



# Draft Pesticide Plan

for the

Sacramento Stormwater Management Program

Submitted to the  
Central Valley Regional Water Quality Control Board  
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# Background

## Purpose

This Pesticide Plan is a comprehensive plan with a goal to reduce the discharge of pesticides from municipal stormwater systems to urban creeks within Sacramento County. It establishes additional controls on pesticide applications made by Permittees, and encourage practices by residential and commercial applicators that will reduce the risk of pesticide discharges to urban creeks. The plan describes both actions taken to date and additional steps to control pesticides

Submittal, approval, and implementation of this Pesticide Plan to the Central Valley Regional Water Quality Control Board (Regional Board) fulfills the requirements of Provision 14.b. of the 2002 National Pollutant Discharge Elimination System Permit, Number CAS082597, for Stormwater Discharges from Municipal Separate Storm Sewer Systems, Sacramento County (NPDES Permit). The NPDES Permit was issued to the County of Sacramento and the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, and Sacramento, referred to collectively as the Permittees.

## Key Regulations

Under the Federal Clean Water Act, local governments of large urban areas, including Sacramento, are issued permits that require them to control the discharge of pollutants in their stormwater runoff. Urban stormwater runoff carries a significant load of various pollutants to receiving waters. The NPDES Permit requires the Permittees to control the discharge of pollutants to receiving waters from their stormwater conveyance systems to the maximum extent practicable. Section 14b of the NPDES Permit establishes a number of requirements to address pesticides.

The NPDES Permit requirements relate to the Permittees' own pesticide use and to activities designed to track and influence the pesticide use of others. State and federal pesticide laws and regulation put significant limits on the ability of local agencies, such as the Permittees, to control the pesticide use of others. State and federal pesticide regulations are discussed throughout this document where necessary to provide background information.

## Pesticides as a Target Pollutant

The Permittees recognized in 1995 that the pesticides diazinon and chlorpyrifos are present in toxic levels in stormwater discharges. Since then, they have been proactively addressing this problem.

The Permittees created a Target Pollutant Ranking System<sup>1</sup> to identify and prioritize the most important stormwater pollutants (target pollutants), to facilitate effective use of their limited resources. The Target Pollutant Ranking System identifies target pollutants using data collected through the Permittees' monitoring program and through monitoring conducted by other agencies. Pollutants are ranked in a weighted scoring scheme that considers such factors as the frequency and severity of pollutant occurrence, the potential to exceed water quality criteria, and the potential to adversely affect beneficial uses.

From 1993-1995 aquatic toxicity studies conducted by the Permittees and Regional Board identified toxicity in urban creeks caused by organophosphorous (OP) pesticides. Ongoing chemical analysis confirms that two OP pesticides, diazinon and chlorpyrifos, are generally detectable in Sacramento area urban runoff, often at levels which would be expected to be toxic to aquatic arthropods, organisms near the base of the food chain.

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<sup>1</sup> A detailed description of this system may be found in the 2003 Sacramento County Stormwater Quality Improvement Plan.

Based on the observed toxicity and frequent occurrence of these pesticides, the Target Pollutant Ranking System ranked diazinon and chlorpyrifos as the most important pollutants in Sacramento area stormwater discharges. Soon after, other stormwater programs and sanitary sewer agencies in the Bay Area and Central Valley also identified them as problem constituents in their discharges.

Once a pollutant is identified as a high priority Target Pollutant, the Permittees develop strategies to reduce its discharge in urban runoff. The Permittees and other stakeholders recognized early that it was important to address pollution from pesticides in general, not just from diazinon and chlorpyrifos. Focusing on the latter was likely to result in pesticide users switching to other pesticides that could still cause toxicity in the urban creeks and POTW discharges. According to a U.S. Geological Survey report, *The Quality of Our Nations Waters: Nutrients and Pesticides*, the most frequently detected pesticides in our waters are those most heavily used.

Since the identification of diazinon and chlorpyrifos as target pollutants, the U.S. Environmental Protection Agency has severely restricted their use due to their environmental and human health risks. Retail sales for most urban uses of chlorpyrifos were phased out in 2001, and retail sales for most urban uses of diazinon are scheduled for phase out by the end of 2004. However, pesticides in general remain a target pollutant for the reasons discussed above. In addition, people who bought over-the-counter products containing diazinon or chlorpyrifos before the phase-out are still allowed to use them.

## Pesticide Users

In urban areas, pesticide users include:

- Residents
- Institutional Users: Commercial facilities and public agencies whose owners or employees apply pesticides in the course of their duties, but not on a for-hire basis
- Pest Control Operators (PCOs): Companies or individuals who apply pesticides as part of pest control businesses that provide pest control on a for-hire basis

Licensing and training requirements differ between these groups.

- Residents are not required to have any training or licensing for the use of pesticides available to them.
- Employees who apply pesticides for institutional users must have training and some are subject to licensing requirements.
- PCO employees who apply pesticides must receive training. All PCO applications must be conducted by or under the supervision of a person licensed or certified by DPR or the State Structural Pest Control Board.

Studies conducted in Northern California<sup>2</sup> suggest that pesticide applications made by private residents may be responsible for approximately one-half of the pesticides applied in urban areas, accounting for tens of thousands of pounds of active ingredients. These studies also indicate that the large volume of pesticides applied in urban areas by both residents and PCOs could account for the observed levels of pesticide contamination of stormwater, even if the pesticides are legally applied. Finally, improper pesticide handling, application, and disposal by residents are also likely sources of pesticide levels in urban runoff. No training is required for residents to purchase or apply the pesticides that are available to them. Although they are required by law to follow pesticide label instructions, properly dispose of unwanted pesticides, and avoid applications that cause water pollution, private residents who use pesticides are subject to virtually no oversight.

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<sup>2</sup> (a) Alameda County Urban Runoff Clean Water Program, 1997. Characterization of the Presence and Source of Diazinon in the Castro Valley Creek Watershed. Prepared by J. Scanlin and A. Feng

(b) Regional Water Quality Control Plant-Palo Alto, 1996. Diazinon in Urban Areas. Prepared by A. Cooper.

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## Actions/Approach Taken to Date

In 1996, soon after diazinon and chlorpyrifos were identified as target pollutants, the Permittees, other stormwater programs, sanitary sewer agencies, and other stakeholders, such as the Central Valley and San Francisco Bay Regional Boards, the California Department of Pesticide Regulation, and manufacturers of diazinon and chlorpyrifos, formed a group to address pesticide issues. Now known as the Urban Pesticide Committee (UPC), the group still serves as a forum for discussion, sharing information, and developing cooperative efforts to address pesticides.

The Permittees and UPC recognized that it is not enough to raise awareness about pesticide risks, because people need solutions to pest problems. There was consensus that the best way to minimize the water quality risks associated with pesticides was to promote Integrated Pest Management (IPM), which is a rational strategy for making pest management decisions that often leads to reduced pesticide use. The University of California Statewide Integrated Pest Management Program (UCIPM) defines IPM as follows:

*Integrated pest management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. 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 materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.*

The Permittees have worked proactively to promote IPM and reduce pesticides in urban discharges. Efforts to date include:

- Monitoring for pesticides and toxicity in urban runoff since 1995
- Pesticide monitoring study and pesticide outreach program funded by CalFed grant
- Implementation of the Water Wise pesticide outreach program since 2000
- Education and outreach to PCOs
- Support of household hazardous waste programs
- Pesticide use surveys
- Participation in regional and watershed level pesticide control groups such as the UPC
- Tracking and participation in the pesticide regulation process
- Participation in Pesticide Research and Identification of Source, and Mitigation (PRISM) grant from the State entitled "Making IPM Mainstream: Tools and Market-Based Incentives for Restoring Pesticide-Contaminated Waterways"

# The Pesticide Plan Control Strategies

## Overview

The Pesticide Plan:

- Builds on numerous existing efforts
- Establishes new activities where necessary to meet the requirements of the MR4 Permit
- Involves numerous partners
- Targets the primary pesticide users
- Addresses all pesticide use, not just diazinon and chlorpyrifos
- Promotes integrated pest management as a way to reduce water quality impacts from pest control
- Recognizes the need for significant changes in pesticide regulations and recommends specific changes to better protect water quality

The plan identifies action items to address the NPDES Permit requirements as well as action items that are not specifically required but that improve the Plan's overall effectiveness and cohesiveness. It is organized into five categories: Permittee Pest Control, Public Outreach and Education, Pest Control Operators, Evaluation, and Regulatory.

Attachments 1 and 2 summarize the relationship between the NPDES Permit requirements and their associated action items.

Attachment 3 shows the proposed implementation schedule for the action items.

The following lists the Pesticide Plan categories and their associated Action Items.

**Permittee Pest Control** — Activities by the Permittees to manage their own pesticide use

- Action Item 1: Develop and establish authority to implement pesticide plan
- Action Item 2: Develop a "tool box" for the Pesticide Plan.
- Action Item 3: Document and report pesticide use.
- Action Item 4: Review and revise internal policies and procedures to ensure documentation of pesticide use.
- Action Item 5: Require oversight by Certified Pesticide Applicator.
- Action Item 6: Establish/conduct training program for pesticide applicators.
- Action Item 7: Develop and adopt Permittee-specific IPM policies, procedures, and ordinances.
- Action Item 8: Ensure coverage under Aquatic Pesticide Permit.
- Action Item 9: Coordinate with Sacramento-Yolo Mosquito and Vector Control District

**Public Outreach and Education** — Outreach to the public and pesticide retailers, encouraging IPM and proper use and disposal of pesticides.

- Action Item 10: Continue to support the Water Wise Program.
- Action Item 11: Continue to support Household Hazardous Waste programs.
- Action Item 12: Continue to include pesticide information in stormwater outreach campaign.
- Action Item 13: Encourage incorporation of IPM in design of new development landscaping and buildings.
- Action Item 14: Coordinate with special districts to promote IPM.

Action Item 15: Consider other IPM outreach efforts.

**Pest Control Operators** — Activities related to Pest Control Operators.

Action Item 16: Continue regulation of PCOs by the County Agricultural Commissioner.

Action Item 17: Continue to enforce local prohibitions against illegal discharges.

Action Item 18: Promote IPM implementation by PCOs.

**Pesticide Assessment Activities** — Activities to evaluate pesticide levels in the environment, pesticide use, and disposal practices.

Action Item 19: Continue conducting water quality monitoring.

Action Item 20: Continue to track relevant monitoring programs by other agencies.

Action Item 21: Conduct Residential Pesticide Sales and Use Surveys.

Action Item 22: Evaluate PCO pesticide use data.

Action Item 23: Continue evaluating program progress and effectiveness.

Action Item 24: Evaluate target pollutants.

**State and Federal Regulatory issues** — Activities to affect regulations that apply to pesticide use and impacts.

Action Item 25: Continue tracking and commenting on State and Federal regulatory activities that pertain to pesticides of significance to urban stormwater discharges.

Action Item 26: Continue providing input for pesticide product risk assessments for surface water quality.

Action Item 27: Continue participating in the development of TMDL for pesticides in Sacramento urban creeks.

Action Item 28: Continue supporting improvements in State and Federal pesticide regulations.

## Permittee Pest Control

The Permittees use pesticides in the process of providing municipal services. The extent and nature of pesticide use varies considerably among them, and may include uses for rights of way, structures, landscapes and parks, sewers, and drainage facilities.

When using pesticides, the Permittees are subject to State and Federal pesticide regulations, which are separate from the MS4 Permit, and include requirements for training, licensing, pesticide use, record keeping, and reporting. The NPDES Permit includes some pesticide use requirements that are the same or consistent with state and federal requirements. It also requires the Permittees to conduct additional reporting and training and to use integrated pest management (IPM). Therefore, meeting the NPDES Permit requirements will require additional effort by the Permittees. As appropriate, the existing pesticide requirements will be incorporated into the IPM programs established as part of this plan.

### **Action Item 1. Develop and establish authority to implement Pesticide Plan.**

Each Permittee will establish a policy, ordinance, or similar instrument that requires all pesticide management activities by its staff and contractors to be in compliance with the NPDES Permit requirements, the Pesticide Plan and the Permittee's internal pesticide use policies, including IPM.

### **Action Item 2. Develop a "tool box" for the Pesticide Plan.**

The Permittees will jointly conduct background research--including a review of basic IPM information and of other municipal IPM programs--to develop a tool box of resources to help the Permittees develop and implement the Pesticide Plan and IPM. The tool box might include:

- Model policies and ordinances
- Model PCO contract language
- Pest management decision tools
- Pesticide evaluation methods and tools
- Reporting and documentation forms and software
- IPM fact sheets for common pests
- IPM books and other documents
- Other IPM resources such as websites
- Training materials and opportunities
- Model IPM contract language
- Lists of IPM consultants and PCOs

## Pesticide Use Inventories

The NPDES Permit requires the Permittees to inventory their pesticide uses. By meeting this requirement, the Permittees will ensure they have an accurate, up-to-date understanding and documentation of their pesticide use. To the extent practical, this inventory will build on existing State Pesticide Use Reporting (PUR) requirements. Most pesticide applications by the Permittees are probably subject to the PUR requirements.

PUR requirements apply to the following Permittee actions:

- Application of any restricted material
- Application of any agricultural chemical
- Outdoor application of chemicals with the potential to pollute groundwater
- Pesticide applications to parks, golf courses, roadside ditches, and creeks and channels

PUR requirements also apply to any applications made by PCO vendors, including pest control services provided to the Permittees.

The PUR requirements may not apply to all pesticide applications by Permittee staff on Permittee property. For example, an application of a non-restricted pesticide by staff for structural purposes, such as cockroach control, would not be subject to PUR requirements.

The plan includes the following action to meet the NPDES Permit pesticide use inventory requirements:

**Action Item 3. Document and report pesticide use.**

By March 1, 2005 each Permittee will complete its pesticide use inventory, covering a representative time frame. Each year, beginning in 2006, the Permittees will complete pesticide use inventories for the previous calendar year. Completion of the inventory will include:

- a. Survey internal departments to identify all pesticide applications made by Permittee staff, on Permittee property, or on behalf of the Permittees by vendors
- b. Compile pesticide use reports for pesticide applications made by Permittee staff
- c. Compile pesticide use reports for pesticide applications made by PCOs or vector control districts on Permittee property or on behalf of the Permittees
- d. Collect information on pesticide applications made by Permittee staff that is not subject to PUR requirements
- e. Combine all PUR and non-PUR pesticide use information in an appropriate useful format. The Permittees will consider establishing databases that coordinate the PUR requirements with the documentation requirements established by the MS4 Permit. For instance, Santa Clara County has a web-based software application that meets both the PUR and MS4 requirements, streamlines pesticide use reporting and documentation procedures, and provides timely information in a format useful for the IPM Program.

**Action Item 4. Review and revise internal policies and procedures to ensure documentation of pesticide use.**

The Permittees will conduct the following activities:

- a. Consult with the Agricultural Commissioner to ensure that identified Permittee-associated pesticide uses comply with applicable PUR requirements
- b. Require PCO vendors to provide data directly to Permittees regarding pesticide applications made under contract to the Permittees
- c. For pesticide uses that are not subject to PUR requirements, develop internal policies and procedures as necessary to ensure reporting and documentation in compliance with the MS4 Permit

## **Pesticide Use Training and Certification**

The NPDES Permit certification and training requirements are more stringent than those of the state pesticide regulations. The Permittees will comply through the following two action items:

**Action Item 5. Require Oversight by Certified Pesticide Applicator.**

The Permittees will require all Permittee pesticide use to be conducted by, or under the supervision of, a person holding a Qualified Applicator License or Qualified Applicator Certificate, in the category appropriate for the application. (State pesticide regulations currently require some but not all of the Permittee's pesticide uses to be supervised by certificate or license holders.)

**Action Item 6. Establish/conduct training program for pesticide applicators.**

The Permittees will:

- a. Establish a written training program for all staff that apply pesticides
- b. Conduct the pesticide applicator training at least annually
- c. Ensure training is consistent with and coordinated with the pesticide worker training requirements and NPDES Permit requirements. The training will include:
  - Worker and public safety
  - Proper use and disposal of pesticides
  - Pesticide related surface water toxicity
  - Less toxic methods of pest prevention and control
  - Integrated pest management policy and procedures

**Permittee Integrated Pest Management**

A number of the NPDES Permit requirements are appropriate to address through IPM. Each Permittee will adopt IPM policies and procedures that apply to all of its pest management activities, including those conducted on its behalf by contractors. Each Permittee is responsible for its own IPM implementation, but the Permittees plan to work together to conduct background research, and to develop the basic framework and information resources for jurisdiction-specific IPM. They may also choose to combine resources for certain activities such as training, data management, and IPM consultant services.

Specifically, the Permittees will:

**Action Item 7. Develop and adopt Permittee-specific IPM policies, procedures, and ordinances.**

By May 1, 2006, each Permittee will adopt in-house IPM policies, procedures, or ordinances specific to its own operations, in coordination with Action Item 1. The Permittees will draw on joint background research (see Action Item 2), and, as necessary, IPM experts will be consulted to develop, review, refine, or implement IPM Program elements.

The success of integrated pest management depends on the awareness and support of various stakeholders. Depending on the needs of their internal organization, the Permittees may find it advantageous to conduct stakeholder processes to develop their internal IPM policies, procedures, or ordinances. Potential stakeholders include PCO service providers, staff and management involved in pest management, internal and external customers, other urban pesticide users such as vector control districts, and the general public.

Permittee IPM activities will include the following elements. As appropriate, these may be coordinated with related activities included in other sections of the Pesticide Plan:

- a. **Authority.** In coordination with Action Item 1, each Permittee will establish written policies, procedures, or ordinances to support implementation of IPM.
- b. **Definition of IPM.** Each Permittee will establish an in-house definition of IPM that is consistent with generally accepted standards of Integrated Pest Management.
- c. **Pest management decision and documentation procedures.** Each Permittee will develop written guidance and procedures for making and documenting pest management decisions, including selection and use of pesticides.

- d. **Requirements for pest management vendors.** PCO and Pest Control Advisor vendors will be required to implement IPM while providing services to Permittees, using the following mechanisms:
- Internal mechanisms such as purchasing policies or standard contract provisions that require IPM implementation by PCOs and PCAs while performing work under contract with the Permittees
  - Requirements for IPM certification of vendors once a practical and bona fide certification system becomes available in the Sacramento Region
- e. **Written IPM training plan.** In coordination with Action Item 3, each Permittee will establish a written training plan to ensure that staff has the necessary knowledge to implement IPM. At a minimum, the training plan will identify training requirements for all staff involved in pest management, set an annual training schedule, and establish a mechanism to ensure that training requirements are met. Staff to be trained includes pesticide applicators, field supervisors, project managers (fiscal managers), facility managers, and IPM coordinators (if any). The training provided may vary depending on specific roles, responsibilities, and activities.
- As participants in a PRISM Grant entitled “Making IPM Mainstream”, once a contract is established and funding is secure, the Permittees will benefit from IPM training for appropriate managers and staff, as described in Task 6 of the grant. In addition, the Permittees will benefit from the establishment of an regional infrastructure for providing ongoing IPM training for public agency staff, as described in Tasks 4 and 5 of the grant.
- f. **Inter-agency agreements for sharing IPM responsibilities.** The IPM Program will document agreements, if any, made among Permittees for joint implementation of all or portions of the IPM Program.
- g. **Coordination with the Agricultural Commissioner.** Representatives of the Permittees and the Agricultural Commissioner will meet on a periodic basis to share information on integrated pest management activities, and coordinate their activities as appropriate.

**Action Item 8. Ensure coverage under Aquatic Pesticide Permit.**

The Permittees will determine if any of their pesticide applications are subject to the State General Permit for Aquatic Pesticides, and obtain coverage as necessary. Compliance with this permit is consistent with integrated pest management principles.

**Action Item 9. Coordinate with Sacramento-Yolo Mosquito and Vector Control District**

The Sacramento-Yolo Mosquito and Vector Control District (District) is a separate special district that provides control of mosquitoes and other vectors throughout Sacramento and Yolo County, including all the territory within the jurisdiction of the Permittees. The District is committed to reducing the need to use pesticides and other resources for mosquito control, using the principles of integrated pest management. The District has a policy of working with its customers, which includes the Permittees, to reduce standing water that generates mosquitoes. The District provides free consultation to evaluate drainage facilities and will make recommendations to the Permittees as necessary for improving operation, maintenance, and design to reduce mosquito populations and the need to use pesticides. Especially in light of the arrival of West Nile Virus in California, the Permittees will work with the District to adequately control mosquitoes in drainage facilities using water management techniques applied to drainage operation and maintenance procedures, where practical. This may reduce the chances of the District applying pesticides that could impact receiving waters.

## Public/Retailer Outreach and Education

As explained in the background section of this document, the general public is likely responsible for applying about half of the pesticides applied in urban areas. In addition, a significant proportion of applications by PCOs are done on behalf of the general public. Due to the widespread use of pesticides by the public, education is a critical component in reducing discharges of pesticides in urban runoff. Since the public obtains information on pesticide use through retailers, outreach to retailers is integral to public outreach efforts. The Permittees will continue to conduct outreach to the public through the following action items.

### Action Item 10. Continue to support the Water Wise Program.

The Permittees will continue to support the Water Wise Program or equivalent pesticide outreach and education programs to promote implementation of IPM by the public. The Water Wise Program is a joint project supported by all the Permittees and the Sacramento Regional County Sanitation District, that was started in 2000. The Water Wise Program currently provides information about IPM and pesticide use and disposal to the public through:

- Distribution of printed materials at retail pesticide suppliers such as nurseries and home centers
- The Water Wise Program web site accessible through the City and County of Sacramento's stormwater program websites
- The UC Cooperative Extension Master Gardener Program

Water Wise Program written materials and Master Gardener training were developed by the UC IPM program to ensure credibility and technical accuracy.

### Action Item 11. Continue to support Household Hazardous Waste programs.

Unwanted pesticides may enter receiving waters through the storm drains or sanitary sewer if improperly disposed of. To facilitate safe and proper disposal of unwanted pesticides the County and City of Sacramento make Household Hazardous Waste (HHW) disposal services available free of charge to all residents of the County, including the residents of Citrus Heights, Elk Grove, and Rancho Cordova, which do not currently operate separate HHW services.

Table 1 shows the location and availability of HHW services provided by the Permittees as of April 2004.

**Table 1. Household Hazardous Waste Services in Sacramento County**

Operator	Location	Hours	Population served
County of Sacramento	North Area Recovery Station 4450 Roseville Rd North Highlands	8:30-4:00 Tues-Sun	Any County resident
City of Sacramento	Sacramento Recycling & Transfer Station 8491 Fruitridge Rd. Sacramento	8:00-5:00 Friday and Saturday	Any County resident
City of Folsom	Home pick up	Monthly by appointment,	Folsom residents
City of Galt	Home pick up	Annual	Galt residents

The Permittees will continue to promote HHW programs through outlets such as print media advertising, printed brochures, utility bill inserts, Permittee web sites, broadcast public service announcements, and the Water Wise Program.

**Action Item 12. Continue to include pesticide information in stormwater media campaign.**

The Permittees will continue to include messages about pesticide impacts and IPM in their media campaign.

**Action Item 13. Encourage incorporation of IPM in design of new development landscaping and buildings.**

- a. The Permittees will conduct or support periodic IPM training sessions for Permittee staff involved in planning and environmental review, landscape design professionals, and other members of the development community. Permittee sponsorship and participation in the Sustainable Landscaping seminar held in Sacramento in January 2004 is an example of the type of training that will be made available. A second Sustainable Landscaping seminar is scheduled for February 2005.
- b. The Permittees will investigate and, as appropriate, provide information, reference materials, guidance, and model policies on landscape IPM design concepts for staff and the development community.

**Action Item 14. Coordinate with special districts to promote IPM.**

Special districts such as electric utility, school, park, reclamation, water, and vector control districts all have the potential to use pesticides. The Permittees will support IPM implementation and outreach by these agencies as resources allow by completing the following:

- a. Continue to cooperate with the Sacramento Regional County Sanitation District on projects such as Water Wise, and seek other opportunities for joint projects
- b. Invite special district staff to IPM training opportunities such as those provided by the PRISM Grant IPM certification program
- c. Provide information on IPM for pest control associated with special district operations
- d. Provide information on IPM to water districts for potential incorporation in water conservation outreach efforts

**Action Item 15. Consider other IPM outreach efforts.**

The Permittees have an active Stormwater Program public education and outreach program. A wide variety of partnerships and activities for stormwater education and outreach have already been developed with libraries, schools, zoos, and other organizations. The Permittees will continue to explore opportunities to expand public access to integrated pest management resources through these groups.

Examples that might be considered include the following:

- Provide materials or presentations to environmental horticulture classes
- Provide IPM reference materials to public libraries and schools
- Support displays with an IPM message at local zoos
- Supporting IPM projects through grants to community organizations
- Encourage private owners of business property, including owners of facilities leased by the Permittees, to implement integrated pest management in their facility management

## Pest Control Operators

Pest Control Operators (PCOs) are individuals or companies licensed by the State to provide pest control services on a for-hire basis. State licensing is the primary mechanism for ensuring that PCOs meet an adequate level of training, competence, and regulatory compliance. PCOs may have employees who apply pesticides but are not licensed. However, all applications by PCO employees must be made under the supervision of a person holding a valid State license. License renewal is required on a regular basis and includes continuing education requirements. The California Department of Pesticide Regulation issues licenses for agricultural (including landscape) application. The Structural Pest Control Board issues licenses for control of pests associated with buildings and other structures. Through authority granted by the California Food and Agriculture Code the County Agricultural Commissioner provides local regulation of PCO activities. Under State law other local agencies such as stormwater programs are prohibited from regulating pesticide use by PCOs.

### **Action Item 16. Continue regulation by the County Agricultural Commissioner.**

The County Agricultural Commissioner will continue to administer and enforce state pesticide use regulations within Sacramento County.

### **Action Item 17. Continue to enforce local prohibitions against illegal discharges.**

Although the Permittees are not authorized to regulate pesticide use by others, the Permittees will enforce stormwater ordinance provisions against illegal discharges of pesticides to the storm drain. Such discharges might result from improper disposal of pesticides, rinse waters, and wastewater from equipment washing. Such enforcement will be conducted in coordination with the Agricultural Commissioner to avoid regulatory conflicts and promote efficient use of resources.

### **Action Item 18. Promote IPM implementation by PCOs.**

The Permittees will conduct the following activities to promote IPM implementation by PCOs:

- a. **Continue outreach to PCOs.** The Permittees will continue conducting PCO outreach to raise their awareness of water quality problems caused by urban pesticide use and to encourage use of IPM. To date the Permittees have supported outreach to PCOs promoting IPM in the Sacramento Region conducted by the Coalition for Urban/Rural Environmental Stewardship (CURES). Additional outreach to PCOs will be conducted on a periodic basis in coordination with the Industrial Element of the Stormwater Program.
- b. **Promote IPM certification programs.** The Permittees are participants in a Pesticide Research and Identification of Source and Mitigation (PRISM) grant from the State Water Resources Control Board entitled "Making IPM Mainstream: Tools and Market-Based Incentives for Restoring Pesticide-Contaminated Waterways." <sup>2</sup>. Through this grant the Permittees will promote opportunities to create an IPM certification program that will facilitate selection of PCOs certified in IPM. This project was selected for funding at \$785,000. Funding is anticipated for fiscal year 2004/2005. The project was developed jointly as a regional project by the Bio-Integral Research Center (BIRC), various environmental consultants, the Sacramento Stormwater Program, the Natural Resources Defense Council, and the Association of Bay Area Governments (ABAG), and represents a major effort to promote IPM in the urban environment. The project will provide IPM training for Permittee and other local public agency managers; will market IPM to the public and PCOs, and will create an IPM training and certification program for PCOs in the San Francisco Bay Area and Sacramento region.

As opportunities arise, the Permittees will consider and may support other regional and statewide efforts to establish IPM certification programs for PCOs. As appropriate, the

Permittees will also support the development of water quality and IPM education requirements in State licensing procedures for PCOs.

- c. **Facilitate IPM training opportunities.** The Permittees will facilitate IPM trainings for Sacramento area PCOs in conjunction with the PRISM grant.
- d. **Encourage the public to choose PCOs that practice IPM.** The Permittees will encourage the public to choose PCOs that practice IPM through media campaigns and through the existing Clean Water Business Program (CWBP). The CWBP encourages businesses to implement best management practices (BMPs).. The existing CWBP encourages BMPs for landscaping businesses that include integrated pest management and the installation of pest resistant landscaping. The Permittees will consider expanding the CWBP to include PCOs. Their participation as business partners would require the promotion and use of IPM practices

## Pesticide Assessment Activities

The assessment activities described in this section provide information that helps define the nature, extent, and sources of the pesticide problem, as well as the effectiveness of the control program. Many of the assessment activities are already conducted as part of the Permittee's ongoing stormwater programs. A number of the assessment activities are conducted or funded directly by the Permittees. Some are conducted by other entities and the Permittees make use of their data.

The Pesticide Assessment Activities are grouped as follows:

- Water quality monitoring
- Analysis of pesticide use and sales
- Program evaluation

## Water Quality Monitoring

The Permittees conduct and fund several ongoing water quality monitoring efforts that provide information on the levels of pesticides in rainwater, urban creeks and other receiving waters. As described previously, the data from these monitoring programs was utilized to identify the high levels of diazinon and chlorpyrifos in local urban creeks.

### **Action Item 19. Continue conducting water quality monitoring.**

The Permittees will conduct the following monitoring to assess the concentration or effects of pesticides in local waterways. Additional information on these monitoring projects is included in the Monitoring section of the Permittees' Stormwater Quality Improvement Plan and the 2002/2003 Annual Report.

- a. Discharge characterization monitoring
- b. River monitoring
- c. Creek monitoring
- d. Bioassessment monitoring
- e. Toxicity monitoring
- f. Additional pesticide monitoring

### **Action Item 20. Continue to track relevant monitoring programs by other agencies.**

The Permittees will continue to participate in the Sacramento River Watershed Program and Urban Pesticide Committee that facilitate access to other monitoring efforts related to pesticide levels in urban stormwater. Monitoring programs that will continue to be tracked include:

- Stormwater agency monitoring in the Bay Area, Southern California, and other Central Valley cities.
- United States Geologic Service monitoring
- Central Valley Regional Board urban TMDL monitoring
- Sacramento River Watershed Program monitoring

### **Pesticide use and sales analysis**

The NPDES Permit requires the Permittees to evaluate patterns of sale and use of pesticides within their jurisdictions. State pesticide regulations require PCOs to report their pesticide use to the Agricultural Commissioner each month, but do not require reporting of retail pesticide sales or pesticide use by residents.

#### **Action Item 21. Conduct Residential Pesticide Sales and Use Surveys.**

The Permittees will complete two residential pesticide sales and use surveys during the term of the NPDES Permit, as required. To optimize their usefulness the design of these surveys will be coordinated with previous pesticide surveys conducted recently in the Sacramento area. The County and the City have each completed surveys that include pesticide use and disposal questions. In 2002, the UCIPM program also conducted a residential pesticide survey in the Arcade Creek watershed, an urban watershed in Sacramento County.

- a. The Permittees will submit the design of their 2004 residential pesticide sales and use survey to the Regional Board by May 1, 2004, as part of the annual Work Plan submittal.
- b. The Permittees will complete the first residential pesticide sales and use survey by December 1, 2004.
- c. The Permittees will submit the design of their 2006 residential pesticide sales and use survey to the Regional Board by May 1, 2006, as part of the annual Work Plan submittal.
- d. The Permittees will complete the second residential pesticide sales and use survey by December 1, 2006.

#### **Action Item 22. Evaluate PCO pesticide use data.**

The Department of Pesticide Regulation compiles and analyzes pesticide use data reported by PCOs. The Permittees will use the pesticide use summaries provided by DPR to evaluate pesticide use trends among PCOs.

#### **Action Item 23. Continue evaluating program progress and effectiveness.**

The Permittees will utilize available sources of information such as pesticide surveys, training records, outreach efforts, and pesticide use reports, to evaluate the progress and effectiveness of the Pesticide Plan. An evaluation of the progress and effectiveness of the Pesticide Plan will be included in the Stormwater Program Annual Report.

#### **Action Item 24. Evaluate Target Pollutants.**

As stated in Section 3.5 of their 2003 Stormwater Quality Improvement Plan, the Permittees will conduct a comprehensive review of applicable monitoring data of all the target pollutants once during the permit term. The Permittees will evaluate the relative water-quality impact of various pollutants, including pesticides, as part of the re-evaluation of target pollutant rankings.

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## Pesticide Registration/Regulation

State law pre-empts local stormwater programs from regulating pesticide sales and use. Regulatory activities by state and federal agencies, especially DPR and the United States Environmental Protection Agency (USEPA), are critical for achieving adequate control of pesticide uses that result in pesticide discharges in stormwater. In particular, pesticide registration and re-registration activities, which are very active areas of pesticide regulation, are especially important because restricting the use of a pesticide may be the most effective way to protect water quality.

The Permittees will continue to work through existing organizations like the UPC to address regulatory issues. The UPC provides a forum in which USEPA and DPR participate and has been valuable in bringing water quality concerns to the attention of state and federal pesticide regulators. Through the UPC partnerships among stormwater programs, regulatory agencies, and other entities can be forged to address pesticide regulatory issues of common interest.

As appropriate, the Permittees will support proposed regulations or legislation designed to reduce pesticide discharges in urban stormwater. This support may take the form of providing information, sending comments, and lobbying legislators. This support may be undertaken by individual agencies, jointly, and/or through organizations such as California Stormwater Quality Association (CASQA) and the Bay Area Stormwater Management Agencies Association (BASMAA). CASQA and BASMAA represent a significant number of Stormwater Programs statewide and represent very effective partnerships for influencing state and federal agencies to improve pesticide regulations.

### **Action Item 25. Continue tracking and commenting as appropriate on State and Federal regulatory activities that pertain to pesticides of significance to urban stormwater discharges.**

Much of this activity will be through participation in regional and statewide groups such as UPC, BASMAA, and CASQA. The Permittees will provide comments on regulatory activities as appropriate.

### **Action Item 26. Continue providing input for pesticide product risk assessments for surface water quality.**

Through UPC and other collaborative groups the Permittees will track pesticide risk assessments made by other stakeholders including Regional Boards, DPR, and USEPA. The Permittees will provide comments as appropriate.

### **Action Item 27. Continue participating in the development of TMDLs for pesticides in Sacramento urban creeks.**

The Permittees will actively participate in the Regional Board's process for developing total maximum daily loads (TMDLs) for diazinon and chlorpyrifos in Sacramento urban creeks. Specifically, the Permittees will attend stakeholder forums, provide comments, and support monitoring efforts, as appropriate. The Permittees also will provide relevant data to the Regional Board through the NPDES Permit reporting procedures.

### **Action Item 28. Continue supporting improvements in State and Federal pesticide regulations.**

The Permittees recognize that local efforts to control pesticides should be augmented by improvements in pesticide regulation at the state and federal level. The Permittees will continue to work with organizations such as the UPC and CASQA to promote improvements in pesticide regulations. The Permittees support the concepts to improve pesticide regulation that are listed below and suggest that they be adopted by the appropriate state and federal agencies:

- a. **Improve evaluation of water quality impacts.** USEPA Office of Water and USEPA Office of Pesticide Programs should coordinate more closely in evaluating the water quality impacts of pesticides during the registration and re-registration processes.
- b. **Exercise State registration authority to protect water quality.** DPR should deny approval of pesticides for use in California for which water quality impacts are demonstrated.
- c. **Improve product labels.** Pesticide product labels are intended to be enforceable regulatory documents. USEPA and DPR should collaborate to make product labels a more effective tool in preventing degradation of water quality. Recommendations include the following:
  - Clarify wording on labels to make them more easily enforceable
  - Ensure that label language consistently includes restrictions that protect water quality
- d. **Require retailers to provide pesticide education materials at point-of-sale.** DPR should propose legislation that requires retailers to provide and display point-of-sale information designed to encourage IPM, promote proper disposal, and reduce pesticide impacts on water quality.
- e. **Require retailers to report all pesticide sales.** DPR should adopt regulations that require retailers to report pesticide sales. Current methods available to the State and local agencies to estimate pesticide sales are difficult and inaccurate.
- f. **Establish adequate State funding for DPR, County Agricultural Commissioners, public education and water quality monitoring.** DPR, the State Water Resources Control Board, and the Regional Boards should seek legislation that generates adequate funding through a mill tax or other mechanisms to adequately support pesticide regulation and evaluation, monitoring programs, and public education efforts to reduce pesticide discharges and promote IPM.
- g. **Include water quality and IPM components in licensing and certification requirements.** DPR and the State Pest Control Board should develop water quality and IPM education requirements in State licensing and certification requirements for applicator categories with the potential to impact water quality.

**Attachment 1**  
**Summary of MS4 Pesticide Plan Requirements**

Permit Section	Permit Requirement (verbatim)	Summarized Permit Requirements.	Action Item Reference
Draft 2004 Pesticide Plan	Pesticide Plan letters refer to summary in next column.		
14.b Pesticides	The Pesticide Plan shall include a program to quantitatively identify each Permittee's pesticide use by preparing a [A] periodically updated inventory of pesticides used by all internal departments, divisions, and other operational units as applicable to each Permittee. The Pesticide Plan shall also include (1) [B] goals and implementing actions to replace the use of banned pesticides with less toxic alternatives, and minimize the use of pesticides whenever possible; and (2) a [C] schedule for implementation and a mechanism for reviewing and amending the plan, as necessary, in subsequent years.	[A] Periodic inventory of pesticides used by Permittees	3, 4
		[B] Procedure for replacement of banned pesticides	7
		[B] Minimize the use of pesticides and promote less toxic alternatives.	7
		[C] Periodic review of plan implementation	22, 23
	The Permittees shall adopt and verify implementation of [D] policies, procedures, and/or ordinances requiring the minimization of pesticide use and the use of Integrated Pest Management (IPM) techniques in the Permittee's operations that have the potential to reach waters of the State. The policies, procedures, and/or ordinances shall include commitments to not increase the Permittee's use of pesticides without [E] justifying their necessity and minimizing their adverse water quality impacts. The Permittees shall ensure that municipal employees who apply pesticides in their jurisdictions receive [F] annual training and apply pesticides only under the supervision of a certified pesticide applicator. The training shall address pesticide-related surface water toxicity, proper use and disposal of such pesticides, and less toxic methods of pest prevention and control, including IPM. The Pesticide Plan shall also be updated as needed and submitted with the Annual Reports when changes have been made during the year.	[D] Adopt in-house IPM Plan/ Policy/Ordinance.	1, 7
		[E] Justification of pesticide changes	7
18		[F] Pesticide application Sacramento Stormwater Management Program employee training, supervision, and certification, including IPM training	5, 6, 7





## Attachment 2. Action Item Permit References

Actions	Permit Reference
Action Item 1: Develop and establish authority to implement pesticide plan.	14.b ...The Permittees shall adopt and verify implementation of policies, procedures, and/or ordinances requiring the minimization of pesticide use and the use of Integrated Pest Management (IPM) techniques in the Permittee's operations <i>that have the potential to reach waters of the State...</i>
Action Item 2: Develop a "tool box" for the Pesticide Plan.	implementing step, not permit requirement
Action Item 3: Document and report pesticide use.	14.b ...a program to quantitatively identify each Permittee's pesticide use by preparing a periodically updated inventory of pesticides used by all internal departments, divisions, and other operational units as applicable to each Permittee.
Action Item 4: Review and revise internal policies and procedures to ensure full documentation of pesticide use.	14.b ...a program to quantitatively identify each Permittee's pesticide use by preparing a periodically updated inventory of pesticides used by all internal departments, divisions, and other operational units as applicable to each Permittee
Action Item 5: Require Oversight by Certified Pesticide Applicator.	14.b ...municipal employees who apply pesticides in their jurisdictions...apply pesticides only under the supervision of a certified pesticide applicator.
Action Item 6: Establish/conduct training program for pesticide applicators.	14.b ...municipal employees who apply pesticides in their jurisdictions receive annual training...
Action Item 7: Develop and adopt Permittee-specific IPM policies, procedures, and ordinances.	14.b ...policies, procedures, and/or ordinances requiring the minimization of pesticide use and the use of Integrated Pest Management (IPM) techniques.  C.10.D. Each Permittee shall prepare and implement a standardized protocol for routine and non-routine application of pesticides, herbicides (including pre-emergents), and fertilizers ...
Action Item 8: Ensure coverage under Aquatic Pesticide Permit.	Permit finding #66. It is necessary to obtain a NPDES permit for application of aquatic pesticides to waterways...

	Public entities that conduct such activities must seek coverage under this general permit.
Action Item 9: Coordinate with Sacramento-Yolo Mosquito and Vector Control District.	Finding #12. "... cooperate and collaborate with local vector control agencies ... for the implementation, operation, and maintenance of treatment control BMPs in order to minimize the risk to public health from vector borne diseases."
Action Item 10: Continue to support the Water Wise Program.	14.b.i ...Public outreach programs. Such programs shall be designed for residential and commercial pesticide users and pest control operators.
Action Item 11: Continue to support Household Hazardous Waste programs.	14.b.iv ...Coordination with household hazardous waste collection agencies. The Permittees shall support, enhance, and help publicize programs for proper pesticide disposal.
Action Item 12: Encourage incorporation of IPM in design of new development landscaping and buildings.	14.b.iii ...Mechanisms to encourage the consideration of pest-resistant landscaping and design features in the design, landscaping, and/or environmental reviews of proposed development projects. Education programs shall target individuals responsible for these reviews and focus on factors affecting water quality impairment.
Action Item 13: Include pesticide information in stormwater outreach campaign.	14.b.i ...Public outreach programs. Such programs shall be designed for residential and commercial pesticide users and pest control operators.
Action Item 14: Coordinate with special districts to promote IPM.	optional. 14.b.i ...Public outreach programs. Such programs shall be designed for] residential and commercial pesticide users and pest control operators.  Permit Finding #12. This Order expects the Permittees to closely cooperate and collaborate with local vector control agencies and the State Department of Health Services for the implementation, operation, and maintenance of treatment control BMPs in order to minimize the risk to public health from vector borne diseases.
Action Item 15: Consider other IPM outreach efforts.	optional

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Action Item 16: Continue regulation of PCOs by the County Agricultural Commissioner.	Existing activity, not permit requirement
Action Item 17: Continue to enforce local prohibitions against illegal discharges.	Existing activity, not permit requirement
Action Item 18: Promote IPM implementation by PCOs.	<p>14.b.i ...Public outreach programs. Such programs shall be designed for residential and commercial pesticide users and pest control operators.</p> <p>C.9.ii.c. Each Permittee shall develop and maintain an inventory or database of potentially significant sources of unauthorized non-storm water discharges and/or storm water pollution within its jurisdiction...For educational outreach purposes, the inventory or database shall include the following businesses that may create temporary or intermittent sources of unauthorized non-storm water discharges and/or storm water pollution in varied locations: automotive washing and detailing, carpet cleaning, commercial pesticide application,</p>
Action Item 19: Continue conducting water quality monitoring.	<p>Existing activities under Monitoring Program.</p> <p>14.b ...additional diazinon and chlorpyrifos monitoring and toxicity testing in Arcade Creek, Chicken/Strong Ranch Sloughs, Elder Creek, Elk Grove Creek, Morrison Creek, and Natomas East Main Drain.</p>
Action Item 20: Continue to track relevant monitoring programs by other agencies.	14.b ...Existing activity, not permit requirement.
Action Item 21: Conduct Residential Pesticide Sales and Use Surveys.	14.b.ii ...Periodic surveys of the local or regional sales and use of residential ... products potentially found in storm water runoff.
Action Item 22: Evaluate PCO pesticide use data.	14.b.ii ...Periodic surveys of the ... commercial pest control products potentially found in storm water runoff.
Action Item 23: Continue evaluating program progress and effectiveness.	14.b ... a mechanism for reviewing and amending the plan, as necessary, in subsequent years.

Action Item 24: Evaluate Target Pollutants.	Existing activity  14.b ...a mechanism for reviewing and amending the plan, as necessary, in subsequent years.
Action Item 25: Continue tracking and commenting on State and Federal regulatory activities that pertain to pesticides of significance to urban stormwater discharges.	14.b ...monitor USEPA and Department of Pesticide Regulation (DPR) activities related to the registration of pesticide products and uses
Action Item 26: Continue providing input for pesticide product risks to surface water quality.	14.b ...assess which pesticide products and uses pose the greatest risks to surface water quality.
Action Item 27: Continue participating in development of TMDL for pesticides in Sacramento urban creeks.	14.b ... The Permittees will participate in stakeholder forums and collaborative technical studies necessary to assist the Regional Board in completing the TMDLs.  14.b. ...additional diazinon and chlorpyrifos monitoring and toxicity testing in Arcade Creek, Chicken/Strong Ranch Sloughs, Elder Creek, Elk Grove Creek, Morrison Creek, and Natomas East Main Drain.
Action Item 28: Continue supporting improvements in State and Federal pesticide regulations.	optional, not permit requirement

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**Attachment 3**  
**Schedule for Pesticide Plan Implementation**

Shaded areas indicate the years in which work on Action Items will be initiated or continued.

Actions	Joint Permittee Activity	Individual Permittee Activity	04/05	05/06	06/07	07/08
<b>Permittee Pest Control.</b> Activities by the Permittees to manage their own pesticide use						
Action Item 1: Develop and establish authority to implement pesticide plan.		X				
Action Item 2: Develop a “tool box” for the Pesticide Plan.	X					
Action Item 3: Document and report pesticide use.	X	X				
Action Item 4: Review and revise internal policies and procedures to ensure documentation of pesticide use.		X				
Action Item 5: Require oversight by Certified Pesticide Applicator.						
Action Item 6: Establish/conduct training program for pesticide applicators.	X	X				
Action Item 7: Develop and adopt Permittee-specific IPM policies, procedures, and ordinances.						
Action Item 8: Ensure coverage under Aquatic Pesticide Permit.		X				
Action Item 9: Coordinate with Sacramento-Yolo Mosquito and Vector Control District.		X				
<b>Public Outreach and Education.</b> Outreach to the public and pesticide retailers, encouraging IPM and proper use and disposal of pesticides						
Action Item 10: Continue to support the Water Wise Program.	X					
Action Item 11: Continue to support Household Hazardous Waste programs.		X				

Action Item 12: Continue to include pesticide information in stormwater media campaign.	X					
Action Item 13: Encourage incorporation of IPM in design of new development landscaping and buildings.	X	X				
Action Item 14: Coordinate with special districts to promote IPM .	X					
Action Item 15: Consider other IPM outreach efforts.	X					
<b>Pest Control Operators.</b> Activities related to Pest Control Operators						
Action Item 16: Continue regulation by the County Agricultural Commissioner.	X					
Action Item 17: Enforce local prohibitions against illegal discharges.		X				
Action Item 18: Promote IPM implementation by PCOs.	X					
<b>Pesticide Assessment Activities.</b> Activities to evaluate pesticide levels in the environment, pesticide use, and disposal practices						
Action Item 19: Continue to conduct water quality monitoring.	X					
Action Item 20: Continue to track relevant monitoring programs by other agencies.	X					
Action Item 21: Conduct Residential Pesticide Sales and Use Surveys.	X					
Action Item 22: Evaluate PCO pesticide use data.	X					
Action Item 23: Continue evaluating program progress and effectiveness	X	X				
<b>State and Federal Regulatory issues.</b> Activities to affect regulations that apply to pesticide use and impacts						
Action Item 24: Evaluate target pollutants.	X					
Action Item 25: Continue tracking and commenting on State and Federal regulatory activities that pertain to pesticides of significance to urban stormwater discharges.	X					
Action Item 26: Continue providing input for pesticide product risk assessments for surface water quality.	X					

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Action Item 27: Continue participating in development of TMDL for pesticides in Sacramento urban creeks.	<b>X</b>					
Action Item 28: Continue supporting improvements in State and Federal pesticide regulations.	<b>X</b>					