap will prevent the extension of the fire, while other times the use of heavy equipment and foam is preferable.

**QUESTIONS
OR
COMMENTS?**