FSH 2109.14 - PESTICIDE-USE MANAGEMENT AND COORDINATION HANDBOOK
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CHAPTER 60 - SPILLS, INCIDENTS, AND ACCIDENTS

61 - SPILLS. Pesticide spills, including adjuvants and fuels, can occur during mixing, loading, transporting, use, or storage. In all cases deal with pesticide spills immediately and in accordance with established policy and procedure commensurate with the level of hazardous communication training of affected employees.

61.1 - General Considerations. Spill prevention is the first line of defense in avoiding unacceptable environmental contamination and possible adverse effects to people and the environment.

The likelihood of spills is minimized by good pesticide storage, transportation, and handling practices and frequent inspections of storage facilities, pesticide containers, and mixing and loading sites. Take the following actions to reduce the likelihood and severity of spill incidents:

1. Prepare pesticide spill emergency plans for storage, transportation, and mixing and loading areas that are consistent with the overall safety plans for the facility or pesticide project (sec. 16.1).

2. Post emergency phone numbers near appropriate telephones and establish emergency notification procedures.

3. Train employees in the care and handling of pesticides and in the procedures used for spill cleanup, decontamination, and pesticide disposal. Include appropriate hazard communication training as required by 29 CFR 1910.1200.

4. Establish and maintain spill kits (sec. 61.22).

5. Identify places and operations where spills are likely to occur, such as on mixing and loading sites and in storage facilities and transportation of pesticides.

6. Develop advance coordination with local organizations that may be equipped and trained in spill cleanup activities, such as fire departments, law enforcement, and State police.

However, in the event accidental pesticide spills occur, follow established emergency actions as provided in this chapter and those contained in FSM 2150 and 2160.

61.2 - Prevention.

61.21 - Planning. Prepare a pesticide spill emergency plan for every facility that stores or uses large amounts of pesticides (greater than 200 gallons or 400 pounds). These emergency plans should also be prepared for storage facilities and mixing and loading sites, and should be included in the specific Project Safety Plan on Form FS-1900-4, Project Work Plan (FSM 1940).

Prepare a plan documenting specific procedures to be followed when a pesticide spill occurs. A spill plan saves valuable time and effectively reduces environmental damage from an accidental spill. Emergency spill plans should include the following:

1. Notification list of key personnel or agencies, including emergency telephone numbers for:

a. Local physicians familiar with diagnosis and treatment of pesticide poisonings.

b. Safety Officer.

c. Designated hazardous spill on-scene coordinator.

d. Regional, Area, or Station Pesticide-Use Coordinator.

e. Regional EPA office and Poison Control Centers.

f. Designated State pesticide coordinator.

g. Fire department.

h. Any occupied buildings near the storage, mixing, loading, or transportation sites.

i. State police and local police department.

j. Pesticide manufacturer (for technical assistance, if required).

k. Chemical Transportation Emergency Center (CHEMTREC), 1-800-424-9300 (for technical assistance, if required during an emergency).

l. Pesticide Safety Team of the National Agricultural Chemicals Association, 1-513-961-4300 (for technical assistance, if required).

m. Downstream users (if a domestic water supply is involved).

n. General public notification of downwind exposure.

o. Sources of equipment and operators for spill cleanup.

2. A complete inventory of all pesticides currently on hand, including manufacturer's name and address, product name, chemical name, and EPA registration number.

3. An inventory of possible disposal sites including addresses, telephone numbers, and contact persons.

4. A detailed, up-to-date sketch of the pesticide storage area, mixing and loading sites, and transport routes. This sketch map should indicate exterior runoff patterns, nearby water sources (wells, lakes, streams, and dry creekbeds), location of pesticides, and location of spill kits or other emergency response equipment.

5. Manufacturers' technical or Material Safety Data Sheets which should be included in the site-specific safety plans. These sheets include information about flash point, ignition temperature, toxicology, solubility, vapor density, and the need for special extinguishing agents, and personal protective clothing and equipment and safety equipment.

6. A runoff contingency plan. The plan should discuss the equipment and materials needed for diking or cleanup. Specify where to get sandbags or a front-end loader in the middle of the night or on weekends.

7. A list of the symptoms of pesticide poisoning. Summarize them in a few words. Specify responses in case of contact with toxic pesticides.

Maintain current copies of the plan within the storage facility and at mixing and loading sites and vehicles used to transport pesticides. A copy should be available to the District, Forest, and Regional Pesticide Coordinators who are responsible for responding to spill emergencies.

61.22 - Spill Kit Setup. Make a spill kit (ex. 01), with directions for use, to aid in the proper handling of a pesticide spill. Label the kit and designate it for use in handling pesticide spills only. Place the kit where spills are most likely to occur. On the label list the contents, and wire seal the kit to inhibit pilferage. Spill kits shall be on-site at storage facilities and loading and mixing sites and on vehicles used to transport pesticides.

61.22 - Exhibit 01

PESTICIDE SPILL KIT CONTENTS

Storage Facility Kit	Vehicle Kit
4 pairs neoprene gloves	2 pairs neoprene gloves
2 pairs unvented goggles	1 pair unvented goggles
2 respirators and cartridges approved for pesticides	1 respirator and cartridges approved for pesticides
2 pairs rubber/neoprene boots/ overshoes	1 pair rubber/neoprene boots or overshoes
2 pairs of coveralls or rainsuit	1 pair of coveralls or rainsuit
1 roll of flagging or engineer's tape	
1 repair/patch kit (duct tape, putty)	1 repair/patch kit (duct tape, putty)
1 dust pan	1 dust pan
1 shop brush	1 shop brush
1 dozen polyethylene bags with ties	6 polyethylene bags w/ties
1 gallon liquid detergent	1 pint liquid detergent
1 polyethylene or plastic tarp	1 polyethylene/plastic tarp
100 feet of rope	
10 blank labels	10 blank labels
1 ABC type fire extinguisher	1 ABC-type fire extinguisher
80 lbx. absorbent material or equivalent	10-30 lbs. absorbent material or equivalent
	1 portable eyewash
3 gallons of household bleach	

61.22 - Exhibit 01--Continued

Storage Facility Kit	Vehicle Kit
1 square point "D" handled shovel	
1 55-gallon open-head drum or 2 5-gallon containers if all pesticides are stored in containers of less than 3 gallons capacity.	
1 18-inch pushbroom with synthetic fibers	
1 bung and 1 bung wrench for 2.5 inch and 0.75 bungs (if drums are stored)	
1 drum spigot (if drums are stored)	

61.3 - Cleanup Procedures. Follow established policies and procedures after a pesticide spill occurs. Train personnel working with pesticides or in areas containing pesticides in procedures of prevention, safety, evacuation, and decontamination of spills. In most cases, spill size dictates the emergency procedures to be followed and the degree of employee involvement.

61.31 - Spill Identification. When CHEMTREC (1-800-424-9300) or other emergency response personnel are called following a pesticide spill, they need to know at least the product name, chemical name, EPA registration number, and extent of the spill in order to provide prompt accurate assistance. This information must be readily available.

61.32 - Care of Injured. Immediately determine if any personnel are injured or contaminated. Situations may differ, but the major and immediate effort should be to assist injured personnel and minimize further contamination. Accomplish the following steps as rapidly as possible.

1. Don personal protective clothing from a respective pesticide spill kit. If a fumigant or dangerous vapor is involved, don the appropriate respirator or emergency escape breathing apparatus. This is an emergency procedure, and is not intended for prolonged exposure.

2. Move injured personnel from the exposure site to a safe area.

3. Remove contaminated clothing from the injured, including rescue personnel. Wash the individuals with detergent and water, or decontaminate as specified by the manufacturer.

4. Immediately seek medical assistance for injured and contaminated personnel. Do not leave contaminated individuals alone. If possible, direct a third person to stay with them until a physician takes charge and has been advised of the possible or actual pesticide exposure.

61.33 - Spill Containment. Contain spilled pesticides as much as possible on the site where the spill occurs. The spilled pesticide must be kept from entering storm drains, wells, ditches, or water systems by following these procedures:

1. Wear appropriate protective clothing from a spill kit. This includes goggles, respirator (when needed), rubber or neoprene gloves, chemical resistant coveralls or rain suit, and rubber boots or overshoes.

2. Prevent further leakage by repositioning the pesticide container or by applying a seal to the leak with duct tape, putty or other materials from the repair/patch kit.

3. Separate leaking container(s) from other containers.

4. Rope off the area and post "WARNING" signs to keep unprotected personnel from entering.

5. Confine the spill to prevent it from spreading. Encircle the spill area with a dike of sand or absorbent material. As a last resort, use soil or rags. If necessary, dig a ditch to redirect the spill flow.

6. If the spill involves a small water course, a dam of activated charcoal can be used to filter the water. For larger waterways, a log boom or baled straw may be used to contain the spill. Dam or divert the flow of clean water around the spill if possible.

7. Cover the spill with an absorbent material if the spill is liquid; if the spill is dry chemical, cover it with a polyethylene plastic tarpaulin and secure.

8. Prevent ignition of flammable materials by removing the material and eliminating sources of ignition; for example, exhausts, electric motors, gasoline engines, and cigarettes.

9. Do not flush the spill into a ditch, sewer, drain, or off the road, since this serves to further spread the chemical.

61.34 - Notification. Notify appropriate individuals or agencies on the notification list when a spill occurs. Remember, if additional emergency information is needed, the Chemical Transportation Emergency Center (CHEMTREC: 1-800-424-9300) can provide help. They will contact the manufacturer or the Pesticide Safety Team Network (PSTN) of the National Agricultural Chemicals Association (NACA) for large spills of pesticides. Do not contract CHEMTREC except under actual emergency situations.

61.35 - Site Cleanup. Use site cleanup procedures to remove the hazard from the spill site. When pesticides liberate toxic fumes, vapors, or dust, always work in a well-ventilated area with approved respirators. Open enclosed areas to prevent the accumulation of toxic fumes while working. If it is not possible to ventilate, do not proceed with the cleanup until a self-contained breathing apparatus is available (29 CFR 1910.134 and NPPA 1981). Never work alone, and always maintain eye contact with a work partner. Follow these guidelines for liquid and dry spills.

1. Liquid Spills. Pump as much of the spilled liquid into recovery containers as possible; then:

a. Use absorbent materials, such as commercially bagged clay, kitty litter, or sawdust, to soak up the spill. Use only enough material to absorb the spill.

b. Spread the absorbent material around the perimeter of the spill and sweep toward the center.

c. Shovel the absorbent and pesticide into leak-proof container(s) for subsequent disposal. In some cases absorbent containing pesticides such as herbicides can be applied to the ground as though it were a granular formulation. Contact your Regional Pesticide Coordinator for further information.

d. Label all containers properly and legibly.

2. Dry Spills.

a. Immediately cover powders or dusts with polyethylene plastic or a tarpaulin to prevent pesticidal materials from becoming airborne. Spreading can also be minimized by dampening the dust with a fine mist of water.

b. Clean up by rolling the tarp back little by little while sweeping. Ensure that dust remains dampened.

c. Shovel the material into a plastic bag or recovery container.

d. Seal the bags or recovery containers and identify the waste pesticide. Label all bags and containers properly and legibly.

e. Set the bags or drums aside for subsequent disposal or relabeling if the pesticide can still be used.

61.36 - Pickup, Packaging, and Disposal. Follow the general guidelines for pesticide waste disposal (sec. 43). Contact the unit Hazardous Materials Coordinator and the Regional Pesticide Coordinator/Specialist regarding disposal of contaminated materials.

61.4 - Decontamination. Decontaminate small amounts of residual pesticide(s) remaining after the cleanup process. Decontaminate or neutralize road surfaces, storage area floors, or truck beds. The decontaminating or neutralizing agent used varies according to the nature of the spilled chemical or surfaces or area contaminated. Contact the Regional Pesticide Coordinator for further information.

Decontaminate soil, roadways, tools, and non-porous surfaces in the following manner.

1. Soil. Remove contaminated soil to a depth of at least 2 inches below the contaminated zone and place it in recovery drums for proper disposal.

2. Roadways, Floors, and other Nonporous Surfaces.

a. Spread the appropriate decontamination material on the spill and work it into the surface using a coarse broom. Allow the decontaminant to sit for 2 hours.

b. Pick up the decontamination material by spreading fresh absorbent material around the perimeter of the spill area, sweeping it toward the center, and shoveling it into plastic bags or drums. Dampening of the absorbant material may be required to keep dust at a minimum or from becoming airborne.

c. Repeat the decontamination and cleanup process.

d. Rinse the area with a sparing amount of water. Collect the rinse and subsequent wash water for disposal. Disposal as a rinsate may be possible (sec. 43.1, para. 2). This may require the use of absorbent material or the construction of containment dikes.

3. Tools and Vehicles.

a. Before removing any vehicles involved with the spill, use a decontamination solution to clean all contaminated parts to which other employees or the public might be exposed. Collect the wash water for disposal, or clean the vehicles in an area where the washings will not contaminate water sources or vegetation.

b. Apply the appropriate decontamination solution to all tools and equipment. Allow to soak for 2 hours. Rinse with a sparing amount of water. Then wash the tools and equipment with detergent and water. Collect subsequent wash water for disposal. Disposal as a reinsate may be possible (sec. 43.1, para. 2).

4. Wood or Other Porous Materials. Discard or destroy porous materials and equipment such as brooms or leather shoes. These cannot be effectively decontaminated. Depending on the amount and type of chemical, it may be necessary to replace contaminated wooden truck beds that have been soaked with pesticides.

5. Protective Equipment. Scrub all equipment in strong detergent solution; rinse and dry before reuse. Discard any material that cannot be decontaminated according to manufacturer specifications or State regulations.

6. Personnel. All personnel shall decontaminate themselves as soon as possible with detergent and lots of water. Wash clothing with strong detergent separately from other household laundry.

62 - INCIDENTS. The Secretary of Agriculture and the Chief of the Forest Service require that incidents resulting from pesticide use on National Forest System lands be reported at once. Use Report FS-2100-D, Pesticide Accident and Incident Report (sec. 71), to report pesticide incidents.

Pesticide incidents include non-life-threatening situations such as minor pesticide spills, non-target pesticide applications, unusual occurrences of drift, adverse effects on wildlife or other components of the environment, and any other situation that may affect public welfare or may be of special interest to the public, the press, or other media.

The District or Forest involved with an incident presents an initial report to the Regional Office which determines relevance and decides whether to send the report to the Washington Office. The Washington Office, Forest Pest Management Staff, Pesticide-Use Management and Coordination Assistant Director evaluates the nature of the incident, public issues involved, and all related information. The Assistant Director coordinates with the Safety and Health Branch Chief, Personnel Management Staff, in presenting an oral report of the incident to the appropriate Deputy Chief who may report the incident to the Chief. The Chief decides whether to forward the information to the Office of the Secretary.

63 - ACCIDENTS. Accidents are usually more severe than incidents. They can involve major pesticide spills, significant adverse pesticide impacts on the environment, aircraft crashes, or employee injury or death. As with incidents, report accidents using Report FS-2100-D, Pesticide Accident and Incident Report. The District or Forest involved with an accident presents an initial report to the Regional Office. The Personnel Officer notifies the Washington Office, Safety and Health Manager (FSM 6700, FSH 6709.11) Personnel Management Staff, who then notifies the Deputy Chief for Administration, the Director of Forest Pest Management, and the Deputy Chief for State and Private Forestry. The Deputy Chief for State and Private Forestry, when appropriate, notifies the Chief, the Secretary of Agriculture, and the Administrator of the Environmental Protection Agency on significant pesticide-related events.

63.1 - Prevention. As described in safety planning (sec. 16), the prevention of accidents is the first line of defense against unwanted effects on pesticide-use projects. Therefore, safety planning is imperative. During the planning process, prepare a Job Hazard Analysis (Form FS-6700-7). Identify possible accident scenarios and appropriate followup actions (FSM 6700).

63.2 - Emergency Action. Appropriate care of the injured should be the first action in response to accidents or emergencies. Subsequent emergency action depends on the nature of the situation. Most situations must be dealt with on a case-by-case basis. However, follow the general guidelines in sections 63.21 to 63.23 when vehicle, aircraft, and fire or explosion accidents occur.

63.21 - Vehicle Accidents. Immediate attention is required when employee accidents involve trucks, buses, cars, vans, or boats. Personnel should:

1. Protect and care for the injured.

2. Contain spilled material, especially pesticides.

3. Notify State highway or other transportation and safety personnel.

4. Notify the appropriate Forest Service personnel.

5. Initiate emergency cleanup commensurate with the employee's level of training and certification.

6. Prepare for decontamination and full cleanup and disposal.

Regional personnel shall report vehicular accidents resulting in the death of a single employee, injury to five or more employees, or damage in excess of $100,000 to the Washington Office, Personnel Management Staff, Safety and Health Branch, where decisions are then made on the type of investigation to be performed.

63.22 - Aircraft Accidents. Post the following information at pesticide mixing or loading sites before any aerial spray activities commence. Display the information at a suitable location where all personnel have access to the information.

1. Name, address, and telephone numbers for emergency use.

   a. Sheriff's Department.

   b. Forest Aviation Officer.

   c. Forest Supervisor.

   d. Regional Aviation Officer.

   e. Poison Control Centers

2. Rescue Helicopter.

   a. U.S. Navy or Coast Guard - Name of contact and telephone number.

   b. U.S. Air Force - Name of contact and telephone number.

   c. Helicopter on contract to Forest Service - Location and name of pilot.

63.23 - Facility Fire or Explosion. An accident resulting in a facility fire or explosion warrants immediate attention to:

1. Protect and care for the injured.

2. Notify local police, firefighting personnel, and hazardous materials personnel.

3. Prevent spread of fire.

4. Build containment dikes downslope from the accident scene.

The Washington Office, Personnel Management Staff, Safety and Health Manager and the Engineering Staff, Environmental Health Engineer must be notified in the event of a facility fire or explosion. Follow the guidelines provided by appropriate environmental engineering personnel if there is release, or the potential for release, of reportable quantities of a hazardous material. Prepare for a Regional or Washington Office investigation.