COPM 2016 PESTICIDE SPILLS DURING TRANSPORTATION:
Pesticide Spills during Transport: Why is it an Issue?

- Black eye on Agriculture
- Very expensive to clean up
- Loss of Product (more $$)
- It’s time consuming
- Loss of life/illness/loss of wildlife/fish/environmental contamination

**PREVENTION** is far LESS TIME consuming and much LESS EXPENSIVE!
DO THE RIGHT THING...
SECURE YOUR LOAD!
Accident Waiting to Happen

- Designed for storage, not transport
- Deformed
- No baffles

Photo: G Cooke
110 gallons of Prowl H2O (Pendimethalin) - Independence
Prowl H2O

• Extensive road surface contamination due to tracking from vehicles prior to road traffic being stopped.
• Initial cleanup: absorbent to contain
• **200 tons** of road shoulder soils excavated
• Subsequent sampling of road & shoulders, still contaminated.
• Portion of road surface had to be replaced.
3-Gallons of Phosdrin fell off a vehicle on a rural road near a school bus stop

- Casualties: a robin and a cat, traumatized child
- Illness-County worker w/ organophosphate toxicity
- County had no procedures in place.
- DEQ excavates site
Orchard workers drove into town in a pickup. After they parked they noticed one of the Paraquat containers in the back had tipped over and was draining out the back of the pickup.

Action taken: Shoulders shrugged. What could be done? They had no idea.

Left it running down the curb.
PESTICIDE EXPOSURE:

Photo: Officer T. VanCleve
Worker picks up the containers and drives off. Neighbors call 911!
Sequence of events

Fire Department arrives to find a stinky spill. No containers, no information on the hazard.

Photo: www.hughesfire.com
We don’t know what this is….So let’s stand in it!

Photo: Officer T. VanCleve
Agencies that Responded

Carlton Fire District
Trust® Herbicide, Caution Label, active ingredient - Trifluralin

Photo: Officer T. VanCleve
What went wrong?

- Containers were not secured
- **Confusion** at cleanup – responders received conflicting reports on what to do.
- The first cleanup was **not** done in accordance with the Safety Data Sheet (SDS)
- Strong odors were still present, resident contacted DEQ
- DEQ reviews the SDS and works with grower: **second** cleanup follows SDS.
Let’s take a look at the truck....
(no one “SAW” it fall off this truck...but against the back is Trust)

Photo: Officer T. VanCleve
Contributing Factors: The Whys

Photo: Officer T. VanCleve
The Farmer’s Citation
13 AG violations

- No emergency eyewash for field mixing
- No Medical Evaluations
- No Fit Tests
- No Respirator Program
- Respirator storage
- No written Haz Com program
- No Haz Com training for applicators

- No WPS Handler training
- No WPS Worker training
- No pesticide application record
- Floors and shelves not sealed in pesticide storage
- Pesticide storage not locked
- No Safe Practices brochure
Pesticide Spills

Control - Contain - Clean up
SPILL RESPONSE?

This...heck NO!

This...YES with preparation.
SPILLS: Prepare in Advance!

- Cleanup of some chemical spills may fall under Division 4/H (Haz Waste Op & Emergency Response)
Train and Practice

• Decide who will clean up the spills and train!
• Hazards of a spill- fire, health, environmental.
• Follow spill procedures from the SDS.
• What PPE is required- and how to wear it.
• What spill supplies to use.
• How to dispose of spill debris.
• Have a drill and practice spill response with a non hazardous substance.
Spill Prevention: Training

- Train all employees in proper handling procedures during:
  - Receiving
  - Storage
  - Mixing
  - Loading
  - Application
  - Disposal
  - Spill containment and cleanup
Prepare-before it’s needed!

• Have or obtain SDS’s for clean up guidance.
• Decide what size spill you can handle.

• Personal protective equipment- bag up and have what you need with you. Consider a respirator.

• Spill supplies: cat litter, dirt, sand, shovel, broom, towels, soap/water, sealable containers for spill debris.

• Know who to call for help or disposal of clean up
Spill Plan

• Do the right thing... **STOP**
• Keep other vehicles out of the spill- use your truck/cones/boxes as a buffer to direct traffic.
• Use dirt or other methods to stop the release or runoff.
• Call for help. Get help from others to direct traffic. Use their vehicle as a buffer for your safety.
• Follow the (M)SDS for guidance.
Dirt is free!

- Shovel dirt on the spill to soak up and stop it from traveling.
- Use dirt as a perimeter to contain liquids in a pool.
- Dig a trench/hole to contain liquid to a small area.
Kitty litter is a cheap absorbent
Rolling the bung side up to control the spill
Make your own Spill Kit - plastic containers

• Have them on your rig for transport and potential spills.
• Store PPE, eye wash, soap, water and towels.
• Extra plastic bags for bagging small containers.
• Kitty litter in 5-10# bags fit nicely.
• Include copies of SDS for commonly transported pesticides.
Why have SDS Information?

- Gives hazards of the Pesticide. Is it reactive, flammable?
- INFO on **how** to clean up the spill.
- YOU and Haz-Mat need to know how to respond safely.
- Gives First Aid Measures
### SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

**Environmental Precautions:** Keep spilled product from entering sewers or waterways.

**Methods for Containment:** Contain spilled product by diking area with sand or earth.

**Methods for Clean-up:** Cover contained spill with an inert absorbent material such as sand, vermiculite or other appropriate material. Vacuum, scoop, or sweep up material and place in a container for disposal. Do not place spilled material back in original container.

**Other Information:** Spills of this product may require reporting under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as the product contains Trifuralin with a reportable quantity (RQ) of 10 lbs. See Section 15 for additional information.
## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Component:</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>NIOSH REL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene (CAS #91-20-3)</td>
<td>50 mg/m³; 10 ppm (TWA)</td>
<td>10 ppm (TWA)</td>
<td>15 ppm skin (STEL); (skin)</td>
</tr>
</tbody>
</table>

**NOTE TO END USERS:** PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLOTHING LISTED IN THIS SECTION IS FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD REFER TO THE PESTICIDE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLOTHING.

**Respiratory Protection:** Where airborne exposure to concentrations greater than the above listed exposure limits is likely, use a NIOSH approved respirator with cartridges/canisters approved for organic vapors with a particulate pre-filter.

**Engineering Controls:** Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

**Protective Gloves:** Wear chemical resistant gloves to prevent skin exposure.

**Eye Protection:** Wear chemical goggles or safety glasses and full-face shield. Contact lenses are not eye protective devices. An emergency eyewash or water supply should be readily accessible to the work area.

**Other Protective Clothing or Equipment:** Wear long sleeve shirt, long pants and chemical resistant shoes plus socks to prevent skin exposure.

**Work/Hygiene Practices:** Never eat, drink, nor use tobacco in work areas. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.
Trust Label

PPE for Applicators and Handlers

PERSONAL PROTECTIVE EQUIPMENT:
Some materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions category G on an EPA chemical resistance category selection.

Applicators and other handlers must wear:
• Long-sleeved shirt and long pants
• Chemical-resistant gloves, such as Nitrile, Butyl, Neoprene or Barrier Laminate
• Shoes plus socks
• Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product’s concentrate. Do not reuse them. Follow manufacturer’s instructions for cleaning/maintaining PPE.
CDMS' Agro-chemical database is the most widely used and trusted resource for critical agronomic, regulatory, and use criteria.

Search Results for Vapam

<table>
<thead>
<tr>
<th>Product</th>
<th>Manufacturer</th>
<th>Category</th>
<th>Labels</th>
<th>MSDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapam® HL (RUP)</td>
<td>Amvac Chemical Corporation</td>
<td>Agriculture/Crop Protection Labels &amp; MSDS - USA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapam® HL (RUP)</td>
<td>Amvac Chemical Corporation</td>
<td>Turf &amp; Ornamental / Non-Crop Labels &amp; MSDS - USA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TRUST - LABEL

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC 1-800-424-9300
EMERGENCY RESPONDERS

When faced with an incident involving hazardous materials, emergency responders need quick access to a reliable resource that can provide critical and immediate information.

A call to CHEMTREC's emergency phone number is generally the first call for help during hazardous materials incidents and CHEMTREC is the central point of contact for all parties involved — emergency responders, manufacturers, shippers, consignees, carriers, and government agencies.

CHEMTREC has been a leader in the hazmat response community since 1971. Based in the Washington, DC metropolitan area, CHEMTREC is a 24/7/365 emergency call center that provides immediate information and assistance to anyone involved in a chemical or hazardous material incident around the globe.

CHEMTREC is always available to anyone needing assistance during a hazardous materials incident, free of charge to the caller.
How Much Does it $$$$$ COST ????

• **Oregon State Fire Marshal:**
  – A Haz Mat response: 8 HM Team Members + 2 Response Vehicles = $1,125 an hour

• **DEQ:**
  – Minimum response: $500
  – Average cost between: $500 and $5,000
  – Worst case: $5,000 and just keeps going

And Tie Downs, or a box costs HOW MUCH?????
DO THE RIGHT THING...
SECURE YOUR LOAD!
Other sources of spills-
Containers and Tanks Do Fail!
This tank looks good---but is it?
Check for Crazing

- Crazing may signal UV damage.
- The inspection is performed by rubbing a water soluble marker over several sections on the sides of the tank exposed to sun, on its top, and around fittings.
- Quickly rub off the ink with a dry cloth or paper towel. The ink left behind has penetrated the surface of the tank.
- Consider using crazed tanks for water only.
Crazing evident here!
Candling

• Visual Inspection with a bright, cool light source inside a poly tank while conducting a visual inspection from the outside.

• Defects and cracks usually show up as areas or lines of different light intensity.

• Repeat this procedure with the light on the outside of the tank and someone looking through the fill neck or manway.

• Do not enter the tank.!!!
Hitting an Empty Tank with a Baseball Bat!

Cracking an empty tank with a bat is a better option than risking it breaking when filled with fertilizer or pesticide.
Poly Tank Rupture

Photo: F. Whitford
• **ANFO (94% Ammonium Nitrate with 6% Fuel Oil).**
• It is a cheap and highly stable explosive. ANFO makes up about 80% of all explosives used in the United States each year. Used in most illegal bombs, IED’s.
• It is widely used as fertilizer in agriculture around the world.
• Instant cold packs. These contain two packs, one with water and the other with ammonium nitrate, and when broken these mix to create an endothermic reaction (absorbs heat from the surroundings to become cool).

**Ammonium nitrate uses**
Nitrogen Fertilizer - Prill
PRILL is the white part of Fertilizer.
DIV - 3 rules
Blasting caps
West, Texas ammonium nitrate fertilizer plant explosion, 2013
Fifteen people were killed, more than 160 were injured, and more than 150 buildings were damaged or destroyed.
How fast was that deer flying when it hit your truck?
437-004-0770 Explosives and Blasting Agents.

Agricultural employers that use explosives and blasting agents must comply with OAR 437-002-1910.109 in Subdivision 2/H.

For your convenience, this is the scope statement from that standard to help you know if your work falls under its jurisdiction.

This section applies to the manufacture, keeping, storage, sale, transportation, and use of explosives, blasting agents, and pyrotechnics. The section does not apply to the sale and use (public display) of pyrotechnics, commonly known as fireworks, nor the use of explosives in the form prescribed by the official U.S. Pharmacopeia.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
§1910.109  Explosives and Blasting Agents.

NOTE 1: Oregon did NOT adopt the following in 1910.109, Explosives and Blasting Agents:

(a) Tables H-21 and H-22, and their respective Notes; and

(b) The definition of “magazine” in 1910.109(a)(6).

In Oregon, OAR 437-002-0109, Tables OR-H-21 and OR-H-22, and their respective Notes, apply. Also, the definition of “magazine” in Note 5 of OR-H-21 applies.

NOTE 2: The following Oregon-initiated rules relate to 29 CFR 1910.109, Explosives and Blasting Agents:
Explosives may be used by loggers for clearing obstacles. They present an extreme hazard if improperly stored, transported, or used. Most of the requirements for explosives come from OSHA’s general standards. [See 29 CFR 1910.109, Explosives and blasting agents.]

**Highlights of Explosives Requirements**

In general, explosives (including blasting agents) must be properly stored, transported, and handled so they do not create a hazard to workers.

- Only designated persons shall handle or use explosives.
- While transporting explosives, do not smoke or carry matches or other flame producing products. Also, do not have firearms or loaded cartridges.
- Do not transport blasting caps in the same vehicle as the explosives.
- Do not have any matches or flame producing materials in the area.
- Do not use alcohol, narcotics or other dangerous drugs when using explosives.
- Before you blast, make sure all extra explosives are out of the area and all others are safely...
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• Do not use alcohol, narcotics or other dangerous drugs when using explosives.
• Before you blast, make sure all extra explosives are out of the area and all others are safely away and under cover.
• Always give adequate warning before blasting.
Binary (mixed) Explosives: AnFO and dynamite + detonator
Trucks in the parking lot...
Whoops, should have strapped it down BEFORE it fell off!
Spills Happen: The Retail Setting

• “Attention Associates! We need cleanup in isle 7!”
“Lets jack up the frame of the pesticide shelves and put casters under it so we can move the whole thing, product and all.”
Products Involved

- Green Cypress Lime-Sulfur (DANGER)
- Weedar 64 (DANGER)
- Crossbow (Caution)
- Roundup (Caution)
- Fertilizers with phosphates
- Liquids, powders and granules
- And more.
- None were restricted use products
Lime Sulfur Reacts

DO NOT MIX { LIME SULFUR
SOIL MEND
SOIL MEND PLUS

WITH ACIDS OR PHOSPHATE FERTILIZER PRODUCTS.
DEADLY HYDROGEN SULFIDE (H₂S) GAS
MAY BE EMITTED.

PELIGRO

NO MESCLE { LIME SULFUR
SOIL MEND
SOIL MEND PLUS

PRODUCTOS FERTILIZANTES CON FOSFATO
O ACIDO. GAS MORTAL DE HIDROGENO SULFURICO
PUEDE SER EMITIDO.

To Form

H₂S
## Personal Protective Equipment

<table>
<thead>
<tr>
<th>PPE Provided</th>
<th>PPE REQUIRED by SDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nitrile gloves</td>
<td>• Long sleeved shirts</td>
</tr>
<tr>
<td>• Some employees had long</td>
<td>• Chemical resistant boots</td>
</tr>
<tr>
<td>sleeved shirts.</td>
<td>• Full face respirator with H2S</td>
</tr>
<tr>
<td></td>
<td>cartridges</td>
</tr>
<tr>
<td></td>
<td>• Chemical resistant apron</td>
</tr>
<tr>
<td></td>
<td>• Chemical resistant gloves</td>
</tr>
</tbody>
</table>

- 3 barrel fans were brought in to ventilate the store
Contributing Factors

- Failure to notify Haz-Mat responders
- Failure to train
- Failure to provide PPE
- Lack of awareness as to the hazards
- Failure to plan
- Belief in the premise if you can purchase it, it must be safe
Ontario Sanitary Service
Recycling Center
DEQ requires recycling centers to recycle clean pesticide containers and cardboard.

They placed a 40 yard container to collect pesticide containers for recycling from the aerial applicators.
Lots of leaking containers—of various pesticides...none rinsed—no separated cardboard
Sources of Spills

Include storage practices!
Flammables and fertilizers and corrosives; OH MY!!
Do the right thing ...

Know what you have, and how to store it!
DO THE RIGHT THING...
SECURE YOUR LOAD!
# Resources

[orosha.org/subjects/pesticides](orosha.org/subjects/pesticides)

## Interpretations
- **07/08/11** Waterless Hand Sanitizer Use in Agriculture
- **08/02/07** Pesticide labels and eyewash requirements

## Program Directives
- Local Emphasis Program (LEP): Pesticides

## Fact Sheets/Hazard Alerts/Technical Notes
- **06/27/08** Hazard Alert: Lime sulfur reacts to form deadly hydrogen sulfide gas
- **01/02/07** Fact Sheet: Chemical storage guidelines - agricultural pesticides and chemicals

## Publications
- **Alto: Lea, antes de lavar la ropa que usó mientras usaba pesticidas**
- **Cultivate a safe environment: Smart practices for agriculture workers**
- **EPA Quick Reference Guide to the Worker Protection Standard including all revisions through 2005**
- **Forestry Poster**
- **Pesticide Emphasis Program Annual Report Federal Fiscal Year 2009**
- **Pesticide Emphasis Program Annual Report Federal Fiscal Year 2010**
- **Pesticide Use and Your Personal Protective Equipment (PPE)**
- **Safe practices when working around hazardous agricultural chemicals**

## Education

### Online Courses / Current Workshops

### All Printable Class Materials
- Pesticide Applicator Credits

### Worker Protection Standard
- Workbook
- Instructor guide
Contacts:

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