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AGRICULTURAL EXTENSION SERVICE
UNIVERSITY OF MINNESOTA

AGRICULTURAL CHEMICALS
FACT SHEET No. 1—Revised 1979
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Fire Hazards of Stored Pesticides on Farms

Minnesota farmers must use a variety of insecticides, herbicides, fungicides, and other pesticides plus fertilizers and explosives. Farmers generally are aware of the application hazards of these agricultural chemicals. However, fire prevention and cautions in case of fire in areas where such chemicals are stored are not well understood.

Special hazards exist when fire strikes a building in which these agricultural chemicals are stored. These hazards are associated with:

1. The flammable or explosive nature of the chemicals or their solvents.
2. The toxic fumes, vapors, dusts, and liquids of certain chemicals.
3. The possible after-effects of spilling or dispersing chemicals onto vegetation, crops, pastures, and farmyards or into wells, ponds, and other water supplies.

FLAMMABLE CHEMICALS

Most pesticides are not flammable. But the solvents or diluents of liquid emulsion concentrates or oil solutions—xylene, kerosene, or other organic solvents—present a great hazard. A fire in a building where such chemicals are stored should be handled as though it was a flammable liquid or oil fire.

Many liquid chemicals are stored in glass gallon jugs or large metal drums. The possibility that these containers will explode is another hazard of fires involving chemicals. The same applies to aerosol containers when exposed to excessive heat.

The smoke and vapor produced by some burning pesticides are highly toxic. Every fire in every chemical storage area should be regarded as a toxic-producing fire. *No one* should try to extinguish such a fire without adequate respiratory protection; a supplied air device or gas mask equipped with cannisters approved for these vapors or a self-contained breathing apparatus should be used to insure protection against harmful vapors.

All persons in the area of a fire should be kept clear of the storage area and restrained upwind from the building. If any inhabited buildings are immediately downwind from the fire, they should be evacuated.

AMMONIUM NITRATE FERTILIZER

Uncontaminated ammonium nitrate fertilizer is no fire hazard when properly stored and handled. However, when contaminated by fats, oils, acids, finely divided metals, or sulfur, it becomes highly sensitized, flammable, and explosive. Large amounts of oxygen are given off when this fertilizer burns, thus increasing fire intensity. Ammonium nitrate fertilizer should not be stored with pesticides, but firefighters should anticipate its presence. Firefighters should also anticipate the presence of explosives.

CHEMICAL STORAGE AND FIRE PREVENTION

Store chemicals in a separate, locked building (of approved design), not in the granary, machine shed, garage, barn, or house (including the basement). Mark a chemical storage building with a distinctive, easily read sign clearly designating it as a chemical storage area. Never permit smoking or fires within the building. For additional detailed information, see Agricultural Fact Sheet 4, "Pesticide Storage and Formulation Shed."

The person storing the pesticides within a fire protection area should notify the chief fire control officer and indicate the nature, quantity, and location of the pesticides in storage. This should be done at an annual pre-fire planning meeting between the property owner, fire control officer, and the respective insurance company or representative.

Should this facility become involved in fire, the fire chief at the scene should be in a position to let the facility burn if he determines that continued water application: 1) will result in extensive contaminated water run-off or, 2) could result in incomplete combustion of chemicals, resulting in a release of toxic compounds into the air. The fire chief is urged to obtain in advance written authority from the farmer and insurer to let the facility burn.

IF A FIRE STARTS

- Call the local fire department, explain location and contents of pesticides.
- Call Minnesota Department of Agriculture, (612) 296-6121, or your MDA district field inspector.
- Call nearby qualified physician so he can be prepared to treat anyone, if needed.
- Do not try to extinguish the fire without adequate respiratory protection.
- Keep all people upwind of the fire area. Notify and evacuate public buildings nearby.
- Avoid breathing smoke and fumes.
- Avoid using large volumes of water so toxic runoff will be kept to a minimum.
- Apply water to nearby buildings to prevent them from catching fire.

PROCEDURE AFTER THE FIRE

Personal Precautions

1. Wash and shower using large amounts of soap and water to remove any trace of toxic chemicals.
2. Put on clean clothes.
3. Wear rubber boots. Leather shoes may absorb pesticides and have to be discarded.
4. Wash all personal clothing, protective clothing, and respirators.
5. Be on the lookout for any early symptoms of pesticide poisoning, such as headache, dizziness, nausea, sweating, and blurred vision. These symptoms may show up immediately or not for several hours.

CLEANUP AND DISPOSAL

1. Neutralize and absorb toxic chemicals.
   a. Cover toxic chemicals with double their volume of lime, attaclay, or soda ash, and dampen slightly. Spray standing walls, joists, and other surfaces with spray lime mixed at the rate of 50 pounds per 100 gallons of water. Close off the area overnight.
   b. Pump standing water immediately into tankers for disposal in an approved dumping area. Neutralize runoff water by adding large quantities of agricultural lime or soda ash.
2. Use safe removal procedures.
   a. Be sure all personnel involved understand the toxic nature of debris and are properly clothed and masked.
   b. Use mechanized loaders, dump trucks, etc. to minimize human contact with contaminated material.
   c. Avoid raising a dust.
   d. Transfer pesticides from broken or leaking containers to open-head 55 gallon steel drums and identify contents, if possible.
   e. Do not wash any material into a waterway or sewer system without the authorization of public health officials. See that excess liquid is absorbed on agricultural lime.
   f. Carry debris to an approved dumping area in tight, metal-bodied dump trucks or tight containers. Moisten or cover the load with a disposable cover if dust is a problem. Avoid overloading so that no spills will occur enroute.
   g. Treat grounds or ditch banks contaminated with runoff water with large amounts of agricultural lime.
   h. Decontaminate tools, vehicles, concrete slabs, etc. with a solution consisting of 1 quart sodium hypochlorite plus 1 cup of detergent in 2 gallons of water; or 5 percent sodium carbonate (soda ash) solution plus detergent; or 5 percent trisodium phosphate solution plus detergent. Scrub thoroughly and follow with a clean water rinse.
   i. Inspect the surrounding area for possible contamination.

Fire-damaged pesticides are considered hazardous wastes. The Minnesota Pollution Control Agency regulates the disposal of hazardous wastes in Minnesota. The owner of fire-damaged pesticides is responsible for proper disposal and must comply with state laws and rules regarding disposal of hazardous wastes. Accordingly, the owner should secure approval from the Pollution Control Agency prior to disposal.

The Chemical Transportation Emergency Center (CHEMTREC) provides emergency personnel with information on safety measures in handling hazardous chemicals involved in accidents on the nation's highways, railroads, and waterways. CHEMTREC is a voluntary program operated by 165 U.S. member companies. Assistance is available 24 hours a day, seven days a week. Their nationwide emergency telephone number if (800) 424-9300.

The Minnesota Department of Agriculture is the lead government agency of an emergency response team formed to handle emergencies involving pesticides or fertilizers. The team consists of the Departments of Agriculture, Health, Natural Resources, Pollution Control, and Emergency Services. In case of any emergency involving pesticides or fertilizers, immediately contact the Minnesota Department of Agriculture at (612) 296-6121 or your MDA district field inspector.

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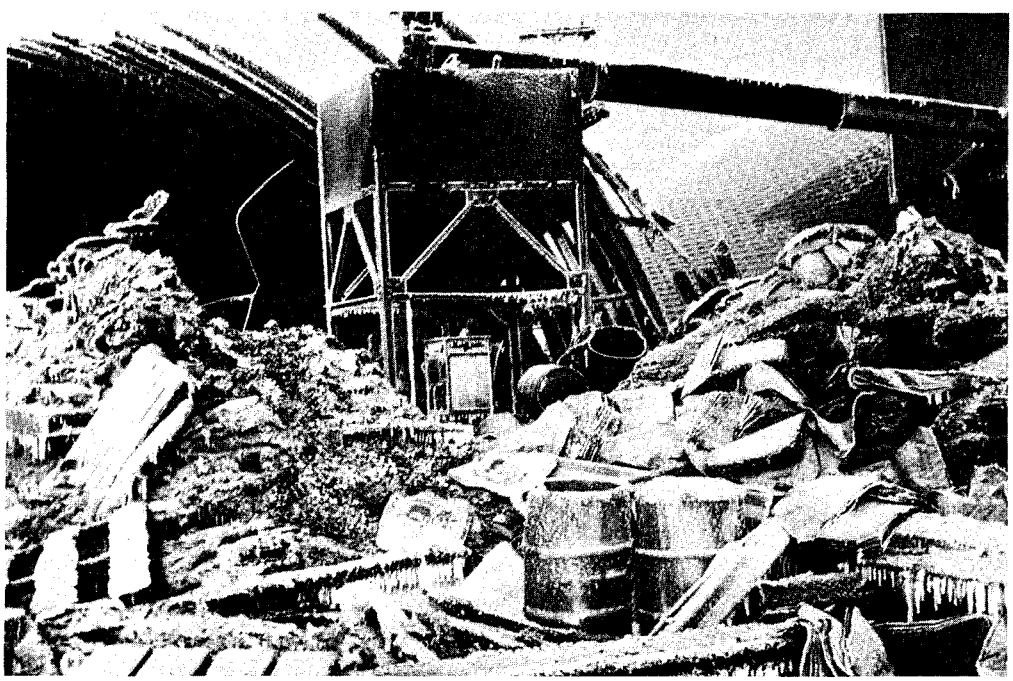

Hazardous wastes accumulated following a pesticide fire illustrating the complexities of proper clean-up procedures.

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