

**Armed Forces Pest Management Board  
Technical Guide No. 21**

# **Pesticide Disposal Guide for Pest Control Shops**



**Published and Distributed by the  
Armed Forces Pest Management Board  
US Army Garrison—Forest Glen  
2460 Linden Lane, Bldg 172  
Silver Spring, MD 20910-1230**

**Office of the Under Secretary of Defense  
(Acquisitions and Sustainment)**

**July 2002**

## Table of Contents

AFPMB Technical Guides.....	iii
Acknowledgments.....	iii
1. Introduction and Purpose.....	1
a. Disposal Technology.....	1
b. Terms and Definitions.....	1
c. OCONUS Installations.....	1
d. References.....	1
2. Pesticides as Hazardous Materials/Hazardous Wastes.....	1
3. Minimizing Pesticide Disposal Problems.....	3
a. General.....	3
b. Storage.....	4
c. Mixing.....	4
d. Application.....	4
4. Disposal Procedures for Pesticides.....	5
a. General.....	5
b. Turn-in Procedures.....	6
c. Storage Procedures.....	7
d. Storage Facilities.....	7
e. Storage of Pesticide Containers.....	8
f. Safety Measures.....	8
g. Protective Clothing and Respirators.....	9
h. Fire Control.....	9
i. Labeling Requirements.....	9
5. Repackaging Pesticides.....	10
6. Rinsing and Disposal of Pesticide Containers.....	13
a. General.....	13
b. Procedures.....	13
7. Disposal of Operational Pesticide Wastes.....	14
a. Spills.....	14
b. Pesticide Rinse Liquids.....	14
c. Excess Tank Mixes.....	15
d. Laundry Wash Water.....	15

e. Eye Lavage/Deluge Showers .....	15
f. Aluminum Phosphide .....	15
g. Filtration Systems .....	15
h. Underground Storage Tanks .....	16
8. Summary and Review Exercise on Pesticide Storage and Disposal.....	16
Appendices	
A. Terms and Definitions .....	18
B. References .....	21
C. Pesticide Shelf Life and Storage Requirements .....	22
D. Triple Rinse Procedures .....	24
E. Review Exercise on Pesticide Storage and Disposal.....	25

## **AFPMB Technical Guides**

This is one of a series of Technical Guides (TGs) published by the Defense Pest Management Information Analysis Center (DPMIAC), Armed Forces Pest Management Board (AFPMB). The AFPMB is a directorate within the Office of the Deputy Under Secretary of Defense (Installations and Environment) that recommends policies and procedures, provides guidance, and coordinates the exchange of information related to pest management throughout the Department of Defense (DoD). As a unit of the AFPMB, DPMIAC collects, stores and disseminates published and unpublished information on arthropod vectors and pests, natural resources, and environmental biology important to the DoD. Other DPMIAC products include country- or region-specific Disease Vector Ecology Profiles (DVEPs). All TGs and DVEPs, as well as DPMIAC's database of over 200,000 articles on pest management and medical zoology, are available at the AFPMB Web site.

---

TGs (formerly Technical Information Memoranda or TIMs) are not policy documents; rather, they provide technical guidance for use by the DoD pest management community and others. Accordingly, TGs should not be construed or referenced as policy. DoD pest management policies may be found in DoD Instruction 4715.1, "Environmental Security," DoD Instruction 4150.7, "DoD Pest Management Program," other DoD directives and instructions, and implementing component directives/instructions/regulations.

Inquiries, comments or suggestions for improving TGs may be directed to the Chief, DPMIAC, at (301) 295-7476, FAX (301) 295-7473.

## **Acknowledgements**

The AFPMB Pesticides and Contingency Advisory Committees express their gratitude to Dr. Fred Tramontin and Mr. Clifford Myers of the Defense Logistics Agency (DLA), Defense Supply Center Richmond (DSCR), for their efforts in revising and updating this TG. Final AFPMB editing and typesetting were provided by Dr. Richard G. Robbins and Ms. Monica A. Olsen, respectively.

# Pesticide Disposal Guide for Pest Control Shops

1. **Introduction and Purpose.** The Department of Defense's (DoD) goal is to manage hazardous and toxic substances in a manner that will minimize threats to human health and damage to the environment. Pesticides, by their inherent and intended toxicity to pest organisms, are substances that must be properly stored, applied, handled, and discarded. This TG provides specific guidance on procedures for the minimization and disposition of excess pesticides, pesticide-related wastes, and pesticide containers. Federal laws and regulations mandate some of these procedures, while sound environmental management practices are the basis for others.
  - a. **Disposal Technology.** Pesticide disposal technology changes as new information becomes available on pesticides, application equipment and control strategies, and as new regulations are implemented. As these developments occur, changes or deviations from the procedures described herein are anticipated. Therefore, the Armed Forces Pest Management Board (AFPMB) recommends that users contact appropriate pest management professionals, environmental engineers or environmental coordinators for the latest information. In addition, the AFPMB encourages the compilation and exchange of new pesticide disposal information, and recommends that this information be furnished to the AFPMB, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001 so that it can be reviewed and quickly disseminated as appropriate. The preferred submission method is electronic.
  - b. **Terms and Definitions.** Appendix A contains definitions of terms utilized in this TG.
  - c. **OCONUS Installations.** In addition to this guide, pest management shops located OCONUS should consult the country-specific Final Governing Standards (FGS), chapters 5, 6, 7, 11, and 18, to determine the proper storage of pesticides and disposal procedures for pesticides or materials exposed to pesticide. If a country-specific FGS does not exist, then the Overseas Environmental Baseline Guidance Document should be consulted. If a difference exists between the FGS and this TG concerning proper storage and disposal of pesticides, then the storage and disposal procedures contained in the country-specific FGS must be followed.
  - d. **References.** Appendix B lists references that provide information on pesticide disposal.
2. **Pesticides as Hazardous Materials/Hazardous Wastes**
  - a. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and its implementing regulations govern the registration, use, handling, storage, and disposal of pesticides. Title 40, Code of Federal Regulations (CFR), Parts 152-180, contains these codified regulations. Additionally, the Resource Conservation and Recovery Act (RCRA) and its subsequent regulations (40 CFR, Parts 260-267) regulate the storage and disposal of pesticides (and pesticide-related materials) as hazardous wastes.
  - b. All pesticide formulations no longer needed for their intended purposes are initially classified as solid waste. A "no longer needed or used" pesticide (i.e., a "solid waste") is classified as a hazardous waste if the Environmental Protection Agency

(EPA) lists it (e.g., 40CFR261.33(e) & (f)) in 40 CFR, Part 261, or if it meets the definition of any of the four characteristics (ignitability, corrosively, reactivity or toxicity) noted in 40 CFR, Parts 261.21-24.

- (1) An installation that generates more than 100 and less than 1000 kg per month of a RCRA hazardous waste or less than 1 kg per month of a RCRA acutely hazardous waste is classified as a Small Quantity Generator (SQG) (40CFR260.10 and 40CFR261.5(g)). Large quantity generators (LQGs) are those installations that generate RCRA hazardous wastes of more than 1000 kg per month or more than 1 kg of acutely hazardous waste per month (40CFR261.5(g)). Conditional Exempt Small Quantity Generators (CESQGs) are those installations that generate less than 100 kg per month of hazardous waste or less than 1 kg per month of an acutely hazardous waste (40CFR261.5). Both LQGs and SQGs must comply with RCRA regulations governing the handling, storage, and disposition of hazardous wastes, while CESQGs are subject to lesser restrictions.
- (2) **“Returned Commercial Chemical Products,”** such as off-specification products or outdated products, may be returned to the manufacturer under “product stewardship” programs, where the manufacturer intends to **“reclaim”** rather than dispose of unused product. In such cases, the generator returning the products need not classify them as hazardous waste. Because they are not hazardous wastes, they would not count toward an installation’s monthly volume ceilings for generator status. **These products must be returned to the manufacturer.** If they are discarded or sent elsewhere for disposal, they are solid wastes and may also be hazardous wastes if they meet the appropriate definitions.
- (3) Occasionally, the EPA, a state, or a host country cancels or suspends the registration of a pesticide, necessitating cessation of use. As these actions occur, the AFPMB and cognizant pest management consultants who advise installations concerning their pest management programs will issue guidance on the appropriate disposal actions.

**c. Pest Control Supervisors at Each Installation Should:**

- (1) Ensure that there are Material Safety Data Sheets (MSDSs) readily available for the various pesticides utilized on the installation; know from where or whom these MSDSs can be obtained if not available; and understand their purpose and role.
- (2) Contact the installation office responsible for identification and disposal of hazardous wastes (usually the site Environmental Coordinator). If no one has this responsibility or can provide information, contact the appropriate command pest management consultant or environmental engineer for advice.
- (3) Identify those pesticides for which disposal of the product or related solid waste may constitute disposal of a hazardous or acutely hazardous waste. **NOTE:** State environmental departments (hazardous waste offices) and/or installation environmental offices responsible for the disposition of pesticide waste sometimes decide to automatically consider all pesticide wastes as hazardous waste. This is usually done to

simplify the logistics of determining proper classification of every pesticide and mixture of pesticide waste they must review and/or handle. Since regulations can change often, it is important to frequently update pesticide lists and local operating procedures. Recall that even if a pesticide does not meet the definition of a hazardous waste as set forth in 40 CFR 261, it must still be handled and disposed of in accordance with its EPA label and AFPMB guidance.

- (4) Develop a management plan in coordination with the installation environmental office for the disposition of all serviceable and unserviceable pesticides, pesticide containers and pesticide-related wastes. This pesticide disposal management plan must be documented and incorporated in the installation's Pest Management Plans as well as its hazardous materials management plan.
- (5) Coordinate with and assist the Installation Environmental Office in fulfilling the requirements of the Emergency Community Right to Know Act as set forth in Sections 311, 312 and 313 of the Act.
- (6) Possess a basic understanding of the installation's chemical tracking system (e.g., Hazardous Materials Management System or Hazardous Substance Management System, or Environmental Management Information System, etc.) in order to ascertain the types and amounts of pesticides requisitioned or locally procured, used and disposed of on a yearly basis, so that the AFPMB Measures of Merit (MOMs) can be achieved for the installation, its Command and Service Component.
- (7) Realize that pesticides in the terms of OSHA's (29CFR1910.1200) and DOT's (49CFR171-178) regulations are hazardous materials and are governed by those regulations in addition to EPA's FIFRA regulations. When no longer needed and intended for disposal, these pesticides become subject to EPA's RCRA regulations 40CFR261-267 as noted earlier, while still being subject to both OSHA and DOT regulations as circumstances dictate.

### 3. Minimizing Pesticide Disposal Problems

#### a. General

- (1) Every effort should be made to use serviceable pesticides locally for the purpose originally intended and in accordance with label instructions, provided that these uses are currently legal and authorized under all appropriate federal, state, local, and host country laws and regulations.
- (2) Minimizing the need for pesticide disposal begins with careful planning and identification of an installation's pesticide requirements. **USERS SHOULD STOCK ONLY THOSE PESTICIDE QUANTITIES THEY WILL USE IN A REASONABLE PERIOD OF TIME, USUALLY THROUGH ONE PEST CONTROL SEASON.** While pesticides used for indoor pests can be applied year round, most of these pesticides should not be stored for more than two years. The AFPMB strongly recommends that an installation's strategic and operational

environmental plans incorporate and utilize Integrated Pest Management Techniques (IPMT) when establishing short-term (yearly) and long-term pesticide requirements.

#### **b. Storage**

- (1) Improper or long-term storage of pesticides may lead to deterioration of the active ingredient, inert ingredients (e.g., emulsifier), label, or container. Therefore, pesticides should not be stored in areas where they are exposed to high humidity (over 80 percent), salt water, or extremes of temperature (less than 40°F or greater than 120°F).
- (2) Pesticides are packaged in a variety of containers, and safe handling procedures are necessary to reduce the chance of puncturing or breaking the containers. The storage area should be equipped to securely hold and safely handle these materials, thereby avoiding undue hazards to the user, damage to the containers, or spilling of the pesticides.
- (3) Containers should be checked weekly for corrosion, bulges, or leaks. The results of these inspections should be noted in a log. If a deteriorated container is noted, the container should be overpacked, or the contents repackaged (and the container disposed of properly). See Section 5 for repackaging guidance.
- (4) Additional information on the storage and shelf life of pesticides is provided in Appendix C.

#### **c. Mixing**

- (1) **READ THE PESTICIDE LABEL!** And calculate precisely the quantity of formulation needed for each job. Mix no more than will be used in one day. This procedure eliminates the need for disposing of formulated pesticides.
- (2) Leaving mixed pesticides in application equipment causes problems (e.g., clogging of nozzles). Therefore, pesticides should not be left in equipment overnight.
- (3) It is good practice to have a pesticide compatibility chart available. Pesticide compatibility should always be checked before chemicals are mixed together in a tank, since some pesticides will react with one another. Obtain information on compatibility charts and their availability from the appropriate Command pest management consultant or the AFPMB library.

#### **d. Application**

- (1) **APPLY ALL THE PESTICIDE IN ONE TANK**, assuming that one has correctly calculated the amount required to do the job. If a residual amount of pesticide is present in the tank at the end of the task, the remainder can be applied at a similar site (if a pest infestation is present) or at the site of the original application, unless the label directions or local regulations prohibit such application. Application at the original site is not



appropriate indoors, or for those outdoor areas where the additional application of pesticide might result in undesirable effects (e.g., runoff or residues).

- (2) A useful technique in a shop where several applicators are using the same pesticide formulation is to provide a labeled drum so that small quantities of pesticide left from daily operations can be collected before rinsing the equipment. See sections 7b and 7c for reuse or disposal of these pesticide wastes. The cost of chemicals, the inconvenience of handling/storing leftover pesticide, and the cost of disposal are good reasons for accurate calculation of daily pesticide requirements.

#### **4. Disposal Procedures for Pesticides**

##### **a. General**

- (1) The procedures herein apply to the acceptance, storage, handling, and processing of pesticides. They conform to DoD 4160.21-M, Defense Reutilization and Marketing Manual (<http://www.drms.dla.mil/newrtd/dod416021m.pdf>), and DRMS-I 6050.1, Instructions for Environmental Compliance for the DRMS Hazardous Property Program ([http://www.drms.dla.mil/publications/html/drms-i\\_6050.1.html](http://www.drms.dla.mil/publications/html/drms-i_6050.1.html)).
- (2) DoD activities and the Defense Reutilization and Marketing Service (DRMS) are equally accountable for compliance with environmental controls and regulations.
- (3) No pesticide, pesticide container, pesticide-related waste, or pesticide container residue should be stored or disposed of in a manner inconsistent with its label or labeling, or in a manner so as to cause or allow:
  - (a) Open dumping.
  - (b) Open burning.
  - (c) Water dumping or ocean dumping, except in conformance with appropriate federal regulations.
  - (d) Direct exposure, which may result in contamination of food or feed supplies.
  - (e) Violations of any applicable federal, state, or local pollution control standard.
  - (f) Violation of FIFRA or regulations developed pursuant to that Act.
- (4) EPA guidelines, which allow homeowner disposal of small amounts of pesticides in trash receptacles, do not apply to pest control shops.
- (5) If one has a pesticide for disposition, two disposal options are available: a) report excess serviceable national stock numbered pesticides to the Wholesale Item Manager

following Military Standard Requisitioning and Issue Procedures (MILSTRIP) for return of materials; or b) turn in the excess pesticide material to the local Defense Reutilization and Marketing Office (DRMO) for potential reuse, transfer, donation or sale (RTDS) or ultimate disposal (if an acceptable user cannot be identified for the product). DRMOs at most installations will accept the turn-in of all pesticides, provided turn-in requirements are met and documentation is complete.

## **b. Turn-in Procedures**

- (1) Coordination. The turn-in activity will notify the receiving DRMO (or appropriate intermediary office) before the anticipated turn-in of any pesticide to: a) determine if a pre-inspection is necessary; b) ensure that the turn-in is accomplished as efficiently as possible, and c) determine that the DRMO has proper storage space. Transportation constraints must also be considered.
- (2) In concert with the receiving DRMO, the turn-in activity should review the DRMS turn-in procedures contained in DRMS-I 6050.1(Chapters II (Receipt) and XXVI (Pesticides), respectively) to complement and/or supplement the synopsis information that follows. DRMOs will follow the turn-in procedures for pesticides in DoD 4160.21-M, Chapter 10, along with the information provided in DRMS-I 6050.1, Chapter XXVI, paragraph C. (3). The DRMO will accept the turn-in of all pesticides if they meet the following requirements:
  - (a) Pesticide items must be identified by national stock number (NSN) or local stock number (LSN). A noun name is required with NSNs and LSNs (e.g., Malathion). Additionally, the concentration and a complete product description, including the manufacturer's part number (if applicable), is necessary. The Serial Number (5 digit alpha code) of the Material Safety Data Sheet (MSDS), as listed in the Hazardous Materials Information System (HMIS), or the hard copy MSDS and/or Hazardous Waste Profile Sheet (HWPS, DRMS Form 1930) must accompany the asset. Use of the DRMS Form 1930 is not mandatory. However, an alternate format, including automated data transfer, may be developed and used, provided it contains all information required to profile the waste for disposal.
  - (b) The amount and type of any contaminant must be identified. NOTE: If the DRMO takes physical custody, chemical analysis is required, unless the required information based on the user's knowledge is provided on the profile sheet and supporting documentation is attached. Chemical analysis and supporting documentation will not be required for profile sheets where the DRMO only accepts accountability and not physical custody (receipt in place). Use DD Form 1348-1 for turn-in of excess pesticide-related wastes and spill residues.
  - (c) Pesticides must be in containers that are non-leaking, totally sealed (i.e., all bungs, gasket seals, and covers in place) and safe to handle. If not, the turn-in will be rejected. In addition, if these turn-in pesticide items meet the definition of a hazardous material, hazardous waste and/or hazardous substance, they must be

contained or packaged in a Performance Oriented Package (POP) meeting the requirements set forth by the Department of Transportation (DOT) in 49CFR171-179. The DRMO will not accept accountability if:

1. The turn-in document is not complete.
2. The container is not properly labeled (see Section 4i).
3. The property has not been properly identified.
4. The container's integrity is in question.

(d) DRMS Form 917, Property Disposal Reject/Advice, will be used to reject the turn-in of property.

### **c. Storage Procedures**

- (1) Pesticides should be stored only in facilities where due regard has been given to: a) the toxic nature of the pesticide, b) site selection, c) protective enclosure, and d) operating procedures; and where adequate measures are taken to ensure: a) personal safety, b) accident prevention, and c) detection of potential environmental damage.
- (2) If the DRMO has the proper storage facilities, (i.e., conforms to current environmental regulations), it will take physical custody along with accountability of the material. If the DRMO does not have proper storage facilities, it will take accountability only.
- (3) In those instances where neither the DRMO nor the generating activity possesses conforming storage facilities, the activity with the "most nearly" conforming storage will accept or retain physical custody and the DRMO will accept accountability.

### **d. Storage Facilities**

**NOTE:** The following storage criteria for pest control shops are based on 40CFR165. Although section 165 has been removed from the CFR, the guidance contained therein is still useful. RCRA-conforming facilities for storage of hazardous wastes should be determined through consultation with the installation Environmental Coordinator, and a review of 40CFR264 (permitted facilities) and 40CFR265 (non-permitted and interim status facilities and all generators regardless of generator status). Review AFPMB TG 17, Pest Control Facilities, for further guidance.

- (1) Storage sites should be selected with due regard to the amount, toxicity, and environmental hazard of the pesticides involved, and the number and sizes of containers to be stored.

- (2) When practicable, sites should be located where flooding is unlikely and where soil texture/structure and geologic/hydrologic characteristics will prevent the contamination of any water system by runoff or percolation.
- (3) Pesticides awaiting disposition should be stored in a dry, well-ventilated separate room, building, or covered area where fire protection is provided.
- (4) Where relevant and practical, the following precautions should be taken:
  - (a) The entire storage facility should be secured by a climb-proof fence, and doors and gates should be kept locked to prevent unauthorized entry.
  - (b) Identification signs should be placed on rooms, buildings, and fences to advise of the contents and warn of their hazardous nature and should contain emergency phone numbers. The area should be labeled "Pesticide Storage." The host fire chief will be consulted and will determine fire prevention and fire fighting posting requirements. See Section 4h.

**e. Storage of Pesticide Containers**

- (1) Rigid containers should be stored in an upright position, and all containers should be stored off the ground in an orderly way, so as to permit ready access and inspection.
- (2) Containers should be stored with labels plainly visible.
- (3) Herbicides and insecticides must be stored separately in tightly closed containers, in order to avoid cross-contamination or adverse reactions. The reason is that the chemical compositions of herbicides and insecticides are often incompatible. Therefore, the AFPMB recommends that they be stored apart from other chemicals for the same reason. If a container should be eroded, and chemicals or pesticides mix, the storage area could be contaminated by fumes, etc., and become extremely hazardous for personnel in the area.
- (4) Emergency procedures (for fire, spill, personal contamination, etc.) should be conspicuously posted near work areas and exits. A complete inventory of the pesticides should be posted on the outside of the storage area, along with the name and phone number of the responsible supervisor and building custodian, and be updated as needed. This information should be given to the local fire department (see Section 4h). Pest control facilities should also be included in the installation Spill Contingency Plan.

**f. Safety Measures**

- (1) Do not store food, beverages, smoking materials, or eating utensils in pesticide storage or loading areas.
- (2) Do not drink, eat, or smoke in areas where pesticides are present.

- (3) Wear rubber gloves while handling containers of pesticides.
- (4) Do not put fingers in mouth or near eyes while working.
- (5) An emergency shower and eyewash should be readily available in the mixing area.

**g. Protective Clothing and Respirators**

- (1) Protective clothing must be worn when handling pesticides. Contaminated garments must be removed immediately and laundered before further use. Extra sets of clean clothing will be maintained nearby in the designated change room.
- (2) Particular care should be taken when handling certain pesticides to protect against absorption through the skin and inhalation of dust or fumes. Respirators or gas masks with proper canisters approved for the particular type of exposure, as noted in the label directions, should be used when such pesticides are handled. Single-use escape-type respirators should be available in the event of an emergency.
- (3) Consult with the installation Industrial Hygienist if uncertain as to the type of Personal Protective Equipment (PPE) that needs to be worn to perform a task involving pesticides, and review 40CFR156.212.

**h. Fire Control**

Where large quantities of pesticides are stored, or where conditions may otherwise warrant, the activity responsible for the stored pesticides should inform the local fire department, hospitals, public health officials, and police department in writing of the hazards that such pesticides may present in the event of a fire. A floor plan of the storage area, indicating where different pesticide classifications are regularly stored, should be provided to the fire department. For additional guidance, see AFPMB TG 16, Pesticide Fires: Prevention, Control and Cleanup.

**i. Labeling Requirements**

- (1) Every pesticide product is required to bear a label containing information as specified in 40 CFR Part 156. The words are required to be prominent and legible and affixed to the pesticide container.
- (2) The following are label requirements for pesticides turned in to DRMO.
  - (a) Excess serviceable pesticides - are those pesticides that can be used, are properly packaged and labeled, and can go through the RTD disposal cycle. These pesticides shall be turned in as Hazardous Material (HM). Each such pesticide may be reused or sold for its purposes only if it has a complete, EPA-approved label on its container and only if the product has not deteriorated or had any substance added to it. If a pesticide is potentially serviceable, the DRMO along

with the turn-in activity must determine the status of the pesticide's registration. The FIFRA and its implementing regulations (40 CFR 156) describe the requirements that must be met before a pesticide product may be marketed and used.

- (b) Unserviceable pesticides - are those that lack proper labeling or that have had their composition altered. These pesticides will be labeled **“FOR DISPOSAL ONLY”** on the container by the turn-in activity.
- (c) Suspended and canceled use pesticides - must be considered unusable unless revised labeling can be procured from the manufacturer. It is legal to obtain an amended label from the manufacturer to be placed on the container. However, the manufacturer must provide written approval to affix this label onto the container. If a manufacturer is unable to provide an amended label, or if the manufacturer is out of business, then the product must be declared unserviceable and for disposal only. Such products cannot be shipped unless declared unserviceable and for disposal only. In the absence of amended labeling, resale and transfer at the DRMO level would be illegal.
- (d) Pesticides with no suspended or canceled uses - can be legally shipped or transferred to the DRMO whether serviceable or unserviceable as long as they are in approved containers.
- (e) Repackaged pesticides - cannot be transferred, sold, redistributed, or turned in to the DRMO unless designated for disposal only, or for return to the manufacturer.
- (f) Unlabeled pesticides - will not be accepted by the DRMO. If the pesticide contents are unknown, the material must be analyzed to identify the contents, and if valid labels cannot be obtained, the container must be marked **“FOR DISPOSAL ONLY.”**
- (g) Stored Pesticides – if, during storage, labels become obliterated or mutilated, the responsible activity should initiate actions to relabel the pesticides. Any relabeled pesticides turned in to the DRMO, unless specific written permission was obtained from the manufacturer to relabel the product, will be considered unserviceable and will be labeled **“FOR DISPOSAL ONLY.”**
- (h) Pesticides as hazardous waste - if the pesticide is determined to be hazardous waste under RCRA, it must be handled (i.e., accumulated or stored) in accordance with the applicable time limits and regulations as noted in Subtitle C of RCRA.

## 5. Repackaging Pesticides

- a. Pesticides in deteriorated or leaking containers will be recontainerized or overpacked in approved containers. Pesticides that are recontainerized or overpacked for turn-in to DRMO must be in containers that meet Performance Oriented Packaging (POP) requirements as set

forth by DOT in 49CFR171-179.

- b. Performance Oriented Packaging (POP) is a type of packaging based on the ability of the packaging to perform to a specified level of integrity when subjected to certain performance tests. These tests are designed to ensure that packaging containing hazardous materials can withstand normal transport with no loss of contents and to ensure a desirable level of safety for people, property, and the environment.
- c. POP replaces detailed design specifications, which vary from country to country, with performance standards. Performance standards cite general requirements for materials, construction, and maximum capacity. The strength and integrity of the packing is determined by a series of performance tests. The severity of these tests on packaging is dependent on the intended contents, taking into account the degree of danger presented by the hazardous material, i.e., packing group, relative density. POP testing is conducted according to packing groups, weight, and container configuration.
- d. Modal regulations govern the packaging materials and design types authorized for POP. Authorized POP packaging must successfully meet the criteria for passing the drop, vibration, stack, leakproofness, and hydrostatic pressure performance tests. Performance testing is carried out on packaging that is packed and ready for transport. For combination packaging where the inner packaging is designed to carry liquids and solids, separate testing is required for both liquid and solid contents. For test purposes, the hazardous material to be transported in the packaging is replaced by a non-hazardous material. For tests that contain liquids, the substitute material must have the same or higher relative density as the material to be carried. Liquid substitutes include water, salt water, and antifreeze. For solids, the substitute material must have the same physical characteristics (mass, grain size) as the material to be carried.
- e. Because of POP requirements for containers used to transport hazardous materials, substances or wastes, one cannot simply recommend a drum or drums (i.e., NSNs) to cover a variety of pesticide configurations as in the pre-POP era. The drum that one chooses to use would need to have been POP tested to transport the pesticide asset (or similar substitute) under consideration.
- f. Below is a list of drums to be used for the accumulation and shipment of waste. The NSNs cover a range of sizes of closed head (UN 1A1) and open head (UN 1A2) drums that DLA currently procures for performance requirements. Exercise care to analyze the waste stream(s) and utilize only containers tested for the requirements mandated by the product involved.

Drum, Shipping and Storage: Closed Head (1A1), Metal

5 gallon	8110-00-282-2520	1A1/Y1.5/250
30 gallon	8110-01-436-7640	1A1/Y1.6/200
55 gallon	8110-00-292-9783	1A1/Y1.5/250

## Drum, Shipping and Storage: Open Head (1A2), Metal

5 gallon	8110-01-302-6251	1A2/Y1.2/100
30 gallon	8110-00-366-6809	1A2/Y1.5/150
55 gallon	8110-00-030-7780	1A2/Y1.5/150

- g. Consult a hazardous material packaging specialist to make certain that the container selected for the pesticide in question meets POP requirements.
- h. Steel overpack containers (85-gallon drums) are available for transport, storage, or disposal of 55-gallon drums (or smaller containers) containing pesticides or other hazardous materials. The Drum, Hazardous, Material, NSN 8110-01-101-4055, is intended for containment of 55-gallon drums of materials designated for disposal. This drum has a solid top without vents or bungs, sealable with a bolt-tightened steel ring. The Drum, Hazardous, Material, Recovery, NSN 8110-01-101-4056, is for recovery of material in leaking, corroded, or damaged 55-gallon drums. It has a 3/4" vent and 2" bung in the sealable top. Both drums are eligible for land, sea, or air transport. The 55-gallon drums placed in overpacks require cushioning on bottom, top, and sides with absorbent material prior to transport. A suitable material for packing hazardous chemicals and liquids is Cushioning Material (Vermiculite, A-A-52450, Bag, 4 cu ft., NSN 8135-01-324-2664). Each overpack drum requires about one bag of absorbent material.
- (1) Commercial drums with liners are available to repackage or overpack pesticides. Additional information on these drums should be obtained from the appropriate pest management consultant or environmental coordinator.
- (2) The easiest method for recovering usable material from a leaking drum is to transfer the pesticide to a recovery drum with a hand pump, then properly clean and dispose of the empty "leaker." To prepare a drum destined for disposal, turn it on its side (leaking side up if it is a "leaker"), and slide it into the overpack drum. Rotate it to an upright position, add cushioning material, and seal the top. **BE SURE TO PROPERLY MARK THE OUTSIDE OF ALL OVERPACK CONTAINERS!** For more information, contact the Hazardous Waste Storage section of your servicing DRMO.
- i. Repackaging or overpacking should be done in a curbed, well-ventilated area where spills can be contained and recovered. The work should be performed by personnel trained to handle pesticides or hazardous wastes. Appropriate protective clothing and equipment must be used, and personnel exposure must be minimized.
- j. Repackaged pesticides turned in to DRMO will be considered unserviceable, and the new container or overpack will be labeled with the following information:
- (1) "NSN - Repackaged" (if applicable)
- (2) Nomenclature and percent active ingredient
- (3) Total quantity in gallons (liquids) or pounds (solids)



(4) Date repackaged (month/year)

(5) The phrase “FOR DISPOSAL ONLY”

6. Rinsing and Disposal of Pesticide Containers. Chapter XX (Empty Containers) of DRMS- I 6050.1 classifies empty containers into three groups: Group I – Non-hazardous Previous Contents; Group II – Hazardous Previous Contents; and Group III – Acutely Hazardous Previous Contents.

**a. General**

- (1) Triple rinsing of empty containers is not a turn-in requirement, but a management option for hazardous or acutely hazardous containers. DRMOs will not require triple rinsing as a condition for turn-in. If the generator elects to triple-rinse containers before they are turned in, the benefit is that these containers may be turned in under the non-hazardous procedures and do not require sealing. Containers must be labeled with the words “**Triple Rinsed.**”
- (2) Empty pesticide containers are not really “empty.” They still contain small amounts of pesticides even after they have been rinsed properly. For the purpose of disposal through DRMO, the following DRMS (review Chapter XX of DRMS-I 6050.1) definitions of “empty” apply (40 CFR 261.7):
- (a) A container that previously contained a non-hazardous or hazardous pesticide (as defined in 40 CFR 261.33) is “empty” if it contains no more than one inch of residue on the bottom of the container or inner liner.
- (b) A container that previously contained an acutely hazardous pesticide (40 CFR 261.33) is considered “empty” only if it has been triple-rinsed with an appropriate solvent, cleaned by an equivalent method approved by the EPA Regional Administrator, or had the lining removed.

**b. Procedures**

Any pesticide container that can be rinsed should receive triple rinsing, especially if it contained a RCRA-designated hazardous material. Triple-rinse procedures are provided in Appendix D.

- (1) **NEVER DUMP RINSE LIQUID ON THE GROUND!** Rather, rinse liquids should be added to spray mixtures or considered a pesticide-related waste and disposed of through DRMO. The first option is obviously the more expeditious and cost effective.
- (2) Metal containers (drums) in good condition may be recycled through a registered drum reconditioner or returned to the pesticide manufacturer for refilling with the same chemical class of pesticide. In addition, properly rinsed metal containers may be punctured to facilitate drainage prior to transport to a facility for recycling as scrap

metal or for disposal. An empty 55-gallon drum makes a good storage container for smaller empty or broken containers. The drum should be covered tightly. The drum, when full, can then be turned in to the DRMO.

- (3) Triple-rinsed containers may be turned in to the DRMO or punctured to facilitate drainage, crushed, and recycled as scrap metal.
- (4) The primary idea is to minimize wastes, especially hazardous wastes. Installation pest management supervisors and the local Environmental Coordinator are encouraged to develop a plan to dispose of each type of pesticide container. This plan should be made a part of the approved installation pest management plan and hazardous waste management plan.

## **7. Disposal of Operational Pesticide Wastes**

### **a. Spills**

- (1) Pesticide spills are reported to the Environmental Coordinator and require immediate actions to control contamination of property and the environment. Cleanup operations will generate a wide variety of pesticide-related wastes and contaminated materials, such as rags, absorbents and soil. These wastes must be contained in plastic bags, pails, or open-head drums.
- (2) A spill of a pesticide is likely to be classified as a hazardous waste (and it also may be reportable under other federal laws). The cleaning up of the contaminated soil or water is considered “generation” of a solid (and possibly hazardous) waste. Thus, a spill and its correction may add substantially to the installation’s disposal burden. The spill must therefore be handled in both a rapid and knowledgeable fashion.
- (3) Disposal of items from a pesticide spill is through the DRMO.
- (4) Additional information on handling pesticide spills is provided in AFPMB TG 15, Pesticide Spill Prevention and Management.

### **b. Pesticide Rinse Liquids**

- (1) Rinse liquids from the internal flushing of pesticide containers, sprayers or tanks may be added to spray mixtures as diluents, provided that the rinse liquid is compatible with the pesticide being mixed. Use these rinse liquids in this manner to avoid generating waste.
- (2) Rinse liquids from external equipment washing or those not otherwise applied or used as diluents for subsequent spray mixes must be properly processed through a filtration system or be considered pesticide-related wastes (See Section 7g). If the material is waste, it must be disposed of through the DRMO, meeting the requirements previously provided for the disposal of unserviceable pesticides.

### c. Excess Tank Mixes

- (1) Excess tank mixes can be kept to a minimum if the practice of only mixing the amount required to do the job is followed.
- (2) Excess tank mixes may be added to new spray mixtures of the same formulation on a “same or next-day” basis. A relatively small amount of excess mix can be used as diluent without noticeably affecting the concentration of a new formulation. Larger amounts of excess mix can be used to “top off” new tank mixes. Caution must, of course, be used with chemicals, which degrade rapidly. Other excess tank mixes must be emptied into acceptable drums or tanks for ultimate disposal.

### d. Laundry Wash Water

- (1) Laundry wash water from routine laundering of pest controller protective clothing can be drained into the sanitary sewer. Employees should not be permitted to take protective clothing home for laundering. Laundry facilities should be provided and be available in the pest control shop. If laundry facilities are not available in the pest control shop, and pesticide applicator protective clothing must be sent to an installation or commercial laundry, the laundry service must be advised that such work clothing is to be washed separately from other laundry.
- (2) Clothing contaminated by a pesticide concentrate, as a result of a spill or accident, should not be laundered. Rather, the clothing should be rendered unserviceable (rip, tear, or cut up), and placed in a plastic bag. (Reminder: grossly contaminated clothing should be removed immediately to minimize exposure. Shower immediately for at least 15 minutes to wash off the pesticide, and seek medical assistance.) Grossly contaminated clothing may become a hazardous waste requiring consultation with the Environmental Coordinator and disposal through DRMO.

### e. Eye Lavage/Deluge Showers

- (1) Water generated from the use of emergency eye lavages or deluge showers can be drained into a sanitary sewer.
- (2) Emergency showers will not be used to rinse or clean pesticide containers or equipment.

f. **Aluminum Phosphide.** Fumigation with aluminum phosphide generates residues that require specific disposal measures. This information is provided in AFPMB TG 11, Hydrogen Phosphide Fumigation with Aluminum Phosphide (1986).

### g. Filtration Systems

- (1) Commercial filtration/adsorption systems, and the Carbolator system developed by the U.S. Army, have the potential to reduce the volume of pesticide waste and the costs associated with disposal. Most dilute liquid pesticide wastes can be processed through such systems, although RCRA-designated hazardous wastes should be kept separate.

- (2) The systems use filters containing absorbents, such as activated carbon and diatomaceous earth, to treat the wastewater. The resulting quality of the water allows it to be reused by the installation, used as diluent, or discarded into a sanitary sewer.
- (3) The pesticide waste is reduced from a liquid waste volume of several thousand gallons to a solid waste of a few hundred pounds. The solid waste has a greatly reduced volume and can be buried in a sanitary landfill that meets federal or state requirements, or packaged and turned into the DRMO for disposal.
- (4) Information on these filtration systems can be obtained by contacting the appropriate pest management consultant, who can assist in evaluating the practicability of installing such a system at your installation. Federal, state and local requirements must be met in the use of such systems.

#### **h. Underground Storage Tanks**

- (1) The use of underground holding tanks was a popular method for containing aqueous wastes from pest control facilities in the early 1970s. The process was to collect all the pesticide-containing wastewater from the facility and store it for disposal by environmentally acceptable methods. Usually this meant storage until a sufficient volume was accumulated for disposal by commercial waste disposal concerns.
- (2) Operational problems have occurred. In one instance a valve on an uncovered outdoor washstand was inadvertently left open, and a weekend rainstorm filled the 1,000-gallon tank to overflowing. Once filled, the tank held a mixture of approximately 99.5% water and 0.5% diluted pesticide. In other instances, underground tanks have leaked and have seriously contaminated the surrounding environment.
- (3) Because of actual and anticipated problems with underground storage tanks, their use is not recommended. This means that no new underground storage tanks designed to accumulate pesticide wastewater should be installed, the use of existing tanks should be discontinued, and removal of existing tanks may be required.
- (4) EPA regulations (Subtitle I of RCRA, 40CFR280-282) affecting underground storage tanks have been developed. Contact your Environmental Coordinator to determine if existing underground storage tanks comply with these regulations.

### **8. Summary and Review Exercise on Pesticide Storage and Disposal**

- a. The proper disposal of excess pesticides, containers and pesticide-related waste is an important part of pest management. The minimal production of materials that require disposal is essential in maintaining a cost-effective, environmentally sound pest control shop. These materials can be minimized and their disposal simplified with a little planning and preparation. The information provided in this TG should be used with this goal in mind.

- b. Pest control supervisors should know the basics of FIFRA and RCRA requirements as presented in this TG. More detailed guidance, especially on RCRA hazardous materials, may be obtained locally through close coordination with the installation Environmental Coordinator or Environmental Engineer. The servicing DRMO and pest management consultant can provide further information on disposal procedures and pesticides in general.
- c. Pest control supervisors should continually review their pesticide usage and disposal procedures and ensure that all pesticide applicators are complying with these procedures. As part of this review, the supervisor can ask all pesticide applicators the questions in Appendix E. The questions also serve as a summary of key points in this TG.

## **Appendix A**

### **Terms and Definitions**

Activated Carbon - Very finely ground, high quality carbon that easily absorbs liquids and gases.

Active Ingredient - The chemical in a formulated pesticide that will prevent, destroy, repel or mitigate any pest.

Carrier - A liquid, solid or gas used to transport a pesticide chemical to the pest.

Container - Any package, can, bottle, bag, barrel, drum, tank, or other containing device (excluding spray applicator tanks) used to enclose a pesticide or pesticide-related waste.

Contaminate - Pollute. The addition of an undesirable material. Make unfit to use for a given purpose.

Decontamination/Detoxification - Processes that will convert contaminated material or toxic substances into non-toxic products.

Defense Reutilization and Marketing Service (DRMS) - the branch of the Defense Logistics Agency responsible for coordinating reuse, transfer, donation, sale or other disposal of military items.

Defense Reutilization and Marketing Office (DRMO) - The servicing DRMS field office at the installation level.

Degradation Products - Those chemicals resulting from partial decomposition or chemical breakdown of pesticides.

Diluent - The material added to a pesticide by the user or manufacturer to reduce the concentration of active ingredient in the mixture.

Disposal - Act or process of correctly discarding pesticides, pesticide-contaminated material or pesticide containers.

DOT - Department of Transportation.

Environment - Includes water, air, land, and all plants, humans and other animals living therein, and the interrelationships that exist among these.

Encapsulation - Method of disposal of pesticides and pesticide containers by sealing them in sturdy, waterproof containers so the contents cannot leak out.

EPA - Environmental Protection Agency. The federal agency responsible for pesticide rules and regulations.

Hydrolyzation - The decomposition of a chemical into other chemicals when exposed to water.

Incompatible - Not able to be mixed or used together.

Inert Ingredients - Materials in a pesticide formulation other than active ingredients (solvents, baits, carriers, fillers, propellants and other agents.).

Label - The written, printed, or graphic matter on, or attached to, the pesticide container.

Labeling - All labels and all other written, printed, or graphic matter:

A. Accompanying the pesticide or device at any time.

B. To which reference is made on the label or in literature accompanying the pesticide or device.

Mixing - Formulating a pesticide concentrate and diluents to make a finished material for treatment; may be liquid or dry materials.

Ocean Dumping - The disposal of pesticides in or on the oceans and seas.

Open Burning - The combustion of a pesticide or pesticide container in any fashion other than controlled incineration.

Open Dumping - The placing of pesticides or containers in a land site in a manner that does not protect the environment and that exposes the materials to the elements and scavengers.

Original Container - The package (bag, can, etc.) in which a pesticide is sold.

Overpack - A larger container used to hold a smaller one requiring protection or containment.

Pesticide - Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

Pesticide-Related Wastes - All pesticide-containing wastes produced in the use, handling and transport of pesticides, and that require disposal.

Sanitary Landfill - A disposal facility employing an engineered method of disposing of solid waste on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying cover material at the end of each working day.

Specially Designated Landfill - A state and federally approved landfill at which surface and

subsurface waters receive complete long-term protection from pesticides, pesticide containers, and pesticide-related wastes deposited at the landfill, and where hazards to public health and the environment are minimized.

SQG - Small quantity generator.

Triple Rinse - The flushing of containers three times, each time using an appropriate volume of the normal diluents. The rinse liquid should then be added to the spray mixture as diluent. See Appendix D.

Water Dumping - The disposal of pesticides in or on lakes, ponds, rivers, sewers, or other water systems.



## **Appendix B**

### **References**

Control of Insects of Public Health Importance: Chapter 7, Disposal of Pesticide Containers and Surplus Pesticides. U. S. Department of Health and Human Services. Washington, D.C. 1981.

Disposal of Dilute Pesticide Solutions. Office of Pesticide Programs, U.S. Environmental Protection Agency. Washington, DC. 1979.

Hazardous Materials: The Pesticide Challenge. NAVFAC P-1014.9. (Student Manual - Pesticide Fires). Naval Facilities Engineering Command. Alexandria, VA 22332-2300. April 1986.

Hydrogen Phosphide Fumigation with Aluminum Phosphide, TG 11, Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001. 1986.

Pest Control Facilities. TG 17, Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001. 1983.

Pest Management Procedures. Northern Division Instruction 6250.2A, Naval Facilities Engineering Command, Bldg. 77, Naval Shipyard, Philadelphia, PA. 1981.

Pesticide Fires: Prevention, Control and Cleanup. TG 16, Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001. 1981.

Pesticide Spill Prevention and Management. TG 15, Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001. 1980.

For the most recent regulatory and policy information, see the latest printings of:

DoD 4160.21-M, Defense Reutilization and Marketing Manual,  
(<http://www.drms.dla.mil/newrtd/dod416021m.pdf> )

DRMS-I 6050.1, Instructions for Environmental Compliance for the DRMS Hazardous Property Program ([http://www.drms.dla.mil/publications/html/drms-i\\_6050.1.html](http://www.drms.dla.mil/publications/html/drms-i_6050.1.html))

Hazardous Material Transportation Regulations. 49 CFR171-179.

Hazardous Waste Regulations. 40 CFR 260-265, 270-271.

Storage and Handling of Hazardous Materials, DALI 4145.11, TM 38-410, NAVSUP PUB 573, AFJMAN 23-2109, MC)4450.12A, 13Jan99.

## Appendix C

### Pesticide Shelf Life and Storage Requirements

The following article, written by Dr. Charles M. Sacramento, originally appeared in the May 1981 issue of Grounds Maintenance Magazine. It was subsequently printed in the July 1981 issue of ACCES-Pesticides, a University of Arizona Cooperative Extension Service publication, and in the Army Environmental Hygiene Agency Pest Management Bulletin, Vol. 3, #4, August 1982. It is included here because the information remains current and valid.

That half-empty container of pesticide that you bought in '77 or '78 -- should you use it this summer or dispose of it? Most (people) would be reluctant to throw away a product that is still useful. But this one is questionable at best. The active ingredient may have been lost but the chemical could still be dangerous to handle and toxic to plants as well.

Pesticides are manufactured, formulated, and packaged to exacting standards. However, they can break down in storage, especially under conditions of high temperature and humidity. Some pesticides lose active ingredients due to chemical decomposition or volatilization. Dry formulations become caked and compacted and emulsifiable concentrates no longer form emulsions. To make matters worse, some pesticides convert into more toxic, flammable or explosive substances as they break down.

Containers have an important effect on the storage and shelf life of pesticides. Many kinds of fiber and metal drums, pails, cans, bottles, bags, boxes, overpacks, liners, and closures are used to package pesticide chemicals. If stored for long periods (years), these containers may eventually corrode, crack, break, tear or fail to seal properly. Also, that important document, the label, may become illegible.

Pesticide formulations that contain low concentrations of active ingredients generally lose effectiveness faster than more concentrated forms. Sometimes a liquid pesticide develops gas as it deteriorates and this can make opening and handling containers quite hazardous. In time, the gas pressure may cause explosive rupture of the containers.

Certain pesticide chemicals have a characteristic odor. If this odor grows stronger in the storage area, it could indicate a leak or spill, a defective closure or an improperly sealed container. It may also be a clue that the pesticide is deteriorating, since the smell of some materials intensifies as they break down in storage. If none of these problems are found, chemical odors can be reduced by installing an exhaust fan or lowering the temperature of the storage area.

Fewer problems occur with stored pesticides and the products have a longer shelf life if the storage area is cool, dry and out of direct sunlight. Protection from temperature extremes is important because either condition can shorten the shelf life of pesticides. At below freezing temperatures some liquid formulations separate into various components and lose their

effectiveness. High temperatures cause many pesticides to volatilize or break down more rapidly. Extreme heat may also cause glass bottles to break or explode.

Other characteristics of a pesticide product also affect its shelf life. These include the formulation (liquid concentrate, wettable powder, granules, etc.), the types of stabilizers and emulsifiers used, and the type of container and its closure.

Small amounts of pesticides can be stored in a cupboard or storage cabinet that is locked and out of the reach of small children. Larger amounts require a locked shed or room in a building. The shed or room should be well ventilated, and constructed of fire-resistant materials. It should have a smooth (no cracks or crevices) cement floor which is painted with a hard sealer to simplify clean up of pesticide leaks and spills.

Store granular pesticides on shelves if there is any possibility of dampness on the floor. Separating corrosive chemicals and volatile herbicides from each other and other pesticides is a wise precaution to prevent cross-contamination which could lead to toxic or explosive fumes. Keep all corrosive chemicals in proper containers to prevent leaks that might result in serious damage. Even the simple step of tightly closing lids and bungs on containers can help extend the shelf life of pesticides and provide a safer working environment.

Over a period of time containers may develop leaks, breaks, or tears, so check them often for such problems. If a damaged container is found, transfer its contents to a clearly labeled overpack container or to one that held the same formulation previously. Don't tear open the tops of new bags or boxes of pesticides. Keep a sharp knife handy for this purpose, and clean it each time a container is opened. Partly empty paper containers should be sealed with tape or staples. All newly opened or overpack containers should be dated at the time they are first used for tracking and inventory purposes.

When you buy pesticides, date them and keep a current inventory of your supplies. Avoid stockpiling; buy what you need, but not to excess. This eliminates waste and the problem of what to do with old materials.

Even with careful planning it is sometimes necessary to carry pesticides over from one year to the next. Check the dates of purchase at the beginning of each season, and use the older materials first. To protect the label on a container and to keep it intact and legible, cover it with transparent tape or lacquer.

If given proper storage, some pesticides may remain active for several years. However, storage conditions vary so widely that it is difficult to predict long-term shelf life for a pesticide product. This is one reason most pesticides are not backed by the manufacturer if stored longer than two years; so plan every purchase of pesticides to be completely used within this two-year period.

## Appendix D

### Triple Rinse Procedures

Each emptied container that has held liquid pesticide shall be rinsed and drained by the user at time of use, except as specified by local regulation, as follows:

- a. Drain container 30 seconds or longer.
- b. Use the following amount of water or other designated spray diluents for each rinse.

<u>Size of Container</u>	<u>Amount of Rinse Solution</u>
1 gallon or less	1/4 container volume
5 gallons	1 gallon
5 to 29 gallons	1/5 container
30 and 55 gallon drums	5 gallons

- c. Place recommended amount of rinse solution in the container, replace closure securely, and agitate. Be sure that all interior areas of the container, including lip, are well rinsed.
- d. Drain rinse solution from container into tank mix. Allow container to drain 30 seconds after normal emptying. Allow at least a minute for emulsifiable concentrates and flowable suspensions to drain, as they are thicker than solutions.
- e. Repeat (2) and (3) above two more times to provide a total of three rinses.
- f. After the final rinse, puncture metal containers on the top of the rim to allow remaining rinse solution to drain. NOTE: If the container is to be recycled through a registered drum reconditioner or DRMO, DO NOT PUNCTURE the container. Stencil "TRIPLE RINSED" prominently on the side of the container.
- g. After rinsing, dispose of punctured, damaged, or otherwise unrecyclable pesticide containers in landfills in conformance with federal, state and local regulations.

If an empty pesticide container is used to hold the rinse solution, the previous label must be removed and the container must be relabeled, designating that it now holds waste material and the type of waste it contains. This is applicable when the amount of rinse material exceeds the amount that can be poured into a pesticide tank. All safety precautions that apply to pesticides also apply to this material.

## **Appendix E**

### **Review Exercise on Pesticide Storage and Disposal**

1. Do you know which of your pesticides, upon disposal, would be classified as RCRA hazardous waste?
2. Are you familiar with state and local constraints on pesticide disposal?
3. Have you developed a plan for pesticide disposal with your installation Environmental Coordinator?
4. Do you procure pesticides only for one year in advance?
5. Does your pesticide storage area meet FIFRA criteria as outlined in this TG and TG 17, “Pest Control Facilities”?
6. Do you attempt to mix only as much of a given formulation as you will need for one job or one day, at the most?
7. Do you empty and rinse your application equipment before storing it overnight?
8. Do you check compatibility before mixing chemicals?
9. If you have excess tank mix, do you apply it at an appropriate site in accordance with the label?
10. If you have excess serviceable NSN pesticides, do you either report them to the Wholesale Item Manager or turn them in to the local DRMO?
11. Do you ensure that pesticides for turn-in are properly labeled and the containers are in good condition?
12. Do you mark repackaged pesticides for turn-in “For Disposal Only”?
13. Do you properly rinse each “empty” liquid container at least three times and dump the rinse into the mixing tank?
14. Do you collect every container for proper disposal before leaving a job instead of leaving them in the field or at your tank filling station?
15. Do you puncture, break or crush small non-burnable containers so they can’t be reused?

16. Do you return reusable 30 to 55 gallon pesticide drums to the DRMO, rather than giving them away for floats, trash barrels, etc.?

17. Do you notify the Environmental Coordinator of any reportable pesticide spill?

18. Do you use compatible rinse liquids as diluents in new tank mixes?

19. If you have underground storage tanks, has their continued use or removal been determined with the Environmental Coordinator?

20. Do you make every effort to minimize the production of pesticide waste, rather than having to deal with disposal problems.