

GUIDE FOR PESTICIDE USE IN THE NATIONAL PARK SYSTEM

**NATIONAL PARK SERVICE
BIOLOGICAL RESOURCES DIVISION
SEPTEMBER 1985**

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1. Scope and Applicability

This guide represents a consolidation of established Department of the Interior and National Park Service policies, guidelines, and procedures regarding the use of pesticides in the National Park System. The procedures regarding the use of pesticides supercede all previous instructions on the submission of pesticide project proposals. They are applicable to all situations in which pesticides are used on National Park Service lands and property. They should be distributed to all National Park Service personnel using or supervising the use of pesticides in the National Park System.

The term "pesticide" as used in this guide reflects the definition of pesticide given by the Federal Insecticide, Fungicide, and Rodenticide Act. In this guide, the term "pesticide" broadly includes all substances or mixtures of substances that are intended for use in any manner to destroy, control the growth of, or repel any viral, microbial, plant, or animal pest or otherwise noxious or unwanted species.

2. General Policies

A. Control of native insects and diseases (NPS Management Policies, 1978).

Native insects and diseases existing under natural conditions are natural elements of the ecosystem. Accordingly, populations of native insects and the incidence of native diseases will be allowed to function unimpeded except where control is required (1) to prevent the loss of the host or host-dependent species from the ecosystem; (2) to prevent outbreaks of the insect or disease from spreading to forests, trees, other vegetative communities, or animal populations outside the area; (3) to conserve threatened or endangered, or unique plant specimens or communities, (4) to conserve and protect flora and fauna in developed zones, or (5) for reasons of public health and safety.

The basic objective of insect and disease control in historic zones is to preserve, maintain, or restore the historical integrity of the area. A concerted effort will be made to prolong the life of any historically significant tree, grove, woodland, forest, or other plant community extant at or representative of the time of the event commemorated. The occurrence of normal endemic populations may be typical of historic, pesticide-free times.

Control operations may be initiated (1) to protect the integrity of the historic scene and (2) to prevent outbreaks from spreading to uninfested forests and trees outside the area.

The measure of control in wilderness areas will be the minimum necessary to prevent escape from the wilderness environment.

B. Control of exotic organisms already present in a park (NPS Management Policies, 1978).

Manipulation of population numbers of exotic plant and animal species, up to and including total eradication, will be undertaken whenever such species threaten protection or interpretation of resources being preserved in the park. Examples of threatening situations include: 1) being detrimental to public health, 2) disrupting the faithful presentation of the historic scene, 3) damaging historic and archeological resources, 4) threatening the perpetuation of natural features, native species (including especially those that are endangered, threatened, or otherwise unique), natural ecological communities, or natural ecological processes, and 5) significantly hampering the management of adjacent park or non-park lands. Control programs will most likely be taken against exotic species which have high impact on protected park resources and where the program has a reasonable chance for successful control, programs are least likely to be initiated against exotic species which have almost no impact on park resources and where there is a minimal probability for successful control. The decision to initiate a control program will be based on existing and newly acquired, scientifically valid resource information that identifies the exotic status of the species, demonstrates its impact on park resources, and indicates alternative control methods and their probabilities of success. Development of a control plan and implementation of actions to protect the park resources will be done according to established planning procedures and will include provisions for public review and comment. Care will be taken that programs to control exotic species do not result in significant damage to native species, natural ecological communities, natural ecological processes, or historic objects.

C. Integrated Pest Management (Department of the Interior Departmental Manual, 1981).

It is the policy of the Department to utilize pest management research, control, education, and assistance programs to develop, support, and adopt integrated pest management (IPM) strategies wherever practicable.

D. Pesticide Use - USDI (Department of the Interior Departmental Manual, 1981).

It is the policy of the Department to use pesticides only after full consideration of alternatives - based on competent analyses of environmental effects, safety, specificity, effectiveness, and costs. The full range of alternatives including chemical, biological, and physical methods, and no action will be considered. When it is determined that a pesticide must be used in order to meet important management goals, the least hazardous material that will meet such goals will be chosen.

E. Pesticide Use - NPS (NPS Management Policies, 1978).

Chemical pesticides of any type will be used only where feasible alternatives are not available or acceptable. The Service's use of all pesticides shall be approved by the Director. Application shall be in accordance with applicable laws, Departmental and Service guidelines, and Environmental Protection Agency and Occupational Safety and Health Administration regulations.

3. Guidelines

The following guidelines are provided to assure compliance with USDI and NPS policies:

A. The National Park Service will make every effort to allow natural processes to operate unaffected by artificial substances and human activities.

B. If monitoring provides evidence that a pest population might negatively affect a protected resource or present a hazard to human health, pest control methods may be considered. Information on monitoring will be maintained by WASO and will be provided to Regions and Parks as needed and as available.

C. After the pest is correctly identified, an analysis of the following control methods should be carried out: 1) no action, 2) mechanical and cultural control, and 3) biological control. Help with identification of pests can usually be obtained from local agricultural extension services or from the Regional Integrated Pest Management (IPM) Coordinator.

D. If the above control methods (CI-C3) are non-existent, unavailable, or unacceptable, a chemical control method may be considered. Chemical control will be allowed only if (a) there is a clear and present danger to the health and safety of man, and/or (b) there is danger of damage or destruction of significant property or resources. The significance of a resource or property is identified in part by legislation, administrative or planning documents or actions. For examples of resources or property to be protected see item 20, page 8.

- E. Pesticide usage will not be authorized when endangered or threatened biota could be adversely affected.
- F. Pesticide usage will be eliminated where feasible in natural zones, and reduced to the maximum degree possible in historic, park development, and special use zones. Pesticide usage to insure visitor comfort will be reduced to the greatest possible degree in all management zones of the Service. This includes such activities as fogging campgrounds and residential areas for mosquito control.
- G. Attempts will be made to reduce pesticide usage for the management of exotic biota. Control of exotic species with chemical pesticides is allowed if scientifically valid information indicates that control is feasible and warranted and provided that the proposed control program is in compliance with Service policy. Introduction of exotic species (certain biological control methods) to control pest exotics will be in accord with Management policies.
- H. The use of chemical herbicides for control of weeds should be based upon the determination that 1) there is a clear and present danger to the health and safety of man, and/or 2) there is danger of damage or destruction of significant property or resources and the control methods of no action, mechanical, cultural and/or biological control are non-existent, unavailable, or unacceptable. The unacceptability determination is not to be based upon consideration of available funds or staff costs.
- I. Pesticides and pesticide containers will be disposed of in accordance with existing EPA regulations (40 CFR 165).
- J. All pesticide use by contractors, concessionaires, special use permittees, agricultural lessees, or other non-NPS personnel in NPS areas will conform to NPS policies and guidelines. This means that pesticide use by these parties must receive approval prior to use and that records concerning pesticide use must be kept by the park and submitted to WASO annually.
- K. Applications of pesticides for personal use by employees in residences and by individuals in community gardens must conform to established Service policies and guidelines. Such uses are exempt from reporting requirements but should be monitored by park personnel. Park personnel will be supplied with the most recent integrated pest management (IPM) information available, as needed, to manage household, garden or nuisance pests. This information should be made available to park employees and community gardeners by Park Management.
- L. The personal use of repellents applied directly to the body or clothing also is exempt from reporting requirements. However, the purchase of repellents by the Service for distribution and use by NPS employees, VIP's, volunteers, etc. must conform to NPS pesticide use policies and pesticide use reporting requirements.
- M. The use of pesticides, with the exception of personal repellents, in National Park areas by visitors is prohibited.
- N. Persons coming in contact with pesticides used in the System, including contract, concession, and NPS employees, will be guided by rules and regulations promulgated by the Occupational Safety and Health Administration, regarding the safe handling of, and exposure to, such toxic materials.

O. Pesticide use under certain conditions must receive additional (besides WASO) approval from the USDI Office of Environmental Project Review (OEPR). See most recent Departmental criteria for these conditions (Appendix C).

P. Effective January 1, 1988 all pesticides applied in areas of the National Park System, except for those cases exempted in Guideline 3 K. (above), must be applied by or under the direct supervision of a certified pesticide applicator. NPS employees must have NPS certification while non-NPS personnel may rely upon valid State certification.

4. Approval Procedures and Recordkeeping

After considering all other alternatives, if a chemical pesticide must be used, then approval must be secured at both the Regional Office and WASO. No pesticide use proposal will be approved solely on the basis of prior approval. Each proposal must be submitted and receive approval annually.

Many requests for pesticide use can be approved over telephone. These requests should be made on an "as needed" basis. The procedure for obtaining telephone approvals is described below (4 A.)

Advance written approval for certain pesticide use projects may be obtained. Such projects include:

i. Use of pesticides in an approved integrated pest management (IPM) program. Approval of the IPM program must be secured through Regional and WASO IPM Coordinators.

ii. Pesticide proposals involving the use of USDA/FS Forest Insect and Disease Control funds.

iii. Pesticide proposals requiring USDI-OEPR approval.

iv. Pesticide proposals involving special-use permits or contracted pest control services.

The procedure for obtaining advanced written approvals is described below (4 B.).

A. Telephone approvals

1) When a Park employee proposes to use a pesticide under conditions other than those listed above (i-iv), he/she should contact his/her Park IPM Coordinator near the time of intended project execution. It is the responsibility of the Park IPM Coordinator to ensure that the proposal is consistent with management plans of the park. The Park IPM Coordinator will coordinate all pesticide use proposals for his/her park.

2) The Park IPM Coordinator should phone the Regional IPM Coordinator and be prepared to provide all information required on the Pest Control Report Form 10-21A (see section 5 A. of this Guide for sample Form 10-21A and instructions). The Regional IPM Coordinator should ensure that nonchemical alternatives are not available, the proposed pesticide is currently registered for its proposed use and that the proposed project conforms to NPS and Departmental policies. Those projects that require special attention or those that might be politically sensitive should be identified at the Regional

level. If necessary, a Regional public health representative should be consulted or if litigation is a likely possibility, the Regional Solicitor's office should be consulted.

3) If the Regional IPM Coordinator concurs with the proposed project, he/she should then contact the WASO IPM Coordinator for final project approval.

4) The WASO IPM Coordinator will contact the Regional IPM Coordinator within five (5) working days, by telephone, giving approval, conditional approval, or disapproval of the project. For approved projects, the WASO IPM Coordinator will forward written approval of the project to the Region.

5) It is the responsibility of the Regional IPM Coordinator to inform the appropriate Park personnel of the WASO decision on the proposal(s).

6) The Park must forward to WASO, through the Region, a completed Form 10-21A within ten (10) working days after notification of a project approval.

B. Advanced written approvals

Where advanced approval of a pesticide project is necessary (i.e., agricultural pesticide uses or contracted pest control services) all required forms must be submitted to WASO, through the appropriate Regional office at least sixty (60) days prior to the anticipated execution date of the project.

1) A completed Form 10-21A, Pest Control Program Report, must be submitted for all proposed pesticide use. A blank form 10-21A and instructions are presented in section 5 A. of this Guide. The Park IPM Coordinator should ensure that the proposal is consistent with management plans of the Park and with Departmental and Service policies.

2) The written proposal should then be forwarded to the appropriate Regional IPM Coordinator for review. Only after Regional review and concurrence should the proposal be sent to WASO for final approval. The Regional representative should ensure that non chemical alternatives are not available, that the proposed project conforms to NP3 and Departmental policies, that the 10-21A is completed accurately and that the proposed pesticide is currently registered for its intended use. Those projects that require special attention or those that might be politically sensitive should be identified at the Regional level. If necessary, a Regional public health representative should be consulted, or if litigation is likely, the Regional Solicitor's office should be consulted.

4) The Regional IPM Coordinator will notify the Park IPM Coordinator of the action taken on the proposal(s).

5) Those projects requiring additional approval from USDI/OEPR (see section 3 N. of this Guide) must be accompanied by a completed and signed USDI Pesticide Use Proposal form and a copy of the label of the pesticide that is intended for use. A blank USDI Pesticide Use Proposal Form and instructions are presented in section 5 B. of this Guide.

C. Pesticide use log

Actual pesticide use in each park will be recorded in a Pesticide Use Log. An entry should be made into the log immediately after each pesticide use. This log should be retained by the Park IPM Coordinator. Such a log will provide a simple and accurate record necessary to report annual actual use information. Section 5 C. of this Guide gives detailed instructions and examples for maintaining the Pesticide Use Log. A copy of the Pesticide Use Log will be sent to the Regional IPM Coordinator annually, who will in turn forward it to the WASO IPM Coordinator. The log containing the previous calendar year's pesticide use information is due in WASO on February 1. WASO will analyze Servicewide pesticide use and issue an annual report.

5. Report Forms and Instructions

A. Pest Control Program Report (Form 10-21A)

All requests for pesticide usage require the submission of a Form 10-21A. Each item must be completed in accordance with the following instructions. A new Form 10-21A must be submitted for each project annually, even if the project had been approved in previous years. A blank form is included.

- 1) TARGET PEST: List the common name (and scientific name where possible) of the pest(s) to be controlled. Also specify the life stage of the pest to be controlled (e.g., egg, immature, adult, pre-emergent, post-emergent, flowering, pre-seed, mature, dormant, stump).
- 2) PRODUCT NAME: List the complete trade name of the product as it appears on the label. Also list the manufacturer [e.g., Sevin FR (Union Carbide), Garlon 4 (Dow)].
- 3) EPA REG. #: An EPA registration number appears on the label of every registered pesticide. Copy the number, which should always contain at least two numbers separated by hyphens, exactly as listed on the label. The first set of numbers may contain as many as six digits, while the second may contain up to five (i.e., 464-360, 264-345, 677-242-AA). Letters referring to State registrations may follow the numbers (i.e. 464-360 FL).
- 4) ACTIVE INGREDIENT: List the active ingredient(s) in the product by its/their approved common name(s) (e.g., carbaryl, triclopyr). If common name is not available use the chemical name (i.e. Boric acid).
- 5) % or #/G ACTIVE INGREDIENT: If the pesticide is in powdered/solid form list the percentage (%) of the active ingredient. If the pesticide is in liquid form list the pounds per gallon (#/G) of active ingredient as it appears on the label.
- 6) MIX OF PRODUCT WITH DILUENT: Give the amount of product to be mixed with diluent i.e. (3 lbs of Carbaryl 50W mixed with 100 gallons of water, or 3 tablespoons of Garlon 3A mixed with diesel oil.)

7) PRODUCT USAGE RATE: Give the amount of product to be used per unit treated. Examples of units include acre, animal, burrow, cubic feet, linear feet, plant, and square feet.

EXAMPLE: If a 5 lb. package of a pesticide dust formulation is applied to 5 acres of turf, write "1 lb./acre."

8) PRODUCT AMOUNT USED PER APPLICATION: List the exact product amount to be used per application.

EXAMPLE: If three one-pint bottles of 50 percent malathion are to be used per application, write: "3 pints".

9) METHOD OF TREATMENT: List the equipment to be used for pesticide application (e.g., aerosol can, bait station, direct application, dust gun, fogger, helicopter, hand placement, hand pressure sprayer, mist blower, rodding and trenching, tent fumigation, wick applicator).

10) FORM APPLIED: List how the product is formulated (e.g., bait, dust, emulsifiable concentrate, granules, liquid, suspension, wettable powder).

11) AREA OR UNITS TO BE TREATED: Give actual area that you are proposing to treat.

EXAMPLE: If you are broadcast treating 3 acres of turf, write: "3 acres-broadcast treatment."

EXAMPLE: If you are spot treating 6 trees on 4 acres of turf, write "6 trees on 4 acres--spot treatment."

12) NUMBER OF SITES: List the number of sites to be treated.

13) DESCRIPTION OF SITES: Give a brief description of the sites to be treated (e.g., cherry trees, structures, native prairie). Also include the management zone (natural, historic, development, or special use).

14) NO. OF APPLICATIONS: List the number of times that you expect to apply the dosage of pesticide described above.

15) AMT. PRODUCT USED TOTAL: List the total amount of product to be used for the entire project.

16) REGION: List the National Park Service Region to which your park reports.

17) YEAR: List the calendar year for which the project is proposed.

18) ORGANIZATION: List the official name of the park.

19) PROJECT: List the official four-letter organization code, the last two digits of the calendar year, and a unique number assigned to the project (separated by hyphens). An example is "YELL-84-01" for project number 1 in 1984 at Yellowstone National Park.

20) PURPOSE: Describe the purpose of the project

Crop (name) protection,	Ornamental protection
Employee health	Pasture protection
Endangered species protection	Public health protection
Exotic plant control	Quarantine (agricultural)
Forest Insect and Disease Project	Research
Greenhouse plant protection	Roadside and trail maintenance
Historical preservation	Site protection and restoration
Household protection	Soil sterilization
Lawn and turf protection	Structural protection
Livestock protection	Utility right-of-way clearance
Museum specimen protection	
Orchard protection	

21) SEASON OR PERIOD OF APPLICATION: Use either months or seasons to complete this category. If possible, give exact dates.

22) AREAS TO BE AVOIDED: List any areas which should be avoided as indicated on the label or in the product literature.

23) AREAS TO BE TREATED WITH CAUTION: List any areas that should be treated with caution, as specified on label.

24) PRECAUTIONS: List any precautions such as extra safety procedures needed, as prescribed on the label.

25) USE OF TRAINED OR CERTIFIED PERSONNEL: Specify the number of certified pesticide applicators (include specific federal or state applicator program and certification category) and uncertified applicators involved in the project.

26) MONITORING: List any planned monitoring activities, both pre- and post-treatment. Briefly describe method.

27) PERSON TO CONTACT: List the name and phone number of the Park IPM Coordinator. He/she should be able to answer technical questions about the project.

28) REMARKS: Include any comments which you feel are necessary to clarify any of the preceding items. List any non-chemical alternatives which have been considered as possible solutions to the problem and give reasons for their rejection. Give reasons for the importance of this project, such as damage or destruction of resources or threats to health, which could occur if control operations were not accomplished.

UNITED STATES DEPARTMENT OF INTERIOR
NATIONAL PARK SERVICE
PEST CONTROL PROGRAM REPORT

TARGET PEST:

REGION:

SIGNATURES OF APPROVAL

YEAR:

PARK: _____ DATE: _____

ORGANIZATION:

PRODUCT NAME:

PROJECT:

REGION: _____ DATE: _____

(e.g., YELL-84-01)

PURPOSE:

EPA REG. #:

SEASON OR PERIOD
OF APPLICATION:

ACTIVE INGREDIENT:

% or #/G (/)

ACTIVE INGREDIENT:

AREAS TO BE AVOIDED:

MIX OF PRODUCT
WITH DILUENT:

AREAS TO BE TREATED
WITH CAUTION:

PRODUCT USAGE RATE:

PRECAUTIONS:

PRODUCT AMOUNT USED
PER APPLICATION:

METHOD OF TREATMENT:

USE OF TRAINED OR
CERTIFIED PERSONNEL:

FORM APPLIED:

MONITORING:

AREA OR UNITS TO
BE TREATED:

PERSON TO CONTACT:

NUMBER OF SITES:

OTHER REMARKS:

DESCRIPTION OF SITES:

NO. OF APPLICATIONS :

AMT PRODUCT USED TOT:

B. USDI Pesticide Use Proposal

This form is to be submitted with a 10-21A and a copy of the label attached for all projects which require Departmental review. Departmental review is generally required for the following types of projects (See Appendix C for listed exemptions):

- 1) All pesticide uses classified as Restricted by EPA. (See Appendix D)
- 2) All pesticide uses involving aquatic application or when the applied pesticide could reasonably be expected to get into water.
- 3) All pesticide uses that consist of one application on more than 2,560 acres.
- 4) All pesticide uses that can reasonably be expected to affect threatened or endangered animal or plant species.

Directions for completing this form

- 1) Bureau = National Park Service
- 2) Station = Park name
- 3) Proposal Number = (e.g. YELL 84-02) Same number as used on 10-21A
- 4) Date = Date form completed
- 5) I. Chemical /II Pest = Self explanatory
- 6) III Site B = Must include a statement that no endangered, threatened or significant resources will be affected by this project.
- 7) Signature = Must be signed by park IPM Coordinator.

U. S. DEPARTMENT OF THE INTERIOR
PESTICIDE USE PROPOSAL

BUREAU/OFFICE/STATE _____

STATION _____

PROPOSAL NUMBER _____ DATE _____

I. CHEMICAL

A) PESTICIDE (COMMON NAME) _____

B) EPA REGISTRATION NUMBER _____

C) APPLICATION RATE _____

D) NUMBER OF APPLICATIONS _____

E) METHOD OF APPLICATION _____

F) DATE(S) OF APPLICATION _____

II. PEST

A) LIST THOSE PESTS INTENDED FOR CONTROL

III. SITE

A) GENERAL DESCRIPTION, INCLUDING THE SITE OF TREATMENT
AREA/VOLUME

B) SENSITIVE AREAS, INDICATE AREA(S) NEAR TREATMENT SITE
WHICH MIGHT BE ADVERSELY AFFECTED AND THEREFORE, REQUIRE
SPECIAL ATTENTION. CONSULT THE LABEL OR LABELING AND
EXAMINE AREAS ADJACENT TO THE TREATMENT SITE.

THE ABOVE PROPOSED APPLICATION WILL BE DONE ACCORDING TO
APPLICABLE RESTRICTIONS CONTAINED ON LABELS OR LABELING

SIGNATURE _____

C. Pesticide Use Log

A Pesticide Use Log must be maintained for each park area. This should consist of a loose leaf binder containing forms as illustrated at the end of this section. Extra copies of these forms may be photocopied or obtained from the Regional Office or WASO.

Each park should maintain a running account of actual pesticide use by making an entry to the form immediately following each pesticide application. This will require submission of the needed information from the non-NPS applicators and points up the need to closely coordinate and seek approval for all application of pesticides by contractors, concessionaires, leasees, and others. Proper maintenance of this log will facilitate retrieval of the pesticide use information necessary for year-end reporting. Pesticide Use Logs covering the entire calendar year will be due in WASO on February 1 of the succeeding year.

Each log sheet contains enough space for fifteen entries. Use one space for each active ingredient that appears on the label. See instructions below for completing form (blank form attached). This form may be expanded to meet additional local reporting requirements. Anyone having difficulty with the requested calculations may contact their Regional IPM Coordinator for assistance.

<u>ITEM</u>	<u>INSTRUCTIONS</u>
<u>Park:</u>	List the official name of the park.
<u>Region.</u>	State the Regional Office to which the park reports.
<u>Year.</u>	State the calendar year for which the listed projects are covered. DO NOT USE A SHEET FOR MORE THAN ONE CALENDAR YEAR.
<u>Location/Project No.:</u>	List the four letter organization code for the park area and the sequential project number. (e.g. YELL 84-02).
<u>Date:</u>	List the date that the application was performed. If a project takes more than one day, make separate listings.
<u>Applicator:</u>	List the name of the applicator(s) who are actually applying the pesticides. This includes both contract and lease personnel.
<u>Trade Name:</u>	List either the trade mark or trade name that is listed on the label for the product.
<u>Active Ingredient:</u>	List the common name of the active ingredient in the product. If more than one active ingredient is contained in a particular product, make separate entries.

EPA Reg. Number:

List the complete EPA registration number for the product. This number will appear on the label of every registered pesticide.

Pest:

List, as specifically as possible, the target pest(s) of your application.

Amount of Product:

State the actual amount of product applied.

EXAMPLE: If two 1-pint bottles of 22.5 percent chlorpyrifos solution was used then list "2 pints".

Area Treated.

State the total area treated in square feet or acres.

EXAMPLE: If two acres of weeds were broadcast with glyphosate, then state.. "2 acres - broadcast".

If 15 trees in an area of 30 acres were spot treated, state: "15 trees on 30 acres - spot treatment".

Amount 100% Active Ingredient:

State the total amount of actual active ingredient used in terms of LBS (pounds). Examples are given below to illustrate the information needed to make necessary conversions.

Powders, Dusts, etc.

If the product is purchased as a powder, the amount (weight) used should be converted to pounds. This number is then multiplied by the percent active ingredient, and divided by 100 to give the "Amount of 100% Active Ingredient".

EXAMPLE: 4 oz. of 10 percent carbaryl dust are applied to ornamental plants.
16 oz. = 1 pound
4 oz. = 1/4 or 0.25 pounds.
Since the carbaryl dust contains 10 percent active ingredient, make the following computation:
 $10/100 = 0.10$
Then multiply the weight of the active ingredient (0.25 lb) by the proportion of active ingredient (0.10) to give the "Amount of 100% Active Ingredient".
 $0.25 \times 0.10 = 0.025 \text{ lb.}$

Solutions, Liquids, Emulsions, etc.

If the product is purchased as a liquid, then the volume used must be converted to units of weight. Pesticide labels contain a conversion factor to make this calculation.

EXAMPLE. The label for Dursban 2E insecticide states "contains 2 pounds of chlorpyrifos per gallon."

The applicator mixes 2 fl. oz. of the product with 2 quarts of water and applies it according to the label instructions. To determine the "Amount of 100 percent Active Ingredient" used, the following calculations are necessary:

a) Convert fluid oz. to gallons

32 fl. oz. = 1 quart
4 quarts = 1 gallon
128 fl. oz = 1 gallon

2 fl. oz. = 0.016 gal. of
product used.

b) Since the product contained 2 pounds of chlorpyrifos per gallon, make the following calculations to determine the actual weight of active ingredient used.

2 lb chlorpyrifos x 0.016 = 0.032 lbs.

PARK:
REGION:
YEAR:

13A

6. Appendices

The following documents may be subject to frequent revision. They are included herein but will be provided under separate cover as they are updated.

- A. Definitions
- B. Departmental Manual Section (517 DM 1) on Pesticides
- C. Criteria for Pesticide Projects needing Departmental approval
- D. U. S. Environmental Protection Agency List of Restricted Use Pesticides
- E. List of Regional Integrated Pest Management (IPM) Coordinators

Definitions

active ingredient: an ingredient that will prevent, destroy, repel or mitigate any pest; accelerate or retard the rate of growth or rate of maturation of ornamental or crop plants (plant regulator); cause the leaves or foliage to drop from a plant (defoliant); or artificially accelerate the drying of plant tissue (desiccant).

device: any instrument or contrivance (other than a firearm) which is intended for trapping, destroying, repelling, or mitigating any pest or other form of plant or animal life (other than humans and other than bacteria, virus, or other microorganism on or in living humans or other living animals); but not including equipment used for the application of pesticides when sold separately therefrom.

exotic species: species that occur in a given place, area, or region as the result of direct or indirect, deliberate or accidental introduction of the species by humans.

integrated pest management (IPM): the selection, integration, and implementation of pest control based on predicted economic, ecological, and sociological consequences. IPM uses a systems approach to reduce pest damage to tolerable levels through a variety of techniques, including natural predators and parasites, genetically resistant hosts, environmental modifications, and where necessary and appropriate, chemical pesticides.

label: the written, printed, or graphic matter on, or attached to, the pesticide or device or any of its containers or wrappers.

native species: species which presently occur, or once did occur prior to some human influence, in a given place, area, or region as the result of ecological processes that operate and have operated without significant direct or indirect, deliberate or accidental alteration by humans.

pest: an organism or population of organisms that, by its presence or actions, interferes with the successful accomplishment of management objectives for a particular situation. Pests species may include insects, plants, vertebrates, fungi, bacteria, nematodes, and nonhuman species.

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

DEPARTMENT OF THE INTERIOR
DEPARTMENTAL MANUAL

Appendix B

Environmental Quality

Part 517 Pesticides

Chapter 1 Pesticide Use Policy

517 DM 1.1

1.1 Purpose. This Chapter prescribes the Department's policies for the use of pesticides on the lands and waters under its jurisdiction and for compliance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended.

1.2 Policy. It is the policy of the Department:

A. To use pesticides only after full consideration of alternatives - based on competent analyses of environmental effects, safety, specificity, effectiveness, and costs. The full range of alternatives including chemical, biological, and physical methods, and no action will be considered. When it is determined that a pesticide must be used in order to meet important management goals, the least hazardous material that will meet such goals will be chosen.

B. To utilize pest management research, control, education, and assistance programs to develop, support, and adopt integrated pest management (IPM) strategies wherever practicable.

C. To use only pesticides registered by the Environmental Protection Agency (EPA) in full accordance with FIFRA, as amended, and as provided in regulations, orders, or permits issued by EPA.

D. That the handling and use of restricted-use pesticides be conducted with caution and only by personnel who are either certified or under the direct supervision of a certified applicator.

E. To insure that all pesticides and pesticide containers are transported, stored, and disposed of in a manner that will safeguard human health, fish and wildlife, and prevent soil and water contamination.

F. To give full consideration at all times to safety to humans, fish and wildlife, and other non-target organisms.

G. To use pesticides in habitats involving endangered and threatened animal or plant species only after it is determined that such use will not adversely affect the species or its critical habitat. This determination will be made through the Endangered Species Act consultation process prescribed in 50 CFR 402.

H. To use pesticides in wilderness areas only where necessary to protect human health or to prevent loss of significant resource values on public or private lands within or bordering the wilderness area.

DEPARTMENT OF THE INTERIOR
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Appendix B

Environmental Quality

Part 517 Pesticides

Chapter 1 Pesticide Use Policy

517 DM 1.2I

I. To conduct or require quality control monitoring before, during, and after any pesticide application in ecologically sensitive areas. Such monitoring will determine whether the application achieved the desired effects and whether there are any significant, unanticipated effects.

J. To apply pesticides by aerial methods only when the advantages over ground methods are distinct and then only with appropriate techniques to ensure positive placement and to minimize drift.

K. To adhere to Departmental public participation policies in carrying out pesticide use programs. (301 DM 2)

L. To ensure that areas treated with Restricted Use pesticides (40 CFR 162.31) are posted at usual points of entry so that occupants, land users, and visitors are informed sufficiently in advance to avoid possible exposure. Such posting will contain: (1) a statement that the area has been or will be treated with a named pesticide; (2) the date of the treatment; (3) appropriate precautions to be taken or the date when re-entry is judged to be safe; (4) a telephone number and address for further information. Local managers may make exceptions to the posting requirement where they judge no public exposure is likely.

M. To ensure that all non-Interior lessees, operators, or other users of Interior lands, waters, or facilities are aware of their obligation to comply with FIFRA as amended, Departmental policy, and all other applicable Federal and State laws and regulations governing the use of pesticides, and to require such compliance through periodic review of the pesticide-related plans and practices of the land users.

1.3 Prohibited and Restricted Uses of Pesticides. The pesticides listed by EPA as prohibited or restricted are prohibited or restricted, as indicated, for use on lands and waters administered by the Department.

1.4 Responsibilities.

A. Assistant Secretary - Policy, Budget, and Administration.

(1) Is responsible for overseeing the Department's compliance with FIFRA, as amended, and its implementation of all other policies prescribed in this Part.

(2) Is responsible for coordinating any program differences or conflicts between Assistant Secretaries.

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Appendix B

Environmental Quality

Part 517 Pesticides

Chapter 1 Pesticide Use Policy

517 DM 1.4B

B. Program Assistant Secretaries. Are responsible for their subordinate bureaus and offices' compliance with the amended FIFRA, EPA's implementing regulations (Code of Federal Regulations, Title 40, Subchapter E - Pesticide Programs), and the policies prescribed in this Part.

C. Heads of Bureaus and Offices.

(1) Will ensure that their organizations comply with the amended FIFRA, EPA's implementing regulations (Code of Federal Regulations, Title 40, Subchapter E - Pesticide Programs), and the policies prescribed in this Part.

(2) Will ensure that their organizations' pesticide programs and uses are evaluated, controlled, and monitored for safety, protection of the environment, and compliance with the National Environmental Policy Act, as amended, and the Endangered Species Act, as amended.

(3) Will provide technical support for Departmental reviews of pesticide policies, programs, and uses when requested.

D. Office of Environmental Project Review.

(1) Will be the lead office for advising the Assistant Secretary - Policy, Budget, and Administration in regard to the policy aspects of Departmental pesticide programs and activities. This includes recommendations for revision of this Pesticide Use Policy when warranted by changes in the available technical information, pertinent Federal statutes or regulations, or other conditions.

(2) Will solicit and consider the views of all interested Departmental offices and bureaus when changes in this Pesticide Use Policy are contemplated. Recommendations for revision of this policy will be accompanied by appropriate supporting information and the comments of interested Departmental bureaus and offices.

(3) Will exercise oversight review of pesticide programs, projects, procedures, and performance for the Assistant Secretary - Policy, Budget, and Administration.

(4) Will be the lead office for establishing the requirements for Departmental-level reviews of pesticide uses proposed by Interior bureaus and offices, for performing such reviews, and will approve certain pesticide uses. The heads of the interested bureaus and offices will be invited to designate representatives to advise and assist in these reviews.

(5) Will alert bureaus when new information or other considerations require significant controls, advice, or warning concerning the use of pesticides that may pose an environmental threat.

7/14/81 #2336

Replaces 6/19/81 #2331

B-3



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

SEP 18 1985

Memorandum

To: Heads of Bureaus and Offices

From: Office of Environmental Project Review

Subject: Review of Proposed Pesticide Use in CY's 1985 and 1986

Pesticide use guidance to Bureaus is hereby updated for CY's 85 and 86 to encompass the experience gained during the past three years. A review of individual Bureau proposals under the former screening criteria was performed by the technical staff representatives of each Bureau. Departmentwide, the results reflect a growing experience with pesticide applications at the field level; however, these field capabilities have not improved uniformly. The following guidance, therefore, recognizes this experience as well as variances between program areas and pesticide uses.

The criteria and exceptions below should be used to determine which proposals must be submitted to this office for review during the coming year. In cases where there is doubt about the need for review, the proposal should be submitted. All other pesticide use proposals need not be submitted. Their review is your responsibility. These criteria will be reviewed again next year for similar revision as warranted.

CRITERIA FOR CY's 1985 AND 1986 PROJECT SUBMISSION

1. All pesticide uses classified as Restricted by EPA.
2. Pesticide uses that involve aquatic application or when the applied pesticide could reasonably be expected to get into water areas.
3. Pesticide uses that can be expected to affect threatened or endangered animal or plant species.
4. Pesticide uses that consist of one application of more than 2,560 acres.

EXCEPTIONS TO THE ABOVE CRITERIA (i.e., no Departmental review)

- A. All Bureaus
- A1. The use of copper sulfate, weed oils, and fish toxicants (other than Fintrol and Rotenone) in aquatic applications noted above.
 - A2. The use of Tordon (picloram) for weed and brush control of 200 contiguous dry acres or less.
 - A3. All registered uses of *Bacillus thuringiensis* for the control of larval mosquitoes and larval gypsy moths.

- A4. The application of chemicals registered for use in the controlled fumigation of structures.
- A5. The use of Rodeo (glyphosate) for the control of emerged annual and perennial weeds including noxious weeds, cattails, phragmites, and tules along the perimeter of marshes, lakes and ponds, and along drainage ditch banks, irrigation canal banks, and rangelands.
- A6. The use of copper sulfate for the control of algae and pondweeds on boat ramps and irrigation conveyance systems.
- A7. The use of properly registered 2,4-D dimethylamine salt formulations (Weedar 64-EPA Reg. No. 264-2, Gordon's Amine 400 Weed Killer-EPA Reg. No. 2217-2, Clean Crop Amine 4 2,4-D Weed Killer-EPA Reg. No. 34704-120, Vertac's Weed-RHAP A-4D-EPA Reg. No. 3911-64, and similar product registrations) for broadleaf weed control on drainage ditch banks and irrigation canal ditch banks above water line in the 17 Western States, except NPS.
- A8. The use of Monurex (monuron) and Karmex (diuron) for weed control in irrigation and drainage ditches when water is not in the drainage ditch or in irrigation ditches during non-crop season and ditch is dewatered.
- A9. The use of Dowpon M (dalapon) on non-cropland such as railroad ballast and berm areas, drainage ditches above water line, fence rows, industrial sites, and forest planting sites for grassy weed control not adjacent to inhabited areas, throughout the United States.
- A10. The use of Krenite (fosamine) for general brush control on non-cropland areas such as railroad, pipeline, utility and highway rights-of-way, drainage ditch banks above water line, storage areas, industrial plant sites, reforestation areas prior to planting, and other similar areas not adjacent to inhabited areas, throughout the United States.
- B. The Bureau of Indian Affairs
 - B1. The use of Banvel (dicamba) for brush control with ground applications on rangeland and non-cropland areas not adjacent to inhabited areas.
 - B2. The use of Amitrol-T (amitrole) for aquatic weed control (cattails and phragmites) with ground application only in marshes and drainage ditches.
 - B3. The use of Fintrol (antimycin-A) for fish control in fish ponds, lakes, and streams in doses not to exceed label restrictions on 100 acres or less of flat waters.
 - B4. The use of Aquazine (simazine) for algae control in fish rearing ponds.
 - B5. The use of zinc phosphide as baits in the control of burrowing rodents and prairie dogs.

C. The Bureau of Reclamation and the Fish and Wildlife Service

- C1. The use of Dowpon M (dalapon) on irrigation ditch banks for control of grasses such as reed canary, bermuda, Johnson, phragmites, cattails, and tules on inner banks of irrigation systems not adjacent to inhabited areas, Western United States only.

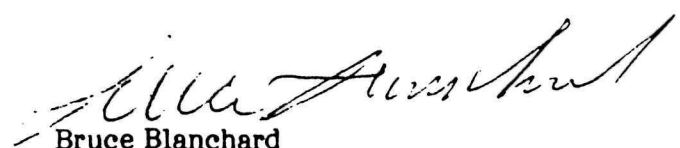
D. The Fish and Wildlife Service

- D1. The use of 2,4-D dimethylamine salt and butoxylethanol ester for drainage ditch banks above water line only, but not adjacent to inhabited areas.
- D2. The use of Aquazine (simazine) as an algicide or for the control of submerged and floating weeds in fish rearing ponds or fish hatcheries.
- D3. The use of Rotenone (derris root) or Fintrol (antimycin-A) for registered fish toxicant uses affecting less than 50 stream miles or less than 100 acres of flat waters and no potable water intakes in the affected area.
- D4. The use of Methoprene, Temephos, or oil for the control of mosquito larvae on refuges.
- D5. The use of Casoron (dichlobenil) by ground application for the control of submerged aquatic weeds in non-flowing water such as ponds, reservoirs and lakes, which are not potable water supplies.
- D6. The use of copper ethanolamine or copper triethanolamine for the control of algae in fish hatcheries, rearing ponds, or reservoirs which are not potable water supplies.

E. The Fish and Wildlife Service and the National Park Service

- E1. The use of Malathion for the control of adult mosquitoes on refuges and parks.

All the above criteria and exceptions apply only to specific use patterns; not the pesticides. If technical assistance is needed, Bureaus may submit proposals for review of any pesticide use not covered under the above criteria. A copy of the EPA label must be submitted with each proposal. The individual responsible for implementing the specific proposal must sign the pesticide use proposal form. This individual must have the authority to stop or modify the proposal project if local conditions call for such action.


Bruce Blanchard
Director

RESTRICTED USE PESTICIDES

Title 40—Protection of Environment

Chapter I—Environmental Protection Agency

§ 162.31 Pesticide use classification.

The following uses of pesticide products containing the active ingredients specified below have been classified for restricted use and are limited to use by or under the direct supervision of a certified applicator.

Active ingredient	Formulation	Use pattern	Classification ¹	Criteria influencing restriction
Acroten	As sole active ingredient. No mixtures registered.	All uses	Restricted	Inhalation hazard to humans. Residue effects on even species and aquatic organisms.
Acrylonitrile	In combination with carbon tetrachloride. No registrations as the sole active ingredient.	do	do	Other hazards—accident history of both acrylonitrile and carbon tetrachloride products.
Aldicarb	As sole active ingredient	Ornamental uses (indoor and outdoor).	do	Other hazards—accident history.
	No mixtures registered	Agricultural crop uses	Under further evaluation	
Allyl alcohol	All formulations	All uses	Restricted	Acute dermal toxicity
Aluminum phosphide	As sole active ingredient. No mixtures registered.	do	do	Inhalation hazard to humans.
Azinphos methyl	All liquids with a concentration greater than 13.5 pct.	do	do	Do.
	All other formulations	do	Under further evaluation	
Calcium cyanide	As sole active ingredient. No mixture registered.	do	Restricted	Do.
Carbofuran	All concentrate suspensions and wettable powders 40% and greater.	do	do	Acute inhalation toxicity.
	All granular formulations	Rice	Under evaluation	
	All granular and fertilizer formulations	All uses except rice	do	
Chlorfenvinphos	All concentrate solutions or emulsifiable concentrates 21% and greater.	All uses (domestic and non-domestic).	Restricted	Acute dermal toxicity.
Chloropirrifos	All formulations greater than 2%	All uses	do	Acute inhalation toxicity.
	All formulations	Rodent control	do	Hazard to non-target organisms.
	All formulations 2% and less	Outdoor uses (other than rodent control).	Unclassified	
Clorfenalid	All wettable powders 70% and greater	All uses	Restricted	Acute inhalation toxicity
	All granulars and wettable powders	Molluscicide uses	Restricted	Effects on aquatic organisms.
	Pressurized sprays 0.55% and less	Hospital antiseptics	Unclassified	
Cyfluthrin	All formulations greater than 4%	All uses	Restricted	Acute dermal toxicity.
	All formulations 0.027% to 4%	do	Under evaluation	
	All formulations 0.027% and less	Domestic uses	Unclassified	
Demeton	1 pct fertilizer formulation, 1.985 pct granular formulation.	All uses, including domestic uses.	Restricted	Domestic uses: Acute oral toxicity. Acute dermal toxicity.
	All granular formulations, emulsifiable concentrates and concentrated solutions.	All uses	do	Nondomestic outdoor uses. Residue effects on even and mammalian species.
Diazinophos	All liquid formulations 8% and greater	All uses	Restricted	Acute dermal toxicity. Residue effects on mammalian and even species.
Diazethion	All concentrate solutions or emulsifiable concentrates ¹ greater than 30%.	do	do	Acute dermal toxicity; residue effects on even species (except for tree injections).
	Concentrate solutions or emulsifiable concentrates ¹ 30% and less and wettable powders 25% and less.	Livestock and agricultural uses (non-domestic uses only).	Unclassified	Acute dermal toxicity.
	All solutions ¹ 3% and greater	Domestic uses	Restricted	Do.

Active ingredient	Formulation	Use pattern	Classification ¹	Criteria influencing restriction
Disulfoton	2.5% solution ² with Iosaphene and malathion	All uses	Under evaluation	Acute dermal toxicity. Acute inhalation toxicity
	All emulsifiable concentrates 66% and greater, all emulsifiable concentrates and concentrate solutions 21% and greater with fenitrothion 43% and greater, all emulsifiable concentrates 32% and greater in combination with 32% fenitrothion and greater.	do	Restricted	
Endrin	Non-aqueous solution 86% and greater	Commercial seed treatment	Restricted	Acute dermal toxicity. Acute inhalation toxicity.
	Granular formulations 10% and greater	Indoor uses (greenhouse)	do	
EPN	All emulsions, dusts, wettable powders, pastes, and granular formulations 2 pct and above.	All uses	Restricted	Acute dermal toxicity. Hazard to nontarget organisms.
	All concentrations less than 2 pct	do	do	
Ethoprop	All liquid and dry formulations greater than 4%	do	do	Hazard to nontarget organisms. Acute dermal toxicity; acute inhalation toxicity; residue effects on avian species.
Ethyl parathion	Aquatic uses	Aquatic uses	do	Effects on aquatic organisms. Acute dermal toxicity.
	Emulsifiable concentrates 40% and greater	Aquatic uses	do	
Ethyl parathion	All granular and fertilizer formulations	All uses	Under evaluation	Inhalation hazard to humans. Acute dermal toxicity. Residue effects on mammalian, aquatic, avian species.
	All granular and dust formulations greater than 2 pct, fertilizer formulations, wettable powders, emulsifiable concentrates, concentrated suspensions, concentrated solutions.	do	Restricted	
Fenemphos	Smoke fumigants	do	do	Inhalation hazard to humans.
	Dust and granular formulations 2 pct and below	do	do	
Fenitrothion	Emulsifiable concentrates 35% and greater	do	do	Acute dermal toxicity. Do.
	Concentrate solutions 63% and greater, all emulsifiable concentrates and concentrate solutions 43% and greater with disulfoton 21% and greater, all emulsifiable concentrates 32% and greater in combination with disulfoton 32% and greater.	do	Restricted	
Fluorocyclopentadiene/1081	Granular formulations 10% and greater	Indoor uses (greenhouse)	do	Do.
	As sole active ingredient in baits. No mixtures registered	All uses	Restricted	
Fonofos	Emulsifiable concentrates 44% and greater	do	do	Acute dermal toxicity.
	Emulsifiable concentrates 12.6% and less with pelubate 50.3% and less.	Tobacco	Unclassified	
Hydrocyanic acid	As sole, active ingredient. No mixtures registered.	do	Restricted	Inhalation hazard to humans.
Methamidophos	Liquid formulations 40% and greater	do	Restricted	Acute dermal toxicity; residue effects on avian species.
Methidathion	Dust formulations 2.5% and greater	do	do	Residue effects on avian species. Do.
	All formulations	All uses except nursery stock, safflower and sunflower.	do	
Methomyl	All formulations	Nursery stock, safflower and sunflower	Unclassified	
Methomyl	As sole active ingredient in 1 pct to 2.5 baits (except 1 pct fly bait).	Nondomestic outdoors-agricultural crops, ornamental and turf. All other registered uses.	Restricted	Residue effects on mammalian species
	All concentrated solution formulations	do	do	
Methyl bromide	90 pct wettable powder formulations (not in water soluble bags).	do	do	Other hazards-accident history Do.
	90 pct wettable powder formulation in water soluble bags.	do	Unclassified	
Methyl bromide	All granular formulations	do	do	
	25 pct wettable powder formulations	do	do	
Methyl bromide	In 1.24 pct to 2.5 pct dusts as sole active ingredient and in mixtures with fungicides and chlorinated hydrocarbon, inorganic phosphate and biological insecticides	do	do	
	All formulations in containers greater than 1.5 lb.	All uses	Restricted	
Methyl bromide	Containers with not more than 1.5 lb of methyl bromide with 0.25 pct to 2.0 pct chloropicrin as an indicator.	Single applications (nondomestic use) for soil treatment in closed systems.	Unclassified	
	Container with not more than 1.5 lb having no indicator	All uses	Restricted	
Methyl parathion	All dust and granular formulations less than 5 pct.	do	do	Other hazards-accident history. All foliar applications restricted based on residue effects on mammalian and avian species.
	Microencapsulated	do	do	
Mevinphos	All dust and granular formulations 5 pct and greater and all wettable powders and liquids	do	do	Residue effects on avian species. Hazard to bees.
	All emulsifiable concentrates and liquid concentrates.	do	do	
Mevinphos	Psycood filter fly liquid formulations	do	do	Acute dermal toxicity. Residue effects on mammalian and avian species.
	2 pct dusts	do	do	
Monocrotophos	Liquid formulations 19% and greater	do	do	Do.
	Liquid formulations 55% and greater	do	do	
Nicotine (alkaloid)	Liquid and dry formulations 14% and above	Indoor (greenhouse)	do	Residue effects on avian species. Residue effects on mammalian species. Acute dermal toxicity.
	All formulations	Applications to cranberries.	do	
Nicotine (alkaloid)	Liquid and dry formulations 1.5% and less	All uses (domestic and non-domestic).	Unclassified	Residue effects on avian species. Residue effects on mammalian species. Acute dermal toxicity. Effects on aquatic organisms.

Active ingredient	Formulation	Use pattern	Classification ¹	Criteria influencing restriction
Paraquat (dichloride) and paraquat bis(methyl sulfate)	All formulations and concentrations except those listed below	All uses	Restricted	Other hazards. Use and accident history. human toxicological data
	Pressurized spray formulations containing 0.44 pct Paraquat bis(methyl sulfate) and 15 pct petroleum distillates as active ingredients.	Spot weed and grass control	do	
	Liquid fertilizers containing concentrations of 0.025 pct paraquat dichloride and 0.03 percent atrazine; 0.03 pct paraquat dichloride and 0.37 pct atrazine; 0.04 pct paraquat dichloride and 0.48 pct atrazine	All uses	Unclassified	
Phorate	Liquid formulations 85% and greater	do	Restricted	Acute dermal toxicity. Residue effects on avian species (applies to foliar applications only). Residue effects on mammalian species (applies to foliar application only). Effects on aquatic organisms.
Phosalone	All granular formulations. Bats 0.1% and greater	Rice	do	Hazard to non-target species. Residue effects on mammalian species. Residue effects on avian species.
Phosphamidon	Liquid formulations 75% and greater	do	do	Acute dermal toxicity. Residue effects on mammalian species. Residue effects on avian species
	Dust formulations 1.5% and greater	do	do	Do.
Pictoram	All formulations and concentrations except Tordon 101 R.	do	do	Residue effects on mammalian species. Hazard to nontarget organisms (specifically nontarget plants both crop and noncrop)
	Tordon 101 R forestry herbicide containing 5.4 pct pictoram and 20.9 pct 2,4-D.	Control of unwanted trees by cut surface treatment.	Unclassified	
Sodium cyanide ²	All capsules and ball formulations	All uses	Restricted	Inhalation hazard to humans.
Sodium fluoroacetate	All solutions and dry bays	do	do	Acute oral toxicity. Hazard to nontarget organisms. Use and accident history.
Strychnine	All dry bays, pellets and powder formulations greater than 0.5 pct.	do	do	Acute oral toxicity. Hazard to nontarget avian species. Use and accident history.
	All dry bays, pellets and powder formulations	All uses calling for burrow builders.	do	Hazard to nontarget organisms.
	All dry bays, pellets and powder formulations 0.5 pct and below.	All uses except subsoil	do	Do.
	do	All subsoil uses	Unclassified	
Sulfotep	Sprays and smoke generators	All uses	Restricted	Inhalation hazard to humans.
Tepp	Emulsifiable concentrate formulations	do	do	Inhalation hazard to humans. Dermal hazard to humans. Residue effects on mammalian and avian species
Zinc Phosphide	All formulations 2% and less.	All domestic uses and non-domestic uses in and around buildings.	Unclassified	
	All dry formulations 60% and greater	All uses	Restricted	Acute inhalation toxicity. Hazard to non-target organisms.
	All bait formulations	Non-domestic outdoor uses (other than around buildings).	do	
	All dry formulations 10% and greater	Domestic uses	do	Acute oral toxicity

¹ Under evaluation" means no classification decision has been made and the use/formulation in question is still under active review within EPA

² Percentages given are the total of dioxathion plus related compounds.

³ (NOTE—M-44 sodium cyanide capsules may only be used by certified applicators who have also taken the required additional training.)

[43 FR 5790, Feb. 9, 1978, as amended at 44 FR 45132, Aug. 1, 1979; 46 FR 5698, Jan. 19, 1981]

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