

## 7.0 INTEGRATED PEST MANAGEMENT

### 7.1 Introduction

The District is responsible for implementing pest control management practices within much of the 28,000 acres of East Bay watershed lands, recreation areas, right-of-ways, facility grounds and other areas located throughout the District. The District is committed to using the most environmentally safe practices for pest control to ensure the protection of the public and District employees, and to protect potable water sources, other aquatic resources, and public and private property.

The District has established an Integrated Pest Management (IPM) program to develop a consistent approach toward pesticide usage and management throughout the District, and to monitor the use of herbicides and pesticides. The IPM program provides written guidance for determining the most appropriate pest control methods for a particular application, including the use of chemicals. IPM procedures and practices are provided to managers and supervisors of work units having pest management responsibilities.

The District does not handle or use any restricted use pesticides. ECS staff reviews the use of pesticides on new projects, ensures that the work unit uses the pesticides in an appropriate manner, and that alternatives to chemical applications are used to the extent possible. Pesticides are applied in a 1% solution, and consist primarily of Roundup Pro, Surflan, and smaller amounts of other Class 3 pesticides. Each work unit develops annual reports summarizing the types, quantities, and locations of pesticide and herbicide usage throughout the District.

Pests include a wide range of both plant and animal species capable of creating a nuisance. District practice on watersheds is to use chemical controls to achieve an acceptable maintenance level for the identified pest, and then to use a combination of chemicals and physical methods to keep the pests under control. Physical methods include using brush rakes, chain saws, disking, and in the case of controlling star thistle, actual removal by hand. The District continues to use horse, cattle, and occasionally goat grazing as a means of pest control, including the use of draft horses for removing eucalyptus trees. In addition, controlled burns are conducted for both weed control and fire fighting training.

## 7.2 Definitions of Key Terms

*Integrated Pest Management (IPM)* is a pest management strategy that focuses on long-term prevention of pests with minimum impact on human health, the environment, and non-target organisms. A pest management strategy may include one or more of the following elements:

- No controls;
- Physical/mechanical controls (e.g., hand labor, soil tilling, mowing);
- Biological controls (e.g., animal grazing, use of predators or parasites);
- Chemical controls (preferably low toxicity materials such as soaps and oils); and
- Other controls (e.g., mulching, alternative vegetation, prescribed burns).

*Pests* are: (1) any weed, insect, rodent, nematode, fungus; or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism (except viruses, bacteria, or other micro-organisms on or in living man or other living animals) that are declared to be a pest under the Federal, Insecticide, Fungicide, and Rodenticide Act.

*Pest Problem* means a pest infestation and its consequences, or any condition for which the use of plant regulators, defoliant, or desiccants would be appropriate.

*Herbicides* are substances or mixtures of substances intended to prevent or inhibit the growth of, kill or destroy plants and plant parts that are declared to be pests. Herbicides include, but are not limited to:

- *Direct contact herbicides* intended to kill or destroy weeds, unwanted brush and trees, or unwanted plant parts, or to mitigate their adverse effects on desirable plants;
- *Soil treatment herbicides* intended to kill or destroy weeds, unwanted brush and trees, or unwanted plant parts, or to prevent the establishment of any or all plants;
- *Pre-emergence herbicides* intended to prevent or inhibit the germination or growth of weed seeds or seedlings;
- *Root control herbicides* intended to prevent the growth of, or kill roots in certain sites such as sewer lines and drainage tiles;

- *Aquatic herbicides* intended to prevent, inhibit, or control the growth of, or kill aquatic weeds;
- *Algaecides*, except slimicides, intended to prevent or inhibit the multiplication of, or destroy algae in ponds, swimming pools, aquaria or similar confined sites;
- *Debarking agents* intended to kill trees by treatment of bark on trunks; and
- *Biological weed-control agents* such as specific pathogenic organisms or entities prepared and utilized by man.

*Pesticides* are any substances or mixtures of substances that are intended prevent, destroy, repel, or mitigate any pest, or intended for use as a plant regulator, defoliant, or desiccant. Pesticides are classified as being for either general use or restricted use.

- *General Use Pesticides* are pesticides that may be used without creating unreasonable adverse effects on the environment.
- *Restricted Use Pesticides* are pesticides that may have unreasonable adverse effects on the environment, including injury to the applicator. The use or possession of restricted pesticides requires a written permit from the local agricultural commissioner, and the commissioner has the authority to deny a permit for use if the commissioner finds that the proposed use will have adverse environmental effects that outweigh the benefits.

*Signal Words:* The following definitions apply to signage associated with the use of pesticides:

- *“Caution”*: Least Hazardous to Human Health
- *“Warning”*: Intermediate Hazard to Human Health
- *“Danger”*: Requires Pesticide Applicator

### **Structural Pest Control:**

## **7.3 Roles and Responsibilities**

### **7.3.1 District Work Units**

All District work units that practice pest management on District property (including watershed lands, recreation areas, aqueducts, and other rights-of-way, facility grounds, etc.) are responsible for implementing Best

Management Practices (BMPs) that have been developed by the IPM Committee. These work units include:

Water Production – Pardee  
Natural Resources – Pardee  
Water Production – Stockton  
Water Production – Bixler  
Water Production – Walnut Creek  
Natural Resources – East Bay  
Grounds Maintenance, East and West of the Hills

Each work unit is responsible for:

- Developing pest control strategies;
- Documenting pest control activities;
- Complying with regulatory requirements, and maintaining records as described in this section;
- Providing an annual summary of pesticides used and amounts.
- Additional work unit responsibilities include meeting applicable license requirements for appropriate staff, and maintaining effective working relationships with local regulators.

### 7.3.2 ECS Staff

ECS staff responsibilities include:

- Provide guidance and consistency on District-wide pest management practices in accordance with District Policy 7.05;
- Reviewing IPM practices on an annual basis to ensure consistency among District work groups;
- Reviewing pesticide usage requests and plans for the use of new chemicals or for pesticide applications within environmentally sensitive areas, as needed;
- Maintaining files concerning pesticide usage request reports;
- Maintaining information concerning various pesticides used throughout the District.

When major issues arise, ECS staff may convene a meeting with the following District staff to resolve any outstanding issues or develop policy:

Manager, Watershed and Recreation  
Maintenance Manager  
Water Systems Production Manager  
Aqueduct Maintenance Foreman  
Fisheries and Wildlife Manager  
Grounds Foreman  
Director, Natural Resources  
Environmental Compliance Manager

## 7.4 Summary of Applicable Regulations

### 7.4.1 Federal Regulations

Title 7, United States Code, Section 136 –136y, and 40 Code of Federal Regulations, Parts 152 – 186 established the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which provides the federal regulatory framework governing pesticides and herbicides. FIFRA requires that all pesticides must be registered, and that no one can use a pesticide unless it has been registered. FIFRA further specifies whether a pesticide is classified as a restricted use or general use pesticide.

### 7.4.2 State Regulations

The Pest Control Operations Laws are located in Title 3, California Code of Regulations, Section 300 *et seq*, and in the Food and Agricultural Code, Section 11401 *et seq*. These laws establish the Department of Pesticide Regulations (DPR) as the agency responsible for oversight of state regulation of pesticides. The California pesticide program parallels FIFRA. The DPR enforces federal and state-defined pesticide laws and regulations, and certifies applicators that use restricted use pesticides.

### 7.4.3 Jurisdiction of Local Agencies

County agricultural commissioners are employees of the California Department of Food and Agriculture, having responsibility for local pesticide regulation under the direction of the DPR. The DPR enforces state and federal requirements, and the commissioners enforce local standards. The commissioners have the authority to adopt regulations governing pest control operations upon approval of the DPR.

#### 7.4.4 Additional Regulations

Additional regulations concerning pesticides include the following:

- Clean Water Act, for spills to a receiving water, sanitary sewer, or storm sewer;
- Hazardous Materials Business Plan/Community Right to Know Laws, which require inclusion of pesticides in Hazardous Materials Business Plans, if the quantities stored exceed 55 gallons or 500 pounds;
- Hazardous Waste Control Laws, under which pesticide wastes (with the exception of empty containers) are considered to be hazardous wastes in the state of California, and subject to regulation by the Department of Toxic Substances Control (DTSC);
- Safe Drinking Water Act, which establishes Maximum Contaminant Levels (MCLs) for certain chemicals that are components of pesticides; and
- Clean Air Act, which classifies certain pesticides as Hazardous Air Pollutants (HAPs).

#### 7.5 General IPM Best Management Practices at EBMUD

The BMPs described in this section are to be implemented by all District work units that practice pest management on District property.

##### 7.5.1 Identify Potential Pests within Management Area

All personnel having pest management responsibilities for pest management shall be trained to accurately identify major pests and the damage that such pests may cause. Field manuals and other resources shall be made available to staff to assist in pest identification, as necessary.

##### 7.5.2 Establish Injury Levels and Action Thresholds for Individual Pest Species

An injury level is the pest population size or density associated with intolerable damage (e.g., height and thickness of grasses under aqueducts or number of ground squirrels burrowing in an earthen dam). An action threshold is the set of conditions required to trigger a control action (e.g., emergence of Bermuda grass along a right of way).

District staff shall determine the infestation levels that will be intolerable or that will cause unacceptable damage at different times of the year, during

various plant growth stages, and for other situations. At the same time, a monitoring plan must be devised for detecting these pest infestation levels and determining when to implement control actions. Action thresholds are usually reached when:

- Monitoring results indicate that the pest population will reach the injury level, if left untreated;
- Biological or environmental factors cannot be expected to reduce the pest problem within a reasonable amount of time; and
- Pest management costs (including any environmental or health impacts) are considered to be lower than costs associated with potential pest damage.

### 7.5.3 Establish Monitoring Guidelines

Pest monitoring programs have two primary objectives:

- To identify where and when pest problems become intolerable; and
- To determine the effectiveness of treatment actions.

Monitoring methods may vary from site to site, and from pest to pest, but all monitoring methods must involve regular inspections for pests and/or damage symptoms.

Written monitoring reports shall be prepared by each of the work units performing IPM activities so that management strategies can be reliably evaluated. All reports shall include date, time, location, observed pest species, and degree of the pest problem.

Develop a List of Acceptable Management Strategies for Individual Sites, Types of Sites, and Pests

Each work unit practicing IPM shall develop a list of acceptable management strategies for the areas under which it has authority and responsibility. The criteria listed below should be used in developing these management strategies. Since these criteria may not be met in every case, or met to varying degrees, judgment must be exercised to maximize the benefits associated with each strategy.

- Least damaging to the general environment;

- Least hazardous to human health;
- Least toxic to non-target organisms;
- Absence of listed species or known listed species habitats;
- Most likely to produce permanent reduction of the pest;
- Easiest to carry out effectively; and
- Most cost-effective in the short and long term.

As strategies are developed, they may include a combination of various management alternatives. The preferred methods in an IPM program are those that permanently prevent pest problems, thereby eliminating the potential for pest damage. Pest management strategy may include one or more of the following elements:

- No controls;
- Physical/mechanical controls (e.g., hand labor, soil tilling, mowing);
- Biological controls (e.g., animal grazing, use of predators or parasites);
- Chemical controls (preferably low toxicity materials such as soaps and oils); and
- Other controls (e.g., mulching, alternative vegetation, prescribed burns).

#### **7.5.4 Establish a Recordkeeping System**

Accurate recordkeeping is essential for evaluating and improving an IPM program, as well as for reference purposes in the event that District management, the Board of Directors, or the public requests information on measures taken by the District to control certain types of pests. Each work unit is responsible for maintaining written records that include the following information, which should be reviewed and updated annually:

- A list of pests identified in a given management area (see 7.5.1 above);
- A description of unacceptable injury levels and action thresholds for a given management area (see 7.5.2 above); and



- A list of acceptable management strategies for a given management area (see 7.5.4 above).

In addition, written records shall be kept of observations of the management area based on the monitoring guidelines established in Section 7.5.3 above. These observations should include:

- The degree of pest infestation using density, distribution, or other appropriate parameters (a map of the management area is useful);
- Information concerning the treatment method used for the pest problem, including a description of the treatment method, area treated, time(s) and date(s) of treatment, location of treatment, personnel performing treatment, and the cost of treatment;
- An assessment of the effectiveness of the treatment method in minimizing or eradicating the pest problem, in both the short and long term;
- A description of side-effects of the treatment on non-target organisms; and
- A summary of any citizen complaints and/or positive comments received, and a description of any other issues that arise.

## 7.6 Specific IPM Procedures and Practices at EBMUD

### 7.6.1 Pesticide Usage Practices

In many cases, District work units applying IPM include pesticide use (primarily herbicides) as an element of their management strategies. The District's pesticide usage practices are summarized as follows:

- If chemical pesticides/herbicides are used, use the least toxic pesticide/herbicide that will adequately achieve IPM goals. Take into consideration overall risk to the applicator and impact to the environment.
- Comply with all federal, state and local laws and regulations. Key regulatory contacts are as follows:

<b>Table 7-1: Key IPM Regulatory Contacts</b>		
<b>Agency Type</b>	<b>Regulatory Agency Name</b>	<b>Telephone No.</b>
Federal	USEPA Air and Toxics Division, Pesticides	(415) 744-1087
State	Cal-EPA Department of Pesticide Regulation	(916) 445-3976
Local	Alameda County Agricultural Commissioner	(510) 670-5232
Local	Amador County Agricultural Commissioner	(209) 223-6487
Local	Calaveras County Agricultural Commissioner	(209) 754-6504
Local	Contra Costa County Agricultural Commissioner – Brentwood Office	(510) 634-5682
Local	Contra Costa County Agricultural Commissioner – Concord Office	(925) 646-5250
Local	San Joaquin County Agricultural Commissioner	(209) 953-6000

- Read and follow all chemical product label instructions.
- Review the history of a site and determine pest conditions. Monitor problem areas periodically in order to identify the level of pest condition. Establish an action threshold for each pest species or pest type as part of a pesticide use decision. This action threshold should be consistent with the work unit's IPM strategy.
- Apply pesticides at the appropriate time and under adequate weather conditions to maximize their effectiveness on the target organism and minimize the likelihood of discharging non-degraded pesticides in storm water runoff.
- Do not mix pesticides adjacent to a storm drain inlet, culvert, watercourse, or filter bed. Mix in an area where spillage, if it occurs, can be easily contained.
- Select pesticides and application techniques along roadsides that will retain some vegetative cover, if possible. This will help prevent soil erosion, slow the rate of storm water runoff and minimize potential for contaminated runoff.
- Calibrate field equipment regularly to ensure the desired application rate.
- Mix only as much material as necessary for the application.
- Maintain a record of pesticide usage for each site. This record shall include the type and quantity of pesticide used.

- If there is likely to be public contact within the area to be sprayed with a pesticide, adequate notification or posting must be provided.
- At District filter plants, pesticides shall not be used within 25 feet of the filter beds or sedimentation basins. On watershed lands, pesticides shall not be used within 1,000 feet of reservoirs or tributary creeks, except for spot treatment of pest plant species only. Work units that propose to use pesticides within this 1,000-foot zone shall gain approval of such use from the IPM Committee. Currently, the following pesticide uses within the 1,000-foot zone are approved:
  - Use of Rodeo or Accord for vegetation control in the Pardee spillway expansion joints.
  - Use of Rodeo or Accord for vegetation control on the downstream faces of the Camanche Reservoir dikes.
  - Use of Rodeo or Accord along rights of way, including Briones Aqueduct Road.

Work units shall annually review pesticide use within the 1,000-foot zone to ensure that the practice is still required and that there are no impacts to non-target organisms.

- Monitor success of the pesticide treatment and adjust usage based on monitoring. This monitoring shall be consistent with the program established under Section 7.5.3.

### 7.6.2 District-Approved Pesticide List

The following pesticides are approved for use for application by District staff and contractors on District property, rights of ways or other areas where chemical pest control is necessary.

<b>Table 7-2: Approved Pesticide List</b>	
Product Name	EPA Registration No. *
Accord	524-326
Diquat	Multiple products, multiple registration numbers
Direx	Multiple products, multiple registration numbers
Expedite	524-432-66435
Garlon	62719-40
Karmex DF	352-508
Krovar	352-505

Oust	352-401
Rodeo	524-343
Ronstar	Multiple products, multiple registration numbers
Roundup Pro	524-475
Roundup Drypak	524-436
Simtrol 90 DF	35915-12-60063
Surflan A.S.	62719-113-AA
Telar	342-404
Diazinon 4E	655-457
Diazinon (Knox out 2FM ant spray)	Multiple products, multiple registration numbers
Pyrethrin based wasp & hornet sprays	
Demon TC	10182-107-AA
Tempo 20WP	3125-380-AA
Combat	64240-25-AA
Dragnet	279-3062-AA

\* EPA Registration Numbers are listed on the pesticide containers and are specific to the formulation of the pesticide. These numbers will change if a manufacturer changes a formulation, regardless of any change in the product name. Always check EPA Registration Number to confirm that the product is consistent with the above list.

Rodenticides with 0.01% Diphain or p-Chlorophenyl Phenylacetyl 1, 3-Indandlone as active ingredients are also approved for use.

### 7.6.3 Pesticide Storage

Pesticides shall be stored in locked buildings. All pesticide containers shall be labeled. The label shall include the name of the pesticide, signal word, owner's company name and section (e.g., EBMUD, Aqueduct Section).

### 7.6.4 Pesticide Disposal

Triple rinse empty pesticide containers immediately upon emptying contents. Place rinse water in spray tank incorporating it into the pesticide mixture. Dispose of the container rinse water or spray tank rinse water as a product over a targeted area within the application site

Dispose of triple-rinsed empty pesticide containers according to County Agricultural Commission and manufacturer's recommendations. For containers larger than five gallons and for work units that produce more than six empty pesticide containers per year, the triple-rinsed containers shall be rendered unusable. These containers shall be stored in a secure area until

such time that the County Agricultural Commission can inspect them and certify them as being safe for disposal. At that time, they shall be disposed of in an appropriate landfill. For work units that produce fewer than six empty containers (five gallon size or smaller) per year, the triple-rinsed containers should be rendered unusable and can then be disposed of with other non-hazardous trash produced at the site.

If possible, unwanted or unused pesticides should be returned. Procedures for unwanted pesticides are as follows:

- Contact other District work units or one or more of the District warehouses to determine if they can use the pesticide in their operations;
- Return unopened containers to the manufacturer; or
- Find a qualified buyer for the pesticide and sell it using the District Material Sale Form (form 5-014).

If reusing or returning unwanted pesticides is not feasible, contact the Regulatory Compliance Office at extension 1627 to arrange for disposal.

#### **7.6.5 Pesticide Spill Response**

Spill kits shall be prepared and maintained at pesticide storage areas and on all application equipment having a tank capacity of 50 gallons or more.

Spill kits shall include the following: an instruction sheet with a contact notification list and phone numbers, absorbent material capable of absorbing up to five gallons of liquid, shovel, broom, dustpan, gloves, and warning tape to secure the area in case clean-up cannot be accomplished immediately. Appendix 7-A summarizes the District's emergency notification procedure for pesticide/herbicide spills.

Employees that apply pesticides will be trained in the use of the spill kits. Work units shall maintain a written pesticide spill response and notification procedure and all employees that apply pesticides shall be familiar with the procedure.

#### **7.6.6 Annual Pesticide Usage Reports**

Each District Division or Department that uses pesticides shall produce an Annual Pesticide Usage Report. The report shall contain the following information, at a minimum:

- Type of pesticide used (product name is acceptable);
- Quantity of each pesticide used; and
- Locations where pesticides were used.

Reports shall be submitted to the IPM Committee, which will compile and maintain the information.

### 7.7 Fines and Penalties

There are three levels of penalties: Administrative, Civil, and Criminal. Under an administrative action, the DPR may issue Cease and Desist Orders, or deny, revoke, or suspend licenses and permits.

Civil penalties can range from \$1,000 to \$25,000 per violation. Criminal penalties include fines ranging from \$500 to \$5,000 and up to six months in jail.

### 7.8 Fees

Applicator licenses cost \$30, and expire annually on December 31.

### 7.9 Training and Certification

Pesticide applicators shall obtain a state pesticide applicator certification or work under the direction of an employee who has obtained the state certification.

As a general rule, the District does not use Restricted Pesticides. The use or possession of restricted materials requires a written permit from the County Agricultural Commissioner. The commissioner may elect to be present at the time the restricted material is being used.

Pesticide applicators shall be trained in general IPM practices, the safe use of pesticides and proper inspection of applicator equipment to prevent accidental pesticide leaks, spills, and potential hazards to applicators and the environment. Training shall be conducted annually. The work unit shall maintain records of staff that received the training for at least three years. New employees shall not apply pesticides until they have received the appropriate training or until their supervisor confirms that they have skills and knowledge equivalent to the training.

### 7.10 Recordkeeping

The monitoring and observation records for a given management area should be kept for a minimum of five years and filed with the work units conducting IPM.

Each District Division or Department that uses pesticides shall produce an Annual Pesticide Usage Report. The report shall contain the information listed in Section 7.6.6, at a minimum.

Reports shall be submitted to the IPM Committee, which will compile and maintain the information.

State law requires that a Restricted Pesticide use report be submitted to the County Agricultural Commissioner within seven days after each use of a restricted material.