EAST BAY MUNICIPAL UTILITY DISTRICT

INTEGRATED PEST MANAGEMENT PROGRAM GUIDELINES

April 2021

INTRODUCTION

The East Bay Municipal Utility District (District) is responsible for implementing pest control management practices across approximately 57,000 acres of watershed lands and reservoirs in the East Bay and Sierra foothills. This includes multiple recreation areas, over 100 miles of rights-of-way along our aqueducts, facility grounds at hundreds of sites in five counties and other areas located throughout the District's water source and service areas. Pests may include a wide range of both plant and animal species capable of creating a nuisance; however, the predominant pest addressed by the District is invasive vegetation. Within the District's footprint, pests are managed for a number of reasons including but not limited to human health and safety, protection of infrastructure, regulatory requirements, fire risk reduction and preservation of habitat and biodiversity. The District is committed to using the most environmentally safe practices for pest control to ensure the health and safety of the public and District employees, and to protect potable water quality, natural resources and public and private property.

The District established an Integrated Pest Management (IPM) program in the 1990s to develop a consistent approach toward pest management throughout the District using a combination of physical, biological and cultural controls and includes the use and monitoring of pesticides, which predominantly consist of herbicides. The IPM program provides written guidance for determining the most appropriate pest control methods for a particular situation. Ever evolving IPM procedures and practices are developed with input from industry and academic experts and staff having pest management responsibilities to ensure they are implementable and effective. IPM is an iterative program and procedures change over time to ensure they are practical, effective and current in terms of technologies and regulations.

In 2015, the District initiated a comprehensive review of its IPM program. This review was initiated by customer interest and a desire to better understand and quantify which pest control methods were in use across the organization. In 2017, an independent third-party expert was contracted to conduct a detailed analysis of the program. Blankinship and Associates provided a final assessment in early 2018 with key recommendations for the District to implement to advance its IPM program. The recommendations were evaluated and implemented in 2018 and 2019. Results were tracked to assess progress, efficacy and identify opportunities for enhancement. For the first time, IPM activity details such as treatment methods, treatment sites, acres treated and pesticide application details (e.g., quantity of product used, application rate, and application method) were recorded by field staff and collected in a centralized location to help inform future IPM activities. This new information about program performance has led to an update of the IPM Program guidelines to accurately reflect current practices.

The District uses a variety of pest management tools and strives to minimize pesticide use to the maximum extent practicable. Alternative non-pesticide methods are always considered before

pesticide use. Staff works with California Department of Pesticide Regulation (DPR) licensed Pest Control Advisers (PCA) to review the use of pesticides to ensure that pesticide use is warranted, appropriate environmental characteristics such as species, their habitat, and water quality are considered and that pesticide use is consistent with the label and in full compliance with applicable regulations. The District has an established process to evaluate new pesticides prior to allowing use at any District sites.

The IPM program is structured to ensure consistency across the organization. Administration is overseen by the Environmental Compliance Section (ECS) of the Regulatory Compliance Office (RCO). ECS is tasked with general oversight to support compliance, monitoring, reporting, training and coordination among various work units to promote consistency and information exchange. Each work unit responsible for implementing IPM develops their own reports summarizing data such as the types and locations of pest management techniques employed throughout the District, including pesticide application details, if applicable. Larger programmatic-wide reports are overseen by ECS for purposes of reporting out to the District's management, Board of Directors and the public. ECS also organizes training and information exchange forums as needed.

The IPM program covers activities by District employees on District property. District contractors and tenants operating on District property are required to adhere to District IPM principles.

The District provides reliable, high-quality drinking water and wastewater service through sustainable activities that avoid, minimize or mitigate adverse effects to the environment. Our sustainability policy directs us to use resources in a responsible manner that meets the needs of today without compromising the ability of future generations to meet the needs of tomorrow. To this end the District will minimize pesticide use over time to the maximum extent feasible. The District is committed to building and maintaining a transparent and comprehensive IPM program. Feedback and engagement from community members have provided valuable ideas and recommendations that have helped shape the program. We will continue to keep our community stakeholders informed about our IPM practices and participate in meaningful outreach as the work moves forward.

DEFINITIONS OF KEY TERMS

Action Threshold: The level of pests or pest damage that can be tolerated before a control action must be initiated. Thresholds may be based on factors such as anticipated employee and public health and safety, operational impacts, regulatory requirements (i.e., fire codes) and damage to property and infrastructure.

Agricultural Pesticide Use: In California, per, Food and Agricultural Code (FAC) § 11408, this refers to all pest control use that does fit into specified non-agricultural use categories (i.e., home, industrial, institutional, structural, vector control, veterinarian). This includes production and non-production agriculture in watersheds, rights-of-way, landscaped areas (e.g., golf courses, parks, recreation areas, and cemeteries), etc.

California Restricted Materials: Pesticides that have been determined by DPR as having the potential to cause unreasonable adverse effects to the environment and injury to applicators or bystanders without added restrictions. The use of California Restricted Materials requires a written time-specific and site-specific permit from the local county agricultural commissioner (CAC). The CAC has the authority to deny a permit or require the use of feasible alternatives if the proposed application is considered to result in unacceptable impact to human health and the environment. California Restricted Materials include:

- Any pesticide labeled as a "restricted use pesticide" pursuant to section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 USC § 136a).
- Any pesticide used under an "emergency exemption" issued pursuant to section 18 of FIFRA (7 USC § 136p).
- Pesticides formulated as a dust, labeled to permit outdoor use and packaged in containers of more than 25 pounds [3 CCR § 6400(c) notes exceptions].
- Pesticide products containing active ingredients listed in 3 CCR § 6800(a) (potential to pollute ground water), when labeled for agricultural, outdoor institutional or outdoor industrial uses; or
- Pesticides listed in 3 CCR § 6400(e).

Decision Document: The baseline site assessment document established for each District IPM management site that defines the site boundaries, its characteristics, target pests, tolerance thresholds, site constraints and considerations, IPM management strategies and more. These documents are developed and maintained by the individual work units implementing the IPM work at that site. Findings from field monitoring are used to update the documents as needed. Currently, there are almost 400 decision documents that have been prepared for various District sites.

Herbicides: Substances or mixtures of substances intended to prevent or inhibit the growth of, kill or destroy plants and plant parts that are determined to be pests by the property manager/owner. Herbicides include, but are not limited to:

- Contact herbicides that enter and act on a plant's surface.
- Systemic herbicides that enter a plant, move and act within it.
- Pre-emergent herbicides that prevent or inhibit the germination or growth of seedlings.
- Post-emergent herbicides that act on a plant after it has germinated or grown.
- Root control herbicides that target roots in certain sites such as sewer lines and drainage tiles.
- Aquatic herbicides that act on aquatic weeds; and
- Algaecides, except slimicides, intended to prevent or inhibit the multiplication of or destroy algae in ponds, swimming pools, aquaria or similar confined sites.

Integrated Pest Management (IPM) is a pest management strategy that focuses on long-term prevention of pests or their damage through a combination of techniques. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and

treatments are made with the goal of removing only the target organism. Pest control approaches are selected and used in a manner that minimizes risks to human health, the environment and beneficial and non-target organisms. IPM activities for a site may include a combination of one or more of the following control techniques:

- No controls;
- Physical/mechanical controls (e.g., hand labor, soil tilling, mowing, mulching, prescribed burns);
- Biological controls (e.g., animal grazing, use of predators or parasites);
- Cultural controls (e.g., selection of pest-resistant species, changed irrigation practices, sanitation); and
- Chemical controls (i.e., use of pesticides, preferably low risk materials).

A flow chart showing the IPM process is presented in Figure 1.

IPM Field Activity Worksheet: The form that District staff completes each time they implement IPM at a District site to capture their monitoring findings and document actions taken and activities implemented which may include pesticide application. These forms help track activity trends over time.

IPM Management Site: A geographic area and/or facility, as defined by District work units, with a site specific IPM management strategy.

Grazing: The use of animals such as cows, horses, sheep and goats to feed on the aboveground portions of undesired plants.

Mowing: Cutting weeds with motorized equipment or hand tools such as flail mowers, rotary mowers, weed whackers and brush cutters.

NPDES Aquatic Pesticide Permit: The Clean Water Act prohibits discharge of "pollutants" through a "point source" into a "Water of the United States" without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits contain limits on allowable discharges, monitoring and reporting requirements and other provisions to ensure that the discharge does not impair water quality or human health. The District has coverage under the California Statewide NPDES permit for specific pesticide applications in and/or near aquatic environments that went into effect in December 2013 (General NPDES Permit CAG990005; Order 2013-0002-DWQ). The application process for coverage included submittal of a Notice of Intent (NOI) and an Aquatic Pesticide Application Plan (APAP) to the state. This plan, which is reviewed and approved by the State Water Resources Control Board, specifies the exact aquatic body locations covered by the permit and the exact pesticides that may be used at the specified location(s). If any changes to locations and/or products are identified, a request for a change to the APAP must be submitted to the state for consideration. Until a formal approval is granted by the state, the permittee cannot deviate from the submitted APAP. Application materials including the APAP are available for public review on the state's website.

Pest Control Adviser (PCA): In California, any person who offers a written recommendation on any agricultural use of a pest control product or technique, presents himself/herself as an

authority on any agricultural use, or solicits services or sales for any agricultural pest control tool is a pest control adviser (PCA). PCAs specialize in pest management and recommend use of pesticides and other alternatives. According to California law, all PCAs must be licensed by the DPR. To become a PCA in California, you must: (1) meet specific educational requirements as described in 3 CCR § 6550; (2) pass the laws, regulations and basic principles exam; and (3) pass an exam in the pest control disciplines in which you wish to make recommendations. Per the Food and Agricultural Code (FAC) and the California Code of Regulations (CCR), PCA recommendations must: not be in conflict with the registered labeling for the product being recommended (FAC § 12971), include a warning of the possibility of damages by the pesticide application that reasonably should have been known by the PCA to exist (when applicable; FAC § 12003) and include a certification that alternatives and mitigation measures would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted (3 CCR § 6556). For information on additional on the required content of PCA written recommendations, refer to FAC § 12003 and 3 CCR § 6556.

Pesticides: Any substances or mixtures of substances that are intended to prevent, destroy, repel, or mitigate any pest, or intended for use as a plant regulator, defoliant, or desiccant. Pesticides may be used in combination with surfactants and/or adjuvants to promote efficacy. Pesticides may be classified as either general use or restricted use based on the potential for the product to cause unreasonable adverse effects on human health or the environment when used according to label directions and without additional regulatory restrictions. Pesticides are categorized based on the type of pest that they are intended to control. Pesticide categories include, but are not limited to:

- Herbicides – pesticides used to control plant pests or their damage
- Rodenticides – pesticides used to control rodent pests or their damage
- Insecticides – pesticides used to control insect pests or their damage
- Fungicides – pesticides used to control fungal pathogens or their damage.

Pesticide Use Report (PUR): A report summarizing all agricultural pesticide use, see definition above, that must be submitted monthly to CACs, who in turn, report the data to DPR. District staff submit monthly PURs to counties as required. Note: regulations require that Restricted Pesticide Use Reports be submitted to the CAC within seven days after each use of a restricted material.

Pests: Organisms that interfere with the availability, quality or value of a management resource. Pests may damage structures, impact human health, transmit disease or simply be a nuisance. A pest can be a plant (weed), vertebrate (bird, rodent, or other mammal), invertebrate (insect, tick, mite, or snail), nematode, pathogen (bacteria, virus, or fungus) that causes disease or other unwanted organisms that may harm water quality, animal life or other parts of the ecosystem.

Prescribed Burning: The practice of applying controlled fire to a predetermined area. Prescribed burns can help reduce populations of invasive weeds and serve to remove dead biomass that contribute to wildfire fuel loads as well as support restoration of natural ecosystems.

Product Evaluation Process (PEP): The District-established process to evaluate new pesticide products for use as part of the District's IPM program.

Qualified Applicator Certificate (QAC): A certificate administered by DPR to individuals who use or supervise the use of federally-restricted use pesticides or California-restricted materials for any purpose or on any property other than that provided by the definition of a "private applicator" per 3 CCR § 6000. This certificate is also required by anyone who is in the business of maintenance gardening and performs pest control that is incidental to such business.

Qualified Applicator License (QAL): A license administered by DPR to individuals who: (a) supervise the application of either a restricted use or a general use pesticide made by a licensed pest control business and are responsible for the safe and legal operation of the pest control business; or (b) use or supervise the use of federally restricted use pesticide or California restricted material for any purpose or on any property other than that provided by the definition of a "private applicator" per 3 CCR § 6000.

Restricted Use Pesticides: Pesticide products that have been determined by the U.S. Environmental Protection Agency (USEPA) as having the potential to cause unreasonable adverse effects to the environment and injury to applicators or bystanders without added restrictions. Restricted Use Pesticides are not available for purchase or use by the general public and may only be used by a qualified applicator or someone under a qualified applicator's direct supervision. Federally Restricted Use Pesticides by law must contain a restricted use statement enclosed in a box at the top front panel of the pesticide label.

Safety Data Sheets: A Safety Data Sheet (SDS) is a document prepared by the manufacturer of a chemical in accordance with OSHA regulations on hazard communication and contains critical information necessary during times of emergency, including chemical composition, safe handling practices and emergency control measures such as fire-fighting. The District requires each work unit to have SDS of every pesticide applied on District property.

Signal Words: Signal words are found on pesticide product labels and are used to describe the acute (short-term) toxicity of the formulated pesticide product. Signal words can be generally defined as follows:

- "Caution": Least Acutely Hazardous to Human Health
- "Warning": Moderate Acute Hazard to Human Health
- "Danger" or "Danger-Poison": Highly Acutely Hazardous to Human Health

Structural Pest Control: The control of household pests (including but not limited to rodents, vermin and insects) and wood-destroying pests and organisms or such other pests which may invade households or structures.

ROLES AND RESPONSIBILITIES

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 administrators in consultation with IPM implementing staff and management. These work units include:

- Pardee Operations and Maintenance
- Natural Resources (Mokelumne and East Bay)
- Aqueduct Operations and Maintenance (Stockton; Bixler; Walnut Creek)
- Facilities and Grounds Maintenance (Water Side)
- Facilities and Grounds Maintenance (Wastewater)

Each work unit is responsible for:

- Developing pest control strategies based on IPM principles and in consultation with a PCA and other subject matter experts such as the local county department of agriculture and the University of California Cooperative Extension (UCCE).
- Documenting pest control activities including baseline decision documents; field inspection sheets; spray logs as required; local training events.
- Complying with regulatory requirements and maintaining records as described in this section.
- Inputting verified data into District's electronic IPM database to assist generation of an annual summary report of pesticides used and amounts.
- Participating in required training, including use of appropriate PPE.
- Managing contractors performing IPM activities to ensure compliance with IPM best management practices; ensure contractors provide data to complete IPM Field Worksheets; staff then enters in to the IPM database (note contractor is responsible for PUR submittal to regulatory agency).
- Additional work unit responsibilities include meeting applicable license and training requirements for appropriate staff and maintaining effective working relationships with local regulators.

Environmental Compliance Section (ECS) Staff: ECS staff responsibilities include:

- Function as the IPM program administrator.
- 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 pesticides 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.
- Coordinate communication and information sharing among District workgroups.
- Develop Standard Operating Procedures (SOPs) for the District's IPM program.
- Respond to questions from the public and the District's Board of Directors about the District's IPM program.
- Coordinate IPM annual training for District staff.
- Convene meetings with senior management staff that oversee IPM to resolve any outstanding issues; interpret policy and/or update guidelines.

District Contractors and Tenants:

- District contractors and tenants operating on District property are expected to adhere to District IPM principles. This expectation is captured as a requirement in various land use permits and agreements issued by the District.

SUMMARY OF POTENTIALLY RELEVANT LAWS AND REGULATIONS

Federal Laws and 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.

Additional relevant federal laws and regulations include:

- *Federal Endangered Species Act*, which provides a framework for the conservation of federally threatened and endangered plants and animals and the habitats in which they are found.
    - Several Stipulated Injunctions ordered by federal courts to resolve ESA litigation regarding pesticide use are currently in effect in areas of District operations. The Stipulated Injunctions address pesticide use practices such as buffer zones around habitat areas for pacific salmonids, 11 species in San Francisco Bay area, and the California red-legged frog.
    - The District has entered into a Safe Harbor Agreement with the United States Fish and Wildlife Service (USFWS) for the Mokelumne Watershed, under which the District commits to maintaining a baseline of habitat and enhancing existing habitat that supports federally endangered species. This agreement contains specific provisions of pesticide use (e.g., no aerial spraying above waterways, etc.). The Safe Harbor Agreement has an associated incidental take permit and requires the District to undertake certain conservation management activities to restore and maintain habitat for listed species.
    - The District has entered into a Low Effect Habitat Conservation Plan to minimize the impacts of District activities on the District's East Bay watershed lands. This agreement has an associated incidental take permit and contains avoidance measures and BMP's to avoid or minimize sensitive species impacts.
- *Federal Migratory Bird Treaty Act*, which makes it unlawful to pursue, hunt, take, capture, kill or sell migratory birds or their nests or eggs without prior authorization from USFWS.

- *Bald and Golden Eagle Protection Act*, which prohibits anyone, without a permit, from "taking" bald or golden eagles, including their parts, nests or eggs.
- *Clean Air Act*, which classifies certain pesticides as Hazardous Air Pollutants (HAPs).
- *Clean Water Act* (including NPDES permitting) for spills to a receiving water, sanitary sewer or storm sewer and for aquatic pest control.
- *Safe Drinking Water Act*, which establishes Maximum Contaminant Levels (MCLs) for certain chemicals that are components of pesticides.

State Laws and Regulations

California's Pesticides and Pest Control Operations regulatory program is described in Title 3, California Code of Regulations, Division 6, which establishes the Department of Pesticide Regulations (DPR) as the agency responsible for oversight of state regulation of pesticides. The California program parallels FIFRA. The DPR enforces federal and state-defined pesticide laws and regulations and certifies qualified pesticide applicators and PCAs.

Additional relevant state laws and regulations include:

- *California Environmental Quality Act*, which requires public agencies in California to the consider the potential environmental effects of discretionary projects they propose to carry out or approve, mitigate significant environmental impacts of such projects when feasible and provide the public an opportunity to comment on potential environmental effects of such projects prior to project approval.
- *California Endangered Species Act*, which conserves and protects plant and animal species at risk of extinction.
    - The District has entered into a Memorandum of Understanding (MOU) with California Department of Fish and Wildlife to allow named District personnel to monitor and handle CTS.
- *California Fish and Game Code Section 1602* requires entry into a Lake and Streambed Alteration (LSA) agreement before taking any of the following actions, if that action is found by the California Department of Fish and Wildlife to substantially adversely affect fish and wildlife resources:
    - substantially diverting or obstructing the natural flow of any river, stream, or lake.
    - substantially changing or using any material from the bed, channel, or bank of, any river, stream, or lake; or
    - depositing or disposing of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.
- *Routine Maintenance Agreement (RMA)*, an LSA that covers routine maintenance projects an entity will complete at different time periods during the term of the Agreement. RMAs have a five-year term and are renewed/reissued as necessary. The

District conducts routine maintenance activities under various RMAs it has entered into with California Department of Fish and Wildlife.

- *California Porter-Cologne Water Quality Control Act*, which establishes a comprehensive program to protect water quality and the beneficial uses of water and includes the Stream and Wetlands System Protection Policy.
- *Safe Drinking Water and Toxic Enforcement Act (also known as Proposition 65)*, which protects the state's drinking water sources from being contaminated with chemicals known to cause cancer, birth defects or other reproductive harm, and requires businesses to inform Californians about exposures to such chemicals.
- *Hazardous Materials Business Plan Program/State and Federal Community Right to Know Laws*, which establish reporting requirements to inform the public on chemicals and hazardous substances in their communities. Particularly the California Hazardous Materials Business Plan program requires preparation of a Hazardous Materials Business Plans by businesses that handle more than a threshold quantity of hazardous materials, and additional requirements regarding
- *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).

Local Agencies

County agricultural commissioners (CACs) are employees of the California Department of Food and Agriculture and have responsibility for pesticide regulation under the direction of the DPR. The CACs have the authority to adopt county-specific regulations governing pest control operations upon approval of the DPR.

District Plans

The District has separate master plans for watershed lands in the East Bay and Upcountry that outline an array of activities that include but are not limited to habitat conservation, grazing and fire protection, trail use and more. The plans will influence which IPM methods are appropriate in select areas.

THE IPM PROCESS

Executing a successful IPM program requires that the following steps are taken. An IPM Flow Chart is presented in Figure 1 to show the interrelationship of these steps. All District work units follow the IPM process illustrated in Figure 1.

STEP 1: Identify Potential Pests within a Defined Management Area: All personnel having pest management responsibilities shall be trained to accurately identify major pests and the damage such pests may cause. Field manuals and other resources shall be made available to staff to assist in pest identification, as necessary. Consultation with a PCA, and other subject matter experts

such as the local county department of agriculture and UCCE may also be needed. This information is included in the Decision Document established for each pre-defined IPM management area. The Decision Document is established and maintained by the District work unit that manages the specified area.

STEP 2: Establish Action Thresholds for Individual Pest Species: An action threshold is the set of conditions required to trigger a control action (e.g., the presence of large, rooted vegetation in an earthen dam). This information is included in the Decision Document established for each pre-defined IPM management area.

District staff shall determine the pest presence that is considered unacceptable based on factors such as anticipated employee and public health and safety, operational impacts, regulatory requirements (i.e., fire codes) and damage to property and infrastructure. In some cases, thresholds may be established based on the time of the year, pest life stage and other relevant factors. At the same time, a monitoring plan must be devised for detecting pests and determining when to implement control actions. Action thresholds may be reached when:

- Monitoring results indicate the level of pest presence will cause damage or threat, if left untreated;
- Biological or environmental factors cannot be expected to reduce the level of pest presence to a reasonable degree 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.

STEP 3: Establish Monitoring Guidelines: Pest monitoring programs have three primary objectives:

- To identify and track existing and/or emerging pest populations;
- To determine when action thresholds may be or have been exceeded; and
- To determine the effectiveness of treatment actions and inform future pest management decisions.

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. District staff of the work units performing IPM activities will utilize the IPM Field Activity Worksheet to document the findings of each monitoring event so that management strategies can be reliably evaluated. The Worksheet requires the following information be completed:

- Staff information and date.
- Site location information/field condition.
- Target pest information.
- IPM objectives for the inspection.
- IPM method(s) implemented.
- Pesticide information (if applicable) including product name, EPA ID #, quantity used, application method/rates.

Hard copy worksheets may be used in the field however the data must be subsequently entered electronically into the District IPM database. Supervisors shall review information for accuracy before uploading into the database. The data will be analyzed over time to evaluate the efficacy

of IPM methods used and if changes are warranted. If changes are determined to be necessary, the Decision Document will be updated to reflect updated management strategies.

STEP 4: Develop a List of Acceptable Management Strategies for Individual Sites, Types of Sites and Pests: Each work unit shall develop a list of acceptable management strategies for the areas under which it has authority and responsibility. This information is included in the Decision Document established for each pre-defined IPM management area.

The criteria listed below are used in developing and selecting 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.

- No unacceptable risk to humans and the environment.
- Protective of water quality.
- Complies with all site-specific regulations.
- Most likely to result in long-term control of the pest.
- Applicator safety.
- Ease of use.
- Cost-effectiveness.

As strategies are developed, they may include a combination of various management methods. The preferred methods in an IPM program are those that permanently prevent or significantly reduce pest pressure, thereby eliminating or greatly reducing the potential for pest damage. Pest management strategies may include one or more of the following elements and may evolve over time as site conditions evolve:

- No controls;
- Physical/mechanical controls (e.g., hand labor, soil tilling, mowing, mulching, prescribed burns);
- Biological controls (e.g., animal grazing, use of predators or parasites).
- Cultural controls (e.g., selection of pest-resistant species, changed irrigation practices, sanitation); and
- Chemical controls (i.e., use of pesticides that includes the selection and application of the lowest risk materials that will effectively control the target pest).

STEP 5: Utilize the Established IPM Recordkeeping System: Accurate recordkeeping is essential for regulatory compliance, evaluating and improving the District's IPM program and for reference purposes if District management, the Board of Directors or the public requests information on measures taken by the District to perform pest management. Each work unit is responsible for maintaining written or electronic records including Decision Documents, Field Inspection Worksheets, Spray Reports, PURs, and training attendance. These documents should be reviewed regularly and updated as needed with information including, but not limited to:

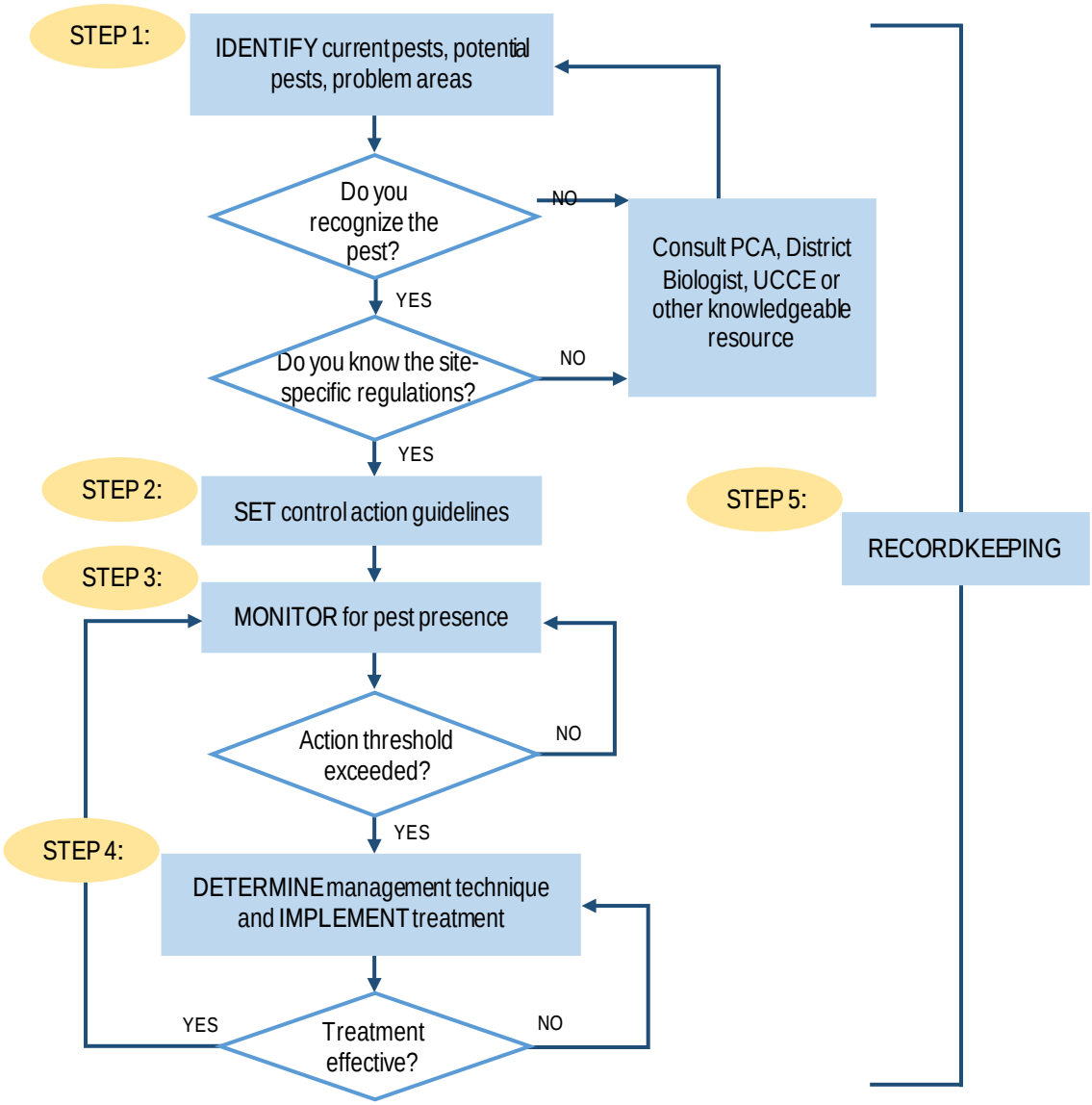
- A list of pests identified in a given management area;
- A description of exceeded action thresholds for a given management area;
- A list of management strategies, including all associated restrictions, for a given management area;

- Records of observations of the management area based on the monitoring guidelines established; observations may 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; etc.;
    - 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, if any, of the treatment on non-target organisms.

- A summary of any citizen inquiries, complaints and/or positive comments received, and a description of any other issues that arise during the course of IPM implementation.

FIGURE 1. IPM Flow Chart



PESTICIDE USE PRACTICES

Pesticide Use Practices

In some cases, District work units implementing IPM include pesticide application as an element of their management strategies. Herbicides are the predominant type of pesticide used on District sites. The District only uses pesticides that have been reviewed and are registered for use by DPR. All pesticides used at District sites by District staff must have an active EPA Registration number or that meet the criteria for minimum risk exemption as described in FIFRA Section 25(b) (40 CFR § 152.25) and California law (3 CCR § 6147). This current pesticide list is located in Appendix A. It is important to note this list evolves overtime. Further, this is a list of pesticides that are currently available for use and does not represent actual use. The District's pesticide use practices are summarized as follows:

- Read and follow all product label instructions.

- Comply with all federal, state, and local laws and regulations, including training requirements and stipulated injunctions for the protection of threatened and endangered species.

- Obtain appropriate PCA written recommendations prior to application.

- If pesticides are used, use the lowest risk pesticide that will adequately achieve IPM goals. Take into consideration overall risk to the applicator, the public and the environment.

- Pesticide applicators are required to utilize Personal Protective Equipment (PPE) in accordance with product label instructions and California requirements. All required PPE is provided by the District for staff use. At a minimum PPE for pesticide application will include closed-toe shoes and socks, chemical resistant gloves and protective eye wear. If additional PPE is required by the pesticide product label it will be provided by the District and must be worn by the applicator.

- Staff applying pesticides will be trained on the relevant chemical safety Required Safety Practices (RSPs) developed by the District's Worker Health and Safety team.

- Adequate notification signs must be posted to inform individuals of the activity if there could be contact by members of the public or District workers within an area to be treated with a pesticide. Adequate notification entails posting notification signs in the area of application on the day of the application event, which include a brief description of the activity, date, products being used and when it will be safe to re-enter the area after the application is complete. Notification requirements described on product labels should be referred to and always complied with as a minimum, but adequate notification is required even where products labels fail to clearly prescribe posting requirements if there could be contact by members of the public or District workers within the treated area.

- In accordance with the product label instructions, apply pesticides at the specified appropriate time and under adequate weather conditions to maximize their effectiveness on the target organism and minimize the likelihood of offsite movement. Examples of conditions to consider include but are not limited to:

    - Make spray applications when wind speeds are low (e.g., between 2<10 mph unless otherwise specified by the label instructions);

    - Applications will only be made when rain is not occurring or expected to occur within 24 hours of the application (unless otherwise specified by the label instructions); etc.

- 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 and cleaned up.

- Select pesticides and application techniques along roadsides that will retain some vegetative cover, where 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. Each work unit is responsible for maintaining daily spray logs where applicable. Each work unit is responsible for collecting, reviewing and reporting PUR data to their respective CACs. Note that regulations require that Restricted Pesticide PURs be submitted to the CAC within seven days after each use of a restricted material.

- All pesticides applied in or near surface water must be registered for use in aquatic sites. Aquatic pesticides applied to waters of the United States must be identified in the District's Notice of Intent (NOI) to comply with the NPDES Aquatic Pesticide Permit.

Product Evaluation Process (PEP) for New Pesticide Products

The District strives to limit its pesticide use to the maximum extent practicable. The District's pesticide products list is intentionally limited. The pesticide list is regularly reviewed and if a pesticide is determined to be unsuitable based on current information, then that pesticide will be removed from the list.

District staff may only use pesticide products approved for use at District sites by the IPM Review Panel. The IPM Review Panel is comprised of supervisors representing each work group implementing IPM, the IPM administrators and an independent PCA. The group meets as needed when a request to approve a new product is submitted. Several steps, described below, must be followed in order to test (pilot) a new pesticide product and obtain approval for regular use under the IPM Program.

In the event that a District Department Director or the IPM Review Panel determines that a new product must be used on a limited basis to address a public health or other emergency[1], certain elements of the PEP may be expedited or waived on a case-by-case basis at the discretion of the IPM Review Panel. In these situations, the District Department Director or the IPM Review Panel will make findings 1) that an emergency as defined by the IPM Guidelines is underway and that basis for that determination, 2) approved pest management tools are insufficient to address the emergency and the basis for that determination, and 3) the product is proposed to be used as intended, according to the product label, and is recommended for use by a PCA.

[1] For the purposes of these Guidelines, an emergency is a sudden, unexpected occurrence, involving or creating a clear and imminent danger, and that demands immediate action to prevent or mitigate the loss of or damage to life, health, property, or essential public services. (*See. e.g.*, Water Code § 12899.5(e); Public Contract Code § 1102; Health and Safety Code § 42504(d)(1)(D); Public Resources Code § 21060.3; Government Code § 4216(f)(1).)

STEP 1: If District staff would like to test a new product, they must first obtain verbal or written supervisor approval to initiate the request process. If approved, staff must consult with a PCA and other subject matter experts such as the local CAC or UCCE adviser and complete a comprehensive new product request form that includes, at minimum, the following information:

- Name of person making the request.
- Product name and EPA Registration Number (if available).
- Active and inert ingredients.
- Target pest(s).
- Justification for making the request. Examples of justification include:
    - Need or desire to replace or reduce use of a previously approved product (e.g., increased efficacy, resistance management, reduced risk to human health or environment, increased selectivity, similar product at a lower cost, previous product no longer available),
    - Need to control a new pest,
    - Need to control a pest in a new setting.
- Available information regarding efficacy, human and environmental safety, selectivity, and estimated cost per gallon or acre.
- If the product is intended to replace or reduce use of a previously approved product: available information regarding efficacy, human and environmental safety, selectivity, and estimated cost per gallon or acre of the previously approved product.
- Intended use site(s) should the product be approved.
- Suggested pilot testing location(s).
- New equipment or modifications to existing equipment required, if any.
- Relevant information or guidance provided as a result of consultation with the PCA and/or subject matter expert(s).
- Attached: product label, SDS, PCA written recommendation, product efficacy data (e.g., UCCE or other trial data, if available).

Supervisors then submit the completed form and all relevant technical information to the IPM Review Panel for consideration.

STEP 2: The IPM Review Panel meets to discuss the request. The panel will review the product label and SDS, conduct a thorough evaluation of all information provided as part of the new product request described in STEP 1, complete the new product request evaluation form, and either approve, conditionally approve, request more information, or deny the request for a pilot based on their comprehensive assessment. The evaluation form prompts consideration of information such as:

- Product registration status or eligibility for minimum risk exemption from registration per FIFRA Section 25(b) (40 CFR § 152.25) and California law (3 CCR § 6147).
- Relevancy of labeled use sites and target pests to anticipated EBMUD activities

- Whether the need for or anticipated benefit of the product is sufficient to warrant consideration of approval.
- Overall feasibility of implementation.
- Potential risks to human health and/or the environment (e.g., worker safety, public safety, impacts to water quality, impacts to special status species and other non-target organisms).
- Required safety precautions (e.g., personal protective equipment (PPE) requirements, restricted-entry interval (REI), grazing restrictions).
- Feedback from PCAs and other subject matter experts.
- Ability to implement label requirements to reduce potential risks to human health and/or the environment.
- Applicable use limitations.
- Compliance with applicable District permits/agreements.

Using the information on the evaluation forms, new products will not be approved for a pilot if the IPM Review Panel concludes any of the following with reasonable certainty based on that body of information:

- The product is not anticipated (1) to have benefits unique from previously approved products or IPM methods, or (2) to provide similar benefits while presenting less environmental, human health, and safety risk.
- The product as intended to be used by the requestor poses significant unacceptable risks to human health, including worker and public safety.
- The product as intended to be used poses significant risks to the environment.
- When used as intended, either risks to human health or to the environment clearly outweigh anticipated product benefits.
- The PPE required to safely use the product is impracticable for District staff.
- The product cannot be used as intended in compliance with applicable District permits and agreements.

The IPM Review Panel may also choose to reject a pilot request based on a comprehensive assessment of these factors combined with PCA recommendations.

STEP 3: If the request is approved for a pilot, the requestor is directed to submit a pilot test plan and then proceed with the work upon notification from the IPM Review Panel. The plan will include objectives, details of products to be tested, application rates and methodology, test location(s), duration of testing, cost, criteria and methods used to evaluate efficacy, and a schedule to report back on test findings once complete. If the request is denied, the pilot will not proceed. If additional information is needed, the requestor may be asked to resubmit the request form.

STEP 4: The pilot is conducted. Data is collected and summarized with applicator recommendations, including notes on challenges, non-target impacts observed, and overall findings regarding product efficacy. Once complete, the data is submitted for the IPM Review Panel for final review.

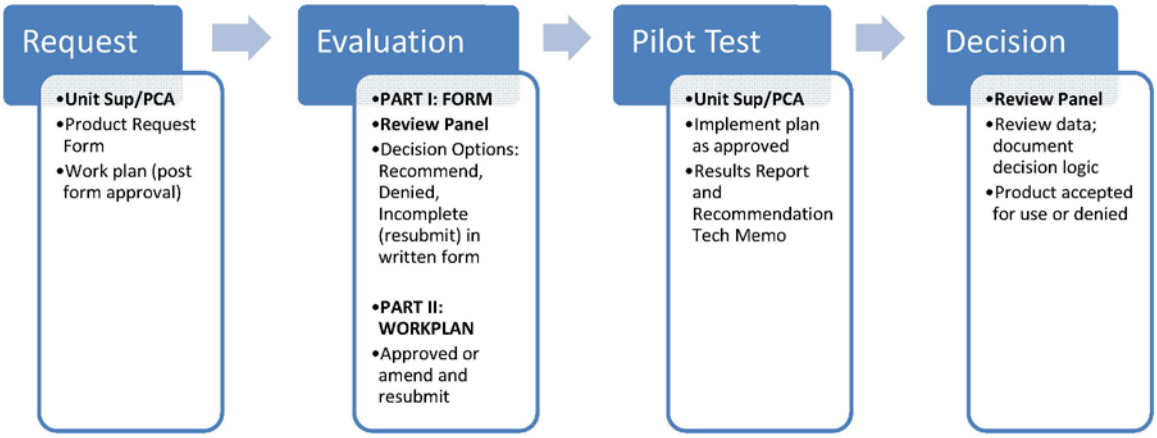
STEP 5: The IPM Review Panel issues a final decision for regular product use. If based on the information gathered in the pilot process the IPM Review Panel concludes that the product is not sufficiently efficacious against the pest or that the drawbacks associated with use of the product outweigh the benefits and cannot be mitigated, staff will be notified that the new product request is denied.

If based on the information gathered in the pilot process the IPM Review Panel concludes that any of the denial standards in Step 2 apply, the new product request will be denied, staff will be notified, and the basis of the decision will be filed for future reference. Approval will require evidence-based findings that are based on the same standards listed in Step 2:

- The product is anticipated to have benefits unique from already-approved IPM products or methods, and those benefits outweigh potential risks to human health and the environment.
- The product as approved for use does not pose significant risks to human health, including worker and public safety.
- The product as approved for use does not pose significant risks to the environment.
- The PPE required to safely use the product is practicable for District staff.
- The product can be used as approved in compliance with applicable District permits and agreements.
- Any concerns raised by the PCA's analysis, which may be distinct from environmental or health risks, have been considered by the Review Panel and the Review Panel finds that the pilot has either addressed those concerns or that the benefits of the product outweigh those concerns.

If results from the pilot study support approval of the new product request, the product will be added to the District's list of approved pesticides and all work units implementing IPM will be made aware of the approval. Once approved by the IPM Review Panel, staff are responsible for the product's safe and effective use in compliance with the product label, applicable laws and regulations, and District permits, agreements, and use conditions. All finalized evaluation forms, whether resulting in a new product approval or denial, are filed for future reference as needed.

IPM PEP Process



***Review Panel Composition**: IPM Program Administrator; SME from each division w/IPM responsibilities (FMC, Aqueduct, Watershed East Bay, Watershed Upcountry, Pardee, Wastewater); independent 3rd party PCA*

Appendix A includes the list of pesticides that may be used by District staff on District property, rights-of-way, utility alignments or other areas where necessary and appropriate. This list is subject to change as new products are evaluated and approved for use and old ones that are no longer used are removed from the list. Note that not all listed products are used at all locations.

Pesticide Storage

Pesticides shall be stored in locked buildings. All pesticide containers and pesticide storage areas shall be properly labeled. Pesticide labels shall be reviewed for specific pesticide storage instructions. Pesticides stored in containers other than the original containers shall be labeled with, at minimum: the name of the pesticide, signal word, product owner's company name, section (e.g., EBMUD, Aqueduct Section) and address.

Pesticide Disposal

If the product label does not have specific instructions to follow when rinsing pesticide containers, triple rinse empty pesticide containers immediately upon emptying contents. Place rinse water in spray tank incorporating it into the pesticide mixture. Apply the tank mixture to target pests in the application area.

Handle and dispose of triple-rinsed empty pesticide containers according to local CAC and manufacturer's requirements, recycling plastic containers when possible. Whenever possible,

unwanted or unused pesticides should be returned to the supplier. 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 supplier; or

If reusing or returning unwanted pesticides is not feasible, contact the IPM program administrators and/or the District's Regulatory Compliance Office to arrange for disposal.

Equipment Cleaning to Remove Pests and Pesticides

Equipment should be cleaned to avoid unintentional transfer of pests from one location to another. Equipment that may come in contact with pesticide products should be adequately cleaned after use and may be signed to indicate its use. In the case where equipment needs to be brought to staff for maintenance, such as vehicles, the vehicle user should properly rinse and clean the vehicle and associated equipment to minimize the potential for maintenance staff to come into contact with pesticide residue.

Pesticide Spill Response

Properly sized spill kits shall be prepared and maintained at pesticide storage areas and on all application equipment.

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, chemically resistant gloves and warning tape to secure the area in case clean-up cannot be accomplished immediately. If required by the product label the worker should also employ the appropriate footwear and apron and/or respirator. Appendix B summarizes the District's emergency notification procedure for pesticide spills.

Employees that apply pesticides will be trained in the use of the spill kits and respirators as required. All employees that apply pesticides shall be familiar with the procedure. When respirators are required by the product label, employees must receive required medical evaluations and respirator fit testing, as well as training on how to properly select, use, and maintain respirators. For additional information, refer to the District's written Respiratory Protection Program.

ANNUAL IPM ACTIVITY REPORTS

Each District work group accounts for the IPM methods used, including total pesticide usage. Data is quality assured and entered into the IPM database on a regular basis to facilitate production of an annual report used to provide updates to the District's Board of Directors on IPM program status. No later than January 31st of each year, Supervisors of all IPM implementing workgroups will make sure that all data from the year prior has been entered and checked for accuracy.

CERTIFICATION AND TRAINING

Certification: There are several different job classifications across multiple Departments at the District that support implementation of the IPM Program. Pesticide application, one of many IPM methods, is employed based on comprehensive analysis of the target pest and application site, and careful consideration of alternatives. Some District workgroups require that workers obtain a DPR Qualified Applicator Certificate (QAC) while others do not. However, all workers at the District who apply pesticides are required to be adequately trained and directly supervised by experienced applicators that hold a valid QAC. A Qualified Applicator License (QAL) administered by DPR is also acceptable.

State law requires that anyone handling pesticides be trained pursuant to the requirements of California Code of Regulations (CCR) Section 6724, and those applying or supervising the application of state restricted materials hold a QAC or QAL. However, the District recognizes the value of staff competency in pesticide application for personal safety and environmental protection and will support staff to voluntarily obtain and maintain a QAC. The District will cover the costs for the required training and license fees for employees whose job duties specifically include pest control and pesticide application and/or supervision of such activities. The District will also support staff in obtaining the continuing education units (CEUs) required by the state to maintain their QAC status. Support may include registration fees for attendance at relevant conferences, seminars, classes, etc. and necessary fees to obtain and renew the employee's QAC.

Training: All staff implementing pest management at District sites will receive training in general IPM principles and strategies. This training is conducted annually by the IPM program administrators and attendance is logged in the District's Electronic Training System (ETS) system.

District staff who apply pesticides as part of their IPM implementation duties shall also be trained in topics including, but not limited to pesticide alternatives, the safe use of pesticides, potential hazards to applicators and the environment and first aid and decontamination procedures. This is generally referred to as pesticide handler training (3 CCR § 6724). Training shall be conducted annually for each pesticide or chemically similar group of pesticides to be used. The work unit shall maintain records of staff that received the training for at least two 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.

RECORD KEEPING

Decision Documents will be retained on the District's shared network for the life of the IPM program; old versions should be retained for reference as updates are made to newer current versions.

IPM Field Inspection Worksheets should be retained for at least three years should questions arise about individual data points; however, the information from these worksheets should be entered into the database on a frequent basis as the information is collected.

All copies of PUR forms for District staff chemical applications should be retained at the local work unit level in accordance with regulatory requirements; a minimum of two years.

All daily spray logs, where required, should be retained at the local work unit level in accordance with regulatory requirements; a minimum of three years.

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

All annual report materials, data collection form templates and PEP related forms will be retained by the IPM program administrators for at least five years.

COMMUNICATION AND OUTREACH

IPM is implemented by diverse workgroups across multiple locations therefore frequent internal communication is necessary to ensure all employees have the latest information about latest topics, available tools, challenges and solutions and any changes to procedures. The District has an IPM workgroup that meets regularly to discuss these topics. Additionally, at least once per year an IPM supervisory group, comprised of supervisors, managers and superintendents that manage workgroups implementing IPM as part of their job duties come together to review accomplishments from the year prior and identify goals and tasks for the year ahead. Annually the IPM program administrators provide a program status report to the District's Board of Directors and implement recommendations they may have.

External communication is also an important element of the District's IPM program. It is important that the community we serve has easy access to information about IPM practices including pesticide usage in and around the areas where they frequent. Signs are posted in areas before pesticides are used. Open house workshops have been hosted when community members desire information about the IPM program. The District has established a direct email address for the community to submit questions at IPM@ebmud.com. Field pamphlets have been developed with basic IPM program details and contact information for employees to handout if questions arise while in the field. The District's website www.ebmud.com includes basic information about the IPM program and related documents, including the IPM guidelines, available for download.

AGENCY CONTACTS

Contact information for technical expertise such as CACs, who are typically co-located with County UCCE offices, are provided below for reference. In addition, contacts for UCCE staff are also provided below. In addition to technical expertise, staff at these agencies can offer assistance with regulatory compliance.

IPM Agency Contacts		
Agency Type	*Agency Name*	*Telephone No.*
Federal	USEPA Air and Toxics Division, Pesticides	(415) 947-8704
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 ext. 3
Local	Contra Costa County Agricultural Commissioner	(925) 608-6600
Local	Sacramento County Agricultural Commissioner	(916) 875-6603
Local	San Joaquin County Agricultural Commissioner	(209) 953-6000
Local	Alameda County UC Cooperative Extension	(510) 567-6812
Local	Amador County UC Cooperative Extension	(209) 223-6482
Local	Calaveras County UC Cooperative Extension	(209) 754-6477
Local	Contra Costa County UC Cooperative Extension	(925) 608-6670
Local	Sacramento County UC Cooperative Extension	(916) 875-6913
Local	San Joaquin County UC Cooperative Extension	(209) 953-6100

FEES

Applicator certificates cost $60 and expire biannually on December 31. The District covers the costs of licenses for staff that implement IPM and supports ongoing training to obtain required CEUs to keep a certificate active.