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2019 Implementation Plan

California Environmental Protection Agency

Department of Pesticide Regulation

and

State Water Resources Control Board

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I. Introduction

The State Water Resources Control Board (State Board) and Regional Water Quality Control Boards (collectively Water Boards), and Department of Pesticide Regulation (DPR) have responsibilities to protect water quality from the potential adverse effects of pesticides. The Management Agency Agreement (MAA) between DPR and the Water Boards, signed in 2019, is intended to coordinate the complementary authorities held by each agency to protect water quality from the potential adverse effects resulting from pesticide use. Both agencies concur that the State will benefit from a unified and cooperative program to protect water quality related to the use of pesticides. The Implementation Plan presented herein is intended to accompany the MAA and provide a more detailed description of how the MAA is effectively implemented.

In 1991, DPR and the State Board signed a Memorandum of Understanding (MOU) to develop a comprehensive, integrated statewide water quality pesticide management program. The principles of the MOU were described and implemented by a Management Agency Agreement (MAA), signed in 1997, and included an Implementation Plan. Two additional accompanying documents were developed over the years to augment the MAA: *The Process for Responding to the Presence of Pesticide Detections in Surface Water* (2002), and an *Executive Charter* (2012) to help guide executive interactions. The 2019 MAA and Implementation Plan described herein supersede the 1991 MOU, the 1997 MAA and implementation plan, the 2003 document, and the 2013 Executive Charter.

This Implementation Plan describes opportunities for coordination and mutual enrichment, expectations for both staff and executive level communication, and current agency organization and interactions. Appendix A contains descriptions of DPR programs most relevant to water, and Appendix B contains descriptions of Water Boards programs relevant to pesticides. The document is intended to provide an overview of programs related to pesticides and water quality; however, the hyperlinks provided throughout the document and appendices should be consulted for a more thorough description.

This Implementation Plan describes how DPR and the Water Boards will work in cooperation to address: (i) pesticide use that may cause potential adverse impacts to water, which is regulated by DPR, and; (ii) discharges of pesticides that cause water quality impacts, which are regulated by the Water Boards.

The scope of this Implementation Plan includes water quality issues related to pesticide use. The goal is to provide a coordinated approach to protect water quality. However, this Implementation Plan does not specifically deal with pesticide spills and is not intended to abrogate any legal requirements of any person or agency to report such spills.

Because DPR and the Water Boards have responsibilities for the protection of water quality, both agencies intend that the Implementation Plan will serve as a guide to coordinate interagency communication and collaboration at both the executive and staff level; outline compliance and enforcement roles; promote problem-solving; facilitate issue resolution; and ultimately assure protection of water quality in California.

II. Interagency Communication and Collaboration

It is beneficial to the State of California for partner agencies to work in a coordinated manner, minimizing duplicate efforts, and leveraging expertise and collaboration opportunities wherever possible. In simplistic terms, MAA coordination is a “no surprises approach” between agencies. Effective coordination requires communication and collaboration between agency staff experts and executive management (Figure 1).

A. MAA Coordinators

DPR, the State Board, and each of the nine Regional Boards will designate an MAA Coordinator. The designated MAA Coordinators will work together to communicate on pesticide-related water quality projects, regulatory developments, and special studies. As point persons for interagency communication they will track key projects, milestones, and regulatory issues. MAA Coordinators will also be responsible for briefing respective management when necessary and tracking interagency executive interaction and directives. For communication on issues or programs that impact the entire state or designated as high priority, the DPR MAA Coordinator will work directly with the State Board MAA Coordinator and the MAA Coordinators for the Regional Boards. Issues that are specific to a region may require enhanced communication between DPR MAA Coordinator and a Regional Board Coordinator (i.e., Basin Plan Amendments), but the State Board MAA Coordinator should be informed of all significant MAA issues. The MAA Coordinators will ensure that the Water Boards and DPR keep each other informed of any high priority pesticide-related water quality issues in a timely manner consistent with the “no surprises approach” outlined in the MAA.

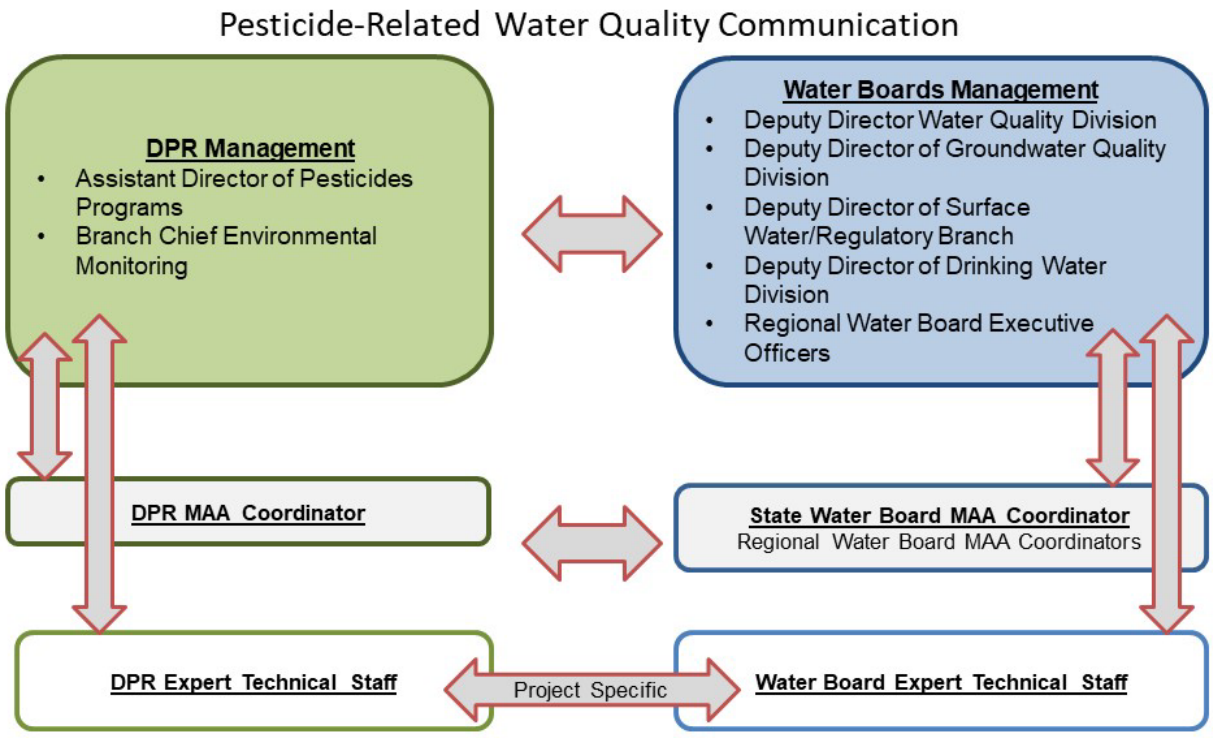

Figure 1. Effective channels for interagency pesticide-related water quality communication.

B. Executive Interaction

In accordance with the 2019 revision of the MAA and Implementation Plan, the primary venue for executive interaction will be through DPR management's participation in the Water Boards Deputy Management Committee (DMC) and/or Management Coordinating Committee (MCC) meetings once a year. The MAA Coordinators will jointly present an overview of current and upcoming pesticide-related water quality projects and key priorities/findings from each agency. The overall goal of the annual meeting is to:

- Provide update to management team partners on agency programs and functions
- Keep management team partners informed of current agency activities, concerns, and priorities
- Provide input on strategies to address water quality issues related to pesticides
- Identify opportunities for coordination on specific projects and define roles and responsibilities when necessary
- Provide update on existing pesticide-related water quality concerns

There may be need for additional executive interaction during the development of a policy or projects that will be determined on a case-by-case basis. When DPR or staff from the Water Boards requires policy guidance and/or management decisions on issues related to pesticides and water quality, the staff person shall direct specific inquiries to his or her respective management representative. The management representative shall determine whether the inquiry should be addressed within the agency or if engagement with the partner agency is needed. Documents and actions that warrant executive discussion include regulatory actions on pesticides with statewide water quality concerns and major regulatory or other development actions potentially affecting multiple regions. A more detailed description of what documents and actions warrant interagency discussion is included in section II.C.1.

The need for policy clarification and management-level decision-making may also arise during episodic interactions (e.g., Water Boards/DPR hearings, DPR reevaluation stakeholder meetings, MAA meetings) and less formal staff interactions outside of established forums.

C. Staff Level Interaction

The Water Boards and DPR recognize that allocating a reasonable amount of staff time for coordination will be necessary to achieve the goals of the MAA.

The Water Boards and DPR MAA Coordinators are primarily responsible for the exchange of information between agencies. MAA Coordinators will work together to ensure appropriate documents are routed for staff level review, regulatory efforts related to pesticides and water quality are discussed prior to public release, and information is shared on training and education opportunities.

The Regional Board MAA Coordinator is tasked with working within their Region to engage staff and management where appropriate. Projects or concerns unique to a Region may necessitate direct communication and collaboration between Regional Board staff and DPR staff with routine updates to MAA Coordinators.

1. Documents That Merit Review

DPR and the Water Boards develop various work products consistent with key functions of each agency. The nature of documents varies, however, each agency can benefit from timely sharing of drafts with opportunity for interagency comments. Sharing draft documents both improves cooperation between the agencies and avoids duplicative regulatory efforts. To this end, Water Board documents that may involve pesticide use (which is regulated by DPR) and DPR documents that may involve pesticide discharges (which are regulated by the Water Boards) would merit interagency review.

a) DPR Documents

DPR develops or revises surface water monitoring protocols each year to describe any changes affecting the program, such as changes to monitoring sites, frequency of sampling, and/or analytical methods. Special studies, described through protocols, may be developed to address key data gaps. DPR uses a variety of models for data assessment and risk characterization. The key preventive component of DPR's pesticide regulatory program is the evaluation of new pesticide active ingredients and products as a part of DPR's registration process. DPR developed the Pesticide Registration Evaluation Model (PREM) to assist DPR scientists with a transparent and consistent approach for evaluating potential aquatic risk. DPR continues to improve and further expand the capabilities of PREM.

In accordance with the MAA, DPR routes documents to the Water Boards for review (MAA review). The review is intended to provide an opportunity for technical input on upcoming studies and an opportunity to communicate on related efforts (i.e., split sampling opportunities). Review allows for exchange of technical and region-specific knowledge that ultimately results in improved quality of studies. DPR documents which warrant review by the Water Boards, include but are not limited to:

- Protocols detailing planned annual monitoring efforts, modeling projects (both improvements to existing capabilities and new initiatives), and special studies
- Final reports and peer review journal articles
- Groundwater Protection Program Study Protocols
- Annual Well Sampling Report
- Other documents relate to pesticides and water quality

MAA Coordinators who will track key priorities and findings through this process and provide critical feedback as documents develop. MAA Coordinators or DPR management, as appropriate, will identify DPR documents for MAA review; will provide drafts of these documents to Water Boards; and will allot adequate time (typically 30 days; two weeks minimum) for the Water Boards to respond with informal comments. The Water Boards shall provide informal comments on these documents before any comments are released publicly.

b) Water Boards Documents

The Water Board may benefit from early consultation with DPR during the development pesticide related monitoring projects, regulatory development, and science-based research/contracts. Providing an opportunity for review and exchange of information during development ensures comments can be incorporated where appropriate. Documents which warrant review by DPR, include but are not limited to:

- Draft pesticide water quality or sediment criteria or objectives

- Draft regulations to address discharge containing pesticides or water quality impacts of pesticides
- Notice of pesticide water quality issues with potential media exposure
- Basin Plans or Water Quality Control Plans and Amendments related to the control of pesticides or pesticide toxicity
- Pesticide provisions in large scale or controversial waste discharge requirements or enforcement actions based on those provisions
- Scientific research proposals and reports relaying pesticide data and/or interpreting surface water or sediment pesticide concentrations
- Recommended 303(d) listings for pesticides
- Water quality control policies with significant pesticide-related conditions
- Items that will be presented to a Water Board for adoption with a pesticide component
- Financial assistance proposals and agreements related to pesticide control practices

MAA Coordinators or managers of the Water Boards, as appropriate, will identify documents for MAA review; will provide drafts of these documents to DPR; and will allot adequate time (typically 30 days; two weeks minimum) for DPR to respond with informal comments. DPR shall provide informal comments on these documents before any comments are released publicly.

2. Education, Meetings, and Training

Training opportunities, seminars, and conferences may be of mutual interest to DPR and staff of the Water Boards. MAA Coordinators may conduct annual surveys of training priorities among DPR staff and the Water Boards. MAA Coordinators should share information about existing training opportunities, conferences, etc., as appropriate.

MAA-specific staff workshops/meetings will also take place at least annually to encourage staff interactions and maintain a working knowledge of programs or regulatory priorities. The types of workshops and meetings may be technical, all-staff, topic-specific, or region-specific in nature to encourage staff communication and interaction on projects of mutual interest.

3. Pesticide Management Practices

DPR and the Water Boards engage in activities to promote pesticide management practices that reduce or eliminate pesticide impacts on water quality. Practices include improved or reduced pesticide application practices, integrated pest management (IPM), incentives for use of pesticides with less potential to impact water quality, and structural systems aimed to reduce off-site practices (i.e., wetlands or bioreactors). The

agencies have different definitions for the terms “best management practices” and” management practices”, the more general, inclusive term “pesticide management practices” (or PMPs) is used in this Implementation Plan to refer to such activities.

The Water Boards and DPR will share information on the effectiveness, costs, and potential impacts of PMPs, and coordinate on how to fill those needs through their regulatory authorities, grant projects, and requests to other agencies such as U.S. EPA and the University of California.

The Water Boards will share with DPR information about the level of PMP implementation, effectiveness of PMPs, and seek DPR input on plans, policies and permits requiring PMP implementation. This information will be shared in advance of the annual MAA meeting or on an *ad-hoc* basis as requested by DPR. The Water Boards will also consider DPR’s regulatory and data needs in prioritizing PMP projects for grant funding.

The Water Boards will continue to require the implementation of PMPs through their regulatory authorities in a manner that complements DPR’s implementation of its regulatory authorities. The Water Boards also agree to report to DPR and the County Agricultural Commissioners (CACs) on pesticide use activities that the Water Boards suspect are not compliant with pesticide use labels and other regulations.

The Water Boards and DPR agree to collaborate to address the impacts of pesticides on water quality in the agricultural environment through sharing of monitoring data, pesticide use data, and information on PMPs and their effectiveness.

DPR agrees to:

- Share information with the Water Boards on PMP effectiveness and related cost information where available from DPR projects
- Assist the Water Boards in terms of assessment of potential impacts of alternative pesticides or other potential impacts of compliance activities associated with proposed pesticide discharge control requirements.
- Consider the Water Boards’ data needs and water quality priorities when developing research contracts.
- Use modeling capabilities to help inform the Water Boards on anticipated reduction in pesticide runoff associated with widespread adoption of particular practices.
- Share with the Water Boards available region-specific information on PMP implementation when requested.

DPR will also, as feasible and appropriate, discuss PMPs incorporated through regulatory channels (i.e., label changes, restricted material designation) with the Water

Boards. This discussion includes, but is not limited to, development of PMPs and inspection/enforcement efforts associated with PMPs.

In the urban environment, pesticides are transported by the municipal wastewater collection system and the municipal separate storm sewer system (MS4). PMPs focus primarily on prevention through responsible use according to the pesticide label and DPR regulations and as a part of a holistic IPM strategy. DPR conducts education and outreach efforts to ensure professional applicators are up to date on regulatory actions and label changes. Wastewater treatment plants and multi-benefit storm water treatment practices such as low impact development, runoff infiltration, constructed wetlands, and restoration of riparian buffers around waterways can provide some reductions. However, they are not designed for, nor implemented to address, complex mixtures of pesticides and the effectiveness of these practices to remove various pesticides from these systems is not well understood.

DPR will work with the Water Boards to inform pesticide users on urban PMPs. The Water Boards, through their storm water permits, will continue to require PMPs from storm water permittees. Permittees must also include, as appropriate, education and outreach to inform residential and commercial pesticide users on responsible pesticide use and encourage municipal storm water permittees to provide local expertise into DPR's pesticide regulatory process.

The Water Boards and DPR will collaborate to assess the impacts of pesticides in the urban environment through collective and comprehensive monitoring efforts, which optimize the use of monitoring resources of Water Boards, dischargers, and DPR.

4. Data Management

Timely exchange of data related to pesticide use and water quality is an essential element of effective collaboration. The California Environmental Data Exchange Network (CEDEN) is a water quality database maintained by the State Board. DPR staff maintain the Surface Water Database (SURF) that contains pesticide data from water and sediment samples collected throughout the state. Both databases contain data that are largely duplicative (CEDEN contains water quality parameters unrelated to pesticides). The Water Boards and DPR database Coordinators will work together to ensure timely sharing of available data to support actions of both agencies.

DPR also maintains a Pesticide Use Reporting (PUR) database that contains information such as timing, amount, and location of professional pesticide applications statewide. DPR staff utilize PUR information, with the help of modeling tools, to inform monitoring priorities and to assess collected data.

5. Coordination of Monitoring Efforts

DPR's surface water monitoring program is currently designed to focus sampling resources in key locations to collect high resolution (spatial and temporal) information on the fate and transport of pesticides. PUR data are used to ensure monitoring efforts focus on the highest use and most environmentally impactful pesticides. Priorities and changes to monitoring are shared through the MAA review process and routing of annual monitoring protocols.

The Water Boards monitoring efforts include statewide programs such as Surface Water Ambient Monitoring Program (SWAMP) and Stream Pollution Trends (SPOT) Monitoring Program and data collected by dischargers in compliance with permit requirements. The Water Boards also conceive and design monitoring projects aimed to evaluate drinking water resources. Staff from the Water Boards agree to engage with DPR staff to ensure pesticide monitoring priorities capture the most relevant pesticide active ingredients and ensure collected data are useful for DPR management decisions. Specifically, in urban areas, the Water Boards intend to establish an Urban Pesticides Coordinated Monitoring Program (UPCMP). The UPCMP will align municipal storm water permit and total maximum daily load pesticide and toxicity monitoring with SPOT, DPR's Surface Water Protection Program urban area monitoring program, and potentially other pesticide and toxicity monitoring programs around California.

Sharing information on monitoring efforts can also result in the leveraging of resources. For example, collecting water samples for a partner agency at established sites can stretch field project budgets. DPR staff have coordinated in this fashion with SPOT since 2013. DPR can provide assistance to the Water Boards to improve pesticide monitoring of drinking water sources to help address the human right to water in disadvantaged communities.

DPR requires pesticide registrants to demonstrate the ability to quantify new pesticide active ingredients at environmentally relevant concentrations in both surface water and sediment matrices. DPR also supports development of new analytical methods in partnership with State laboratories (i.e, California Department of Food and Agriculture). Monitoring conducted by Water Boards permittees is conducted by commercial laboratories that often do not have laboratory methods with sufficiently low detection limits available. DPR agrees to direct Water Boards staff to information on existing analytical methods that may facilitate development of commercially available pesticide analysis in water and sediment matrices.

6. Participation in the Pesticide Registration Evaluation Committee

The Pesticide Registration Evaluation Committee (PREC) provides a forum for public agencies, including the State Board, to communicate with, and provide feedback to DPR regarding pesticide regulatory, policy, and implementation issues. The PREC may

be consulted on environmental, technical, scientific, policy, regulatory, and economic matters. Comments, evaluations and recommendations of the PREC and the response of DPR shall be made available for public review. The PREC will provide advice and guidance to DPR on regulatory development, evolving public policy, program implementation, and reducing risks from the use of pesticides.

The Water Boards will continue to participate in and support the PREC. The PREC is in the public interest and supports DPR in performing its duties and responsibilities under the Food and Agricultural Code (FAC), including those related to Sections 11501, 13150, and 13165, as well as Section 6252 of Title 3 of the California Code of Regulation. The PREC also fulfills a critical interagency consultation role mandated by the FAC Section 14103 and the certification of DPR's pesticide regulatory program as functionally equivalent under the California Environmental Quality Act (CEQA).

7. Other

The Water Boards and DPR agree to maintain staff level interactions not described previously in this Implementation Plan, including but not limited to:

- Pest management licensing and pest management information exchange related to water quality.
- Timely sharing of information between CACs and Regional Board staff
- DPR participation in program planning and ongoing programs related to pesticides and water quality (i.e., Strategy to Optimize Resource Management of Storm water program unit)
- DPR participation (on an as-needed basis) in the Water Boards program roundtables when pesticide-related issues are discussed.
- Technical assistance (when needed) with topics such as CEQA
- Identifying and supporting investigations to resolve research needs related to ecological, human health, crop health and other effects related to pesticide water quality impacts

III. Compliance and Enforcement Roles

U.S. EPA vests DPR with primary authority to enforce federal and state laws pertaining to the proper and safe use of pesticides. DPR's enforcement of the laws and regulations governing pesticide use in the field is largely carried out in California's 58 counties by CACs and their staff (approximately 400 inspectors/biologists). This includes ensuring that pesticides are consistent with label requirements. DPR's headquarters personnel, as well as field staff located in Northern, Central, and Southern California provide training, coordination, technical, and legal support to the counties.

CACs facilitate training for professional pesticide applicators through education, including presentations to community and industry groups, and training sessions for pesticide users. CACs may take informal or formal compliance actions to ensure compliance with pesticide label language and pesticide use regulations (such as warning letters) and conduct corrective interviews. When further enforcement action is needed the CAC has various options. This includes revoking or suspending the right of a pest control company to do business in the county; prohibiting harvest of a crop that contains illegal residues; issuing administrative civil penalties; or referring the matter to the district attorney for criminal or civil prosecution.

The Water Boards also have enforcement responsibilities for water quality laws, as described in Appendix B, Water Board Programs. The Water Boards permitting and enforcement actions affect the same persons under CAC enforcement authority. The Water Boards and DPR agree to work with CACs to coordinate pesticide-related enforcement actions involving persons subject to both DPR and Water Boards regulations.

IV. Addressing Surface Water Quality Concerns

DPR and the Water Boards have different regulatory and programmatic tools to assess water quality and respond to water quality concerns. Activities described throughout this Implementation Plan lead to exchange of information and enhance collaborative opportunities. The two processes that follow describe how DPR and the Water Boards will cooperatively respond to the presence of pesticides in surface water. The first is for general pesticide-related water quality concerns. The second details how to address high priority issues. A complete description for response to detections of pesticides in groundwater are detailed in Appendix A, Section C.4.

A. Process for Identifying and Responding to General Pesticide Water Quality Issues and Concerns

In preparation for the annual participation in the DMC and/or joint MCC meeting described in section II.B, MAA Coordinators from DPR, and Water Boards will jointly prepare a presentation summarizing the status of current and planned projects, policies, and interagency requests related to pesticides and water quality. A summary and assessment of pesticide concentrations (surface water and sediment) and any related toxicity monitoring should be included. The summary should include a list of what pesticides are being detected, which are exceeding thresholds of concern, and a list of pesticides of potential concern due to concentration and/or use trends or other factors. MAA Coordinators should also include a discussion of data needs such as monitoring, analytical method development, modeling, fate and transport studies, and studies on pesticide water-quality impacts. The presentation at the DMC and/or joint MCC meeting

should also include a discussion of how the agencies are using their respective regulatory tools to address issues related to pesticides and water quality and the anticipated timeline on previously adopted policy/regulation.

DPR has the authority to address potential adverse impacts to water caused by pesticide use by adopting regulations, designating a pesticide as a state-restricted material, recommending permit conditions for use of restricted materials, directing registrants to mitigate, or canceling registration where no mitigation is available.

The Water Boards have the regulatory authority to issue waste discharge requirements and conditional waivers of waste discharge requirements, take enforcement action, issue notice to comply, and develop total maximum daily loads (TMDLs) and other Basin Plan regulatory requirements for dischargers.

Regardless of approach, it is important to measure and report effectiveness of the regulatory action through executive communication channels (annual meeting or dedicated interagency meetings). Modeling tools may be used to evaluate the length of time expected for any particular regulatory approach to achieve the desired result.

Routine annual updates will provide a venue to measure and evaluate progress towards water quality improvements and discuss where additional regulatory controls may be necessary.

B. Process for Corresponding and Responding to High Priority Surface Water Quality Concerns

Pesticide water quality concerns not effectively addressed by the preceding steps may require additional regulatory considerations. When the Water Boards determine a pesticide water quality concern, the Water Boards management should engage directly with DPR management on the scope of concern and possible responses to address the concern. Meetings outside the annual update may be necessary.

For high priority pesticide water quality issues, either locally or statewide, the State Board or Regional Board should prepare a formal transmittal summarizing the waterway(s) known to be impacted. The report must also include:

a. Pesticide concentrations in surface water or sediment that exceed specific adverse effects thresholds or threaten beneficial uses including habitat for sensitive aquatic organisms
b. Toxicity results and other findings that support the determination where available
c. Discussion of the full extent of the problem

d. Discussion of the State or Regional Board's potential response to the issue.

In response to such a transmittal from a State Board or Regional Board, DPR will prepare a timely response with DPR staff's initial determination if the issue is likely to trigger agency action, what the likely extent of the issue is, and what DPR's potential response could be.

Following the DPR response, the Water Boards and DPR will meet and evaluate regulatory and non-regulatory action to address the issue.

Development of regulatory action may occur in coordination or through individual efforts of either agency. Effective communication about pesticide-related water quality priorities and planned regulatory action will enable agencies to effectively direct resources. Therefore, for high priority issues, the agencies should attempt to agree on a general plan for coordinating actions including milestones, and for assessing progress and continuing communication.

V. Issue Resolution Procedures

A. Informal Procedures

It is the desire of both agencies to establish a speedy, efficient, and informal method for resolving interagency conflicts. If a conflict arises at any point in implementing activities described in the Implementation Plan, the party or parties identifying the conflict will discuss it first with DPR and Water Board MAA Coordinators. The MAA Coordinators will verbally or in writing discuss and resolve interagency procedure conflicts by a specified time. When appropriate, a representative of the Regional Board(s) and a representative of the CACs will participate.

If these attempts do not successfully resolve the conflict, then formal procedures will be followed.

B. Formal Procedures

The MAA Coordinators will provide a description of the conflict simultaneously to the State Board's Deputy Director of the Division of Water Quality and to DPR's Assistant Director for the Division of Environmental Monitoring. If the conflict cannot be resolved by a specified time, it will be referred to the State Board's Executive Director and DPR's Director. Each Director will appoint one staff member to assist in resolving conflicts. If the conflict cannot be resolved by a specified time at this level, then it may be referred to the Secretary of the California Environmental Protection

Agency for review. Such review shall not be a limitation on each agency’s statutory authority.

Appendix A: Department of Pesticide Regulation Overview

The mission of DPR is to protect human health and the environment by regulating pesticide sales and use, and by fostering reduced-risk pest management. DPR's strict oversight includes:

- Product evaluation and registration
- Statewide licensing of pesticide professionals
- Evaluation of health effects of pesticides through risk assessment and illness surveillance
- Environmental monitoring of air, water, and sediment
- Residue testing of fresh produce
- Encouraging development and adoption of least-toxic pest management practices through incentives and grants.

DPR is a part of the California Environmental Protection Agency along with other state agencies including the State Board.

A. Pesticide Registration Evaluation Committee (PREC)

The purpose of the PREC is to foster communication and understanding among the parties represented on the committee and DPR. The PREC provides advice and guidance to DPR on regulatory development and reform initiatives, evolving public policy and program implementation issues, and science issues associated with evaluating and reducing risks from the use of pesticides. With the participation of knowledgeable and affected parties, DPR expects to develop practical, preventative approaches to addressing many pesticide issues. The PREC is a public forum that supports DPR in performing its duties and responsibilities under the Food and Agricultural Code (FAC), including Sections 11501, 13150, and 13165, as well as Section 6252 of Title 3 of the California Code of Regulation. The PREC fulfills a critical interagency consultation role mandated by FAC Section 14103 and the certification of DPR's pesticide regulatory program as functionally equivalent under CEQA.

The PREC provides a forum for public agencies to communicate with, and provide feedback to, DPR regarding pesticide regulatory, policy, and implementation issues. The PREC may be consulted on environmental, technical, scientific, policy, regulatory, and economic matters. As necessary, the PREC meets to analyze issues, review and compile information, produce reports, make recommendations, and undertake other activities necessary to meet its responsibilities. Comments, evaluations and recommendations of the PREC and the response of DPR shall be made available for public review. Meetings are open to the public (unless an exemption is provided). In addition to the statutorily convened groundwater subcommittee, the chairperson of the PREC may form other subcommittees when appropriate. Participation in a

subcommittee will not necessarily be reserved for PREC members. The chairperson, with the concurrence of the PREC, may solicit the participation of experts who themselves are not appointed members of the PREC or who may be employees of non-represented agencies.

The PREC functions include:

- Facilitate the exchange of ideas and information among the interested parties on a breadth of issues, especially scientific and technical issues, concerning the pesticide regulatory program with the aim of advising the Director of DPR on key decisions or courses of action.
- Advise the Director of DPR on the registration, renewal of registration, and reevaluation of pesticides.
- Identify and evaluate proposed modifications to regulations.
- Provide an adequate and balanced forum for consultation in fulfillment of DPR's obligations under Section 14103 of the Food and Agricultural Code and its functionally equivalent program as certified by the Resources Agency pursuant to CEQA
- Discuss, as a statutorily convened subcommittee (Section 13150), the finding of a pesticide in groundwater and make a recommendation to the Director of DPR concerning continued use of the pesticide. If a hearing is requested, the subcommittee hears testimony from registrants of the pesticide and other interested parties.
- Advise the Director of DPR, pursuant to Section 13165, on the granting of a certificate of interim registration, including the following scenarios:
    - A pesticide is needed and will be a significant component of a pest management system
    - Interim use of the pesticide is not expected to cause any significant adverse effects or threaten to pollute the groundwater of the state
    - The weight of evidence supports a scientific judgment in favor of interim registration.

B. Surface Water Protection Program

The SWPP is charged with protecting surface water from the impact of pesticide use through preventive and response components. The preventive component includes local outreach to promote management practices that reduce pesticide runoff and drift. Prevention also relies on DPR's registration process in which the risks posed to surface water quality by new products or new active ingredients, particularly products labeled for high-risk uses, are evaluated. The response component includes researching the efficacy of physical-control mitigation options (e.g., wetlands and vegetated ditches), changes to label language to reduce use rates or add other use restrictions, and

regulations to meet water quality goals. To fulfill the response component DPR conducts monitoring to characterize pesticide residues, identify the sources of the contamination, determine the mechanisms of off-site movement of pesticides to surface water, and develop site-specific mitigation strategies, with all elements of the SWPP working together to protect surface water quality. These goals are achieved primarily through surface water monitoring in consultation with other agencies, and research to characterize the factors that lead to off-site movement of pesticides.

A major element in achieving DPR's goals is the initiation and management of contracts that augment DPR's capabilities to investigate pesticides in surface water. DPR's contracts have addressed a wide range of research topics related to the identification of pesticide sources in watersheds and validation of management practices that reduce pesticide transport to surface water.

1. Prevention

State law requires DPR to thoroughly evaluate and register pesticides before they are sold or used in California. If the product requires, federal registration, it must be registered first by the U.S. EPA. DPR's Pesticide Registration Branch (PRB) is responsible for coordinating a comprehensive evaluation of pesticide products and label amendments submitted for registration in the State of California. PRB uses specific criteria to determine whether a product needs to be routed to SWPP for evaluation, giving special attention to the potential for toxicity to aquatic biota and to factors that may interfere with attaining water quality objectives. Once all evaluation stations, including SWPP, complete their evaluations, PRB managers review all evaluation reports. If one or more evaluation stations indicate that DPR has insufficient data to support registration or may cause a significant adverse effect to human health, flora, fauna, water or air, registration is denied. If evaluation stations conclude that the new product or label amendment is not reasonably expected to cause a significant adverse impact, then PRB prepares a public report describing the evaluation process and explaining why the new product or label amendment is not reasonably expected to cause a significant adverse impact to human health, flora, fauna, water, and air. Public reports may reference evaluation reports completed by SWPP. PRB then posts the new product or amendment along with the public report for a 30-day public comment period. If no comments are received, PRB will proceed with licensing the new product or accepting the label amendment. If comments are received, PRB must respond to the comments in writing before making a final decision regarding the new product or label amendment.

a) Pesticide Registration Process

(1) Routing criteria

DPR receives hundreds of new pesticide products and amendments to currently registered pesticide products annually. Only products and amendments that meet certain criteria are routed to SWPP for evaluation. The criteria for products or amendments to be evaluated by SWPP has evolved and will continue to evolve to capture pesticide use patterns that pose a risk to surface water. The current routing criteria include all pesticide products containing new active ingredients labeled for use outdoors in agriculture or urban settings or for indoor use with the potential to wash down the drain; products and amendments intended for direct application to water; for use on rice; antifouling paints and coatings labeled for direct application to objects in water; and active ingredients (AIs) previously flagged by SWPP for evaluation. In addition, any product can be designated by the PRB Branch Chief as requiring evaluation by SWPP and routed.

(2) SWPP Registration Evaluation

SWPP scientists write an evaluation reports for every product that is routed to and evaluated by SWPP. The report includes a summary of the product, relevant toxicological and chemical data accepted by DPR, and an evaluation of the risk the product poses to water quality. SWPP scientists use the Pesticide Registration Evaluation Model (PREM) to evaluate aquatic impacts of pesticide products submitted to California for registration. PREM assesses potential risks of products to adversely affect aquatic and benthic organisms. The earliest version of PREM was released in 2012, however, it continues to evolve to better fit California conditions or incorporate improvements in modeling capabilities.

SWPP evaluations result in product-specific registration recommendations (submitted data and other relevant documents support registration, conditionally support registration, or do not support registration) to PRB, and could potentially lead to data requests (e.g., analytical methods, degradate toxicity), flagging of AIs for future routing and subsequent evaluation, and additions to SWPP's watch-list of pesticides for surface water monitoring.

Model-based evaluation was developed to make use of relevant pesticide data (e.g., physical-chemical properties, soil-runoff potential, aquatic persistence, aquatic toxicity, and use pattern), to quantify aquatic risk quotients, which are used to support registration recommendations. For more information on the model, see http://www.cdpr.ca.gov/docs/emon/surfwtr/version_5_prem.pdf.

PREM model-based evaluation can be applied to the pesticide AI only or to the pesticide AI and degradates. For the evaluation of the pesticide AI only, the pesticide AI

will be evaluated using an initial screening, with evaluation variables of soil-runoff potential, aquatic persistence, and aquatic toxicity, and followed by refined modeling, with consideration of product use pattern and calculation of a risk quotient, if applicable. In the case of evaluations that include the pesticide AI and selected degradates, both individual risk quotients (for each chemical) and total risk quotient (TRQ, combined for the pesticide AI and all modeled degradates) are reported by the PREM.

Some products do not meet the criteria to be evaluated by the PREM while other products have physical-chemical properties that prevent them from being analyzed by the existing model. When the PREM is not used, SWPP scientists weigh, consider, and evaluate data for the pesticide product submitted by the registrant and make a best professional judgment decision regarding the product's risk to surface water quality.

For new active ingredients, a recommendation of conditional registration may be granted with the request to provide analytical methods to DPR to ensure monitoring at environmentally relevant concentrations is possible.

2. Continuous Evaluation

DPR has a program of continuous evaluation of pesticides after registration. Through continuous monitoring and surveillance, DPR can determine the fate of pesticides in the environment, detect and address unforeseen effects on human health and the environment, and find ways to prevent pesticide contamination.

a) Monitoring

Surveillance monitoring is used to help identify potential problems before direct evidence of impairment of water quality is available. SWPP scientists develop sampling protocols for monitoring programs that monitor at sites with the highest potential for the presence of pesticides. Sites are selected based on pesticide application practices and agricultural activities within the watershed including, but not limited to, pesticide use and application methods, and irrigation practices. Biotoxicity monitoring, toxicity identification evaluations, and chemical analyses are performed using state of the art analytical approaches approved by DPR. Data from surveillance monitoring activities will be evaluated as described below.

b) Prioritization Model

Pesticides are prioritized for surface water monitoring in agricultural and urban areas by DPR's Surface Water Monitoring Prioritization (SWMP) model: SWMP Phase I generates preliminary priority lists of pesticide AIs based on pesticide use data and aquatic life benchmarks (U.S. EPA 2017). SWMP Phase II identifies pesticides with relatively high risks to surface water quality by systematic evaluation based on historical monitoring results, use patterns, application methods, physicochemical properties, and degradate data to generate the following monitoring recommendations:

- Monitor if the pesticide may potentially cause surface water toxicity and the analytical method is available
- Request analytical methods if analytical method is not available
- Do not monitor if the pesticide is unlikely to cause surface water toxicity in the user defined domain of counties and months

Monitoring data are uploaded to the surface water database and analyzed for trends of pesticide concentrations and effectiveness of mitigation measures and regulations.

The SWMP model (http://cdpr.ca.gov/docs/emon/surfwtr/sw_models.htm) has been used by DPR and other agencies in monitoring project planning. Most of the model applications are to determine pesticides of interest (POI's) for surface water monitoring at predefined sites, i.e., site-specific prioritization. The model also includes a function for spatially continuous mapping, which calculates a "priority mapping index" (PMI) of one pesticide (or each pesticide in a group) for watersheds at the spatial resolution of USGS 12-digit Hydrological Unit Code (HUC12). The results could be used for determining areas of interest (AOIs) for monitoring site selection.

c) Data assessment

DPR staff conducts a thorough assessment of pesticide use data, detections, exceedances, and toxicity data on a pesticide-by-pesticide basis. Pesticides that undergo this data assessment are characterized by DPR scientists as those that pose risks to water quality; not all pesticides receive such data assessment. Previous data assessments have included the organophosphates diazinon and chlorpyrifos. Data used in these assessments include detections in the SURF database, PUR data, spatial information for uses and detections, and rainfall and weather information. Further, data assessments incorporate watershed characteristics to better understand the fate and transport of pesticides in the environment. Results from data assessments aid SWPP scientists in identifying and characterizing the status of detections and exceedances, selecting ideal sites for monitoring efforts, identifying trends in use patterns and detections, determining the efficacy of mitigation measures, and characterizing the risks posed to the aquatic environment by the pesticide in question.

3. Response to Detections Resulting from Illegal Use

DPR will refer detections determined to be from illegal uses to CACs and may provide technical and legal assistance to assist CACs to properly penalize responsible parties. The State and Regional Boards will be notified of these detections.

4. Response to Detections Resulting from Legal Use

After evaluations conclude that detections of pesticides are the result of legal use of the pesticide, DPR may solicit participation of additional stakeholders.

In coordination with the State and Regional Boards, DPR investigates occurrences of pesticides of concern and determines the course of action to reduce or eliminate the impact of pesticides on surface water quality as described in the main body of the Implementation Plan. DPR may seek to reduce contamination initially through voluntary and cooperative efforts, which may include outreach programs to educate specific user groups (e.g., growers, professional applicators) or the public on ways to reduce pesticide contamination in both urban and agricultural settings.

If voluntary efforts do not adequately mitigate the impacts, DPR can use regulatory authority to impose restrictions. DPR may modify the use of pesticides by regulation or recommended permit conditions to prevent excessive residues from reaching surface water.

a) Integrated Pest Management

The best way to solve a pesticide-related problem often combines regulatory action and voluntary adoption of improved pest management methods. DPR has a legal mandate to encourage the use of environmentally sound pest management, including integrated pest management (IPM). Many DPR programs stress a least-toxic approach to pest management and promote risk reduction through information, encouragement, incentives, and community-based problem solving.

For more information on DPR's IPM program, see:
http://www.cdpr.ca.gov/docs/pestmgt/ipminov/ipmmenu.htm

b) Restricted Materials

Restricted materials are pesticides deemed to have a higher potential to cause harm to public health, farm workers, domestic animals, honeybees, the environment, wildlife, or other crops compared to other pesticides. With certain exceptions, restricted materials may only be purchased and used by or under the supervision of a certified commercial or private applicator under a permit issued by the CAC.

Certification and licensing of commercial pesticide applicators are responsibilities of DPR while certification of private applicators is carried out by the CACs.

California requires permits for restricted materials so that the local CAC can assess, in advance, the potential effects of the proposed application on health and the environment. Permits are time- and site- specific, and include use practices to reduce the risk of adverse effects. The CAC may deny permits, require mitigation, or require feasible alternatives to be used.

For more information on restricted use materials requirements and permitting, see:
http://www.cdpr.ca.gov/docs/enforce/permitting.htm

c) Pest Management Practices

As part of an integrated approach to pest management, DPR supports the development and implementation of structural pesticide management practices. Structural management practices are physical alterations at a field level that can remove pesticides from runoff; examples include wetlands, vegetated ditches, constructed water quality treatment ponds, and woodchip bioreactors. DPR funds research contracts that investigate the efficacy of various structural pesticide management practices. Detailed information about each contract can be found online at: https://www.cdpr.ca.gov/docs/emon/surfwtr/contracts.htm. Past contracts have included research on vegetated ditches, ditches lined with compost and granular activated carbon sleeves, constructed water quality treatment ponds, and woodchip bioreactors. These management practices are engineered treatment options intended to reduce the concentration of pesticides in surface waters after the application of pesticides. Research contracts have focused on the extent to which treatment systems reduce pesticide loading, the pesticide classes they treat most effectively and possible barriers to implementation at a field or watershed scale. Such management practices are intended to be part of an integrated approach of improving pesticide use procedures and reducing pesticide loading in crop production runoff.

For each contract, DPR's contract manager conducts outreach to the public and interested stakeholders, giving updates on contract progress, results, and the application of those results to the stakeholders. Results from these research contracts are used to inform and advise pesticide applicators and inform other DPR actions such as product registration, label changes or regulations. DPR scientists have also investigated the effects of physical BMPs through DPR-conducted or in-house studies. For example, DPR investigated the efficacy of constructed water quality treatment ponds in urban areas by measuring the pesticide concentration in the influent and effluent of such management practices.

d) Label Changes

Changes to label language can be made to reduce the amount of pesticide product applied, or to limit application sites, timing of applications, or permitted applicators. The U.S. EPA has the authority to change pesticide product labels; DPR does not. However, DPR can encourage changes to labels on registered products, DPR negotiates with registrants to adopt label language and use instructions that result in reduced-risk practices. After the label amendment has been accepted by the U.S. EPA, DPR evaluates the product following the procedures outlined above in "SWPP Registration Evaluation."

e) Regulation

DPR can adopt regulations through rulemaking to carry out pesticide laws enacted by the California Legislature or developed within the agency. To make sure proposed

regulations go through an open public review process, State agencies must follow the Administrative Procedure Act. The Act sets up a formal process designed to ensure regulations are clear and consistent, and public comments are addressed. It can take six months to a year to complete this process. Since 2006, DPR has passed three significant regulations intended to improve surface water quality: Dormant Spray Water Quality Regulations, Urban Pyrethroid Surface Water Regulations, and Copper Antifouling Paint Regulations.

Urban Pyrethroid Surface Water Regulations

In the early 2000s, increased applications of pyrethroids for outdoor residential pest control led to frequent detections and occasional observed toxicity in urban streams and creeks. DPR evaluated available pyrethroid surface water data and subsequently initiated a reevaluation on pyrethroid products in 2006 to determine the pesticide application practices and transport pathways that resulted in surface water contamination. In 2012, DPR adopted surface water regulations to restrict pyrethroid application practices to reduce off-site transport. DPR has been engaged in outreach and education efforts aimed towards urban pest control professionals to emphasize the importance of these regulations and promote compliance. Monitoring and focused special studies continue to be conducted to evaluate efficacy of the adopted regulations.

Dormant Spray Water Quality Regulations

Spraying of Central Valley orchard crops during cold weather, when the trees are dormant, kills overwintering insects and diseases. However, organophosphate insecticides used as dormant sprays can cause problems when drift occurs or when storm runoff washes residues into rivers and streams. To deal with the problem, DPR established its Dormant Spray Water Quality Program in 1996. Rather than immediately move to mandatory restrictions, DPR and CACs asked local resource conservation districts, farmers and pesticide manufacturers to develop methods to control off-site movement of these chemicals. However, DPR monitoring conducted over several years determined that voluntary practices had not been enough to reduce the movement of harmful pesticides to surface water. In 2007, DPR adopted regulations requiring the use of alternative pesticides, a buffer zone between the application and waterways or other means to prevent potential contamination.

Copper Antifouling Paint Regulations

In 2006, DPR initiated a monitoring study to quantify dissolved copper, and characterize associated observed and predicted toxicity in California marinas. Measured concentrations of dissolved copper were compared to the California Toxics Rule (CTR) water quality criteria for dissolved copper. Due to CTR exceedances and associated toxicity, DPR placed copper antifouling paints (AFPs) in reevaluation in

2010. In 2013, Assembly Bill 425 passed, which asked DPR to evaluate registration of AFPs, determine a release rate cap, and make mitigation recommendations. Based on modeling, DPR adopted regulations setting a release rate cap for copper AFPs in July 2018, which is designed to limit the release of dissolved copper into marinas. Registrants are now required to submit release rate data for DPR verification during the registration process for new and amended copper AFPs. DPR is engaged in outreach efforts to educate stakeholders on the regulation. Future monitoring efforts are planned to determine the efficacy of the release rate cap.

5. Outreach

SWPP also aims to limit pesticide impacts to water quality through outreach. Outreach can be used to reach a wide range of audience, including pest control operators, professional applicator associations, agricultural commodity organizations, trade group consultants and representatives, schools, and residential users. Outreach efforts are developed and implemented on a project-specific basis and may involve focus on certain user group(s). Through the SWPP outreach program, DPR informs stakeholders of mitigation options, updates on regulations or label changes, new data from field monitoring programs, and updates on new information relating to pesticides and water quality.

6. Reevaluation

California regulations require DPR to investigate all reports of actual or potentially significant adverse effects to people or the environment resulting from the use of pesticides. Information may come from pesticide illness investigations, residue sample analyses, and monitoring of air, soil and water, or similar data generated by DPR or other government agencies, or from the public. Toxicology and environmental data, and adverse effects disclosures submitted to DPR by registrants may trigger a reevaluation.

Specific factors that may trigger reevaluation include:

- public or worker health hazard
- fish or wildlife hazard; environmental contamination
- unwanted damage to plants; inadequate labeling
- lack of efficacy
- disruption of pest management
- availability of an effective and feasible alternative material or procedure which is demonstrably less destructive to the environment
- discovery that data on which DPR relied to register a product is false, misleading or incomplete
- other information suggesting a significant adverse risk.

If DPR has reason to believe that a pesticide may cause unreasonable adverse effects to people or the environment, DPR must formally reevaluate the pesticide to decide if it should remain registered and, if so, whether changes in use practices are needed. When a pesticide enters reevaluation, DPR reviews existing data and may require registrants to provide more data.

Legislation in 1997 (Chapter 483, SB 603) gave DPR the authority to cancel the registration or refuse to register any pesticide if the registrant fails to send data requested in a reevaluation. If DPR moves to cancel a registration, the registrant may ask for a hearing.

DPR ends reevaluations in several ways. If the data show that use of the pesticide presents no significant adverse effects, DPR closes the reevaluation without added mitigation measures. If new restrictions are necessary, DPR places controls on the use of the pesticide to mitigate the potential adverse effect. DPR may also work with registrants and the U.S. EPA to revise labels to mitigate hazards. If the adverse effect cannot be mitigated, DPR suspends or cancels the product registration.

Regulations require DPR to prepare a semiannual report describing pesticides under reevaluation or for which DPR received factual or scientific information but did not open a reevaluation.

C. Groundwater Protection Program

1. Overview

DPR began addressing pesticide contamination of groundwater in the early 1980s, spurred by the discovery of contamination of groundwater from the legal applications of the fumigant dibromochloropropane (DBCP). Reports of additional pesticides in groundwater led to the passage of the Pesticide Contamination Prevention Act (PCPA) in 1985. The purpose of the PCPA is to prevent further pollution by agricultural pesticides of groundwater used for drinking water supplies. It established a program to identify pesticides that have the potential to pollute groundwater from legal agricultural use, requires sampling to determine if those pesticides are present in ground water, directs DPR to maintain a database of all wells sampled by all agencies for pesticides, and requires DPR to conduct a formal review to determine whether the use of the detected pesticides can be modified to protect groundwater.

2. Mitigation

In 2004, DPR adopted regulations to identify areas vulnerable to groundwater contamination from pesticides, called either leaching groundwater protection areas (GWPAs) or runoff GWPAs, depending on the predicted pathway to groundwater. The GWPAs are either based on detections of pesticides or on soil characteristics and depth to groundwater. To use a pesticide regulated as a groundwater contaminant in a

GWPA, users must obtain permits for use from CACs that specify the enforceable management practices required in each type of GWPA. Additional statewide restrictions apply to pesticides applied in canals, ditches, and artificial recharge basins and by chemigation. Wellhead protection measures were also adopted. This new approach is designed to not only stop continued contamination but also to prevent future contamination. DPR samples a network of wells to determine the effectiveness of these regulations.

DPR uses computer modeling to evaluate the contamination potential of new pesticide active ingredients and of new uses of current active ingredients. That information is used to help determine whether a pesticide should be registered for use and what management practices should be required to protect groundwater.

3. Monitoring of Groundwater

As required by the Pesticide Contamination Prevention Act, companies proposing to register new agricultural use pesticides must send DPR certain chemical and environmental fate data. DPR scientists evaluate these data to determine if the pesticides are persistent and mobile in the soil. Pesticides that are persistent and mobile and allowed to be used in certain ways are added to the Groundwater Protection List (California Code of Regulations, Title 3, Section 6800(b)). DPR samples for pesticides on the Groundwater Protection List to better understand their behavior in the environment and to determine if they are present in groundwater due to their legal agricultural uses.

DPR maintains a statewide database of wells sampled for pesticide active ingredients. In addition to DPR's monitoring results, data for this database are submitted by other agencies, such as the State and Regional Boards.

4. Response to Detections

When a pesticide active ingredient or other specified ingredient or degradation product of a pesticide is first detected and confirmed in groundwater and the contamination found to be due to legal agricultural use (that is, routine agricultural application), the law requires a formal review to determine if use of the pesticide can continue and, if so, under what conditions. DPR issues a formal notice to the product registrant(s), who can request a public hearing. If the registrant(s) fail to request a hearing, the agricultural products will be cancelled. If a registrant requests a public hearing, it is held before a PREC subcommittee. The subcommittee consists of one member each from DPR, the Office of Environmental Health Hazard Assessment (OEHHA), and the State Water Resources Control Board (SWRCB). The subcommittee will make findings and recommendations in a report to the DPR Director. The Director can make one of four decisions on actions DPR will take in response to the detection, in accordance with FAC 13150(c).

Appendix B. Water Boards Overview

A. Regulatory Framework

The Federal Water Pollution Control Act, known as the Clean Water Act (CWA)[1], is the principal federal statute for water quality protection. In California, the State Water Resources Control Board (State Water Board) and nine Regional Water Quality Control Boards (regional boards) (collectively referred to as the Water Boards) implement many of the Clean Water Act's provisions.

The Porter Cologne Water Quality Control Act (Porter-Cologne) is another major law governing water quality in California. It establishes a comprehensive program to protect water quality and the beneficial uses of waters of the state. Porter-Cologne applies to surface waters, wetlands, and groundwater.

B. Water Quality Control Plans

The CWA and Porter-Cologne require the Water Boards to establish Water Quality Control Plans (sometimes called Basin Plans). Water Quality Control Plans designate beneficial uses, water quality objectives, and a program for implementation for achieving water quality objectives for waters within a region. Regional boards adopt Basin Plans for all waters within their regions, considering the region's unique economic, demographic, and weather conditions. The State Board also adopts Water Quality Control Plans that are effective for multiple regions, or statewide.

1. Water Quality Standards

The CWA requires states to adopt water quality standards and to submit those standards for approval by the U.S. Environmental Protection Agency (U.S.EPA). Water quality standards contain beneficial uses and water quality objectives for the protection of those waters as well as anti-degradation provisions. The Anti-Degradation policy protects water bodies where existing quality is higher than necessary for the protection of beneficial uses. Water Boards can update water quality standards as necessary through amendments to their Basin Plans. This occurs through a public process which includes analysis of potential environmental and economic effects of the amendment. The CWA also requires states to conduct a triennial review of water quality standards and to modify them if appropriate.

2. Beneficial Uses

Beneficial uses are defined as the uses of water necessary for the survival or wellbeing of humans, plants, and wildlife. Examples of beneficial uses include drinking, swimming, industrial and agricultural water supply, and the support of fresh and saline aquatic habitats. Regional boards designate beneficial uses to waters in their regions.

[1] 33 United States Code [USC] sections 1251 et seq.

3. Water Quality Objectives

Water quality objectives are the limits or levels of water quality constituents or characteristics established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area. Water quality objective can be numeric or narrative and can apply to either a specific beneficial use or to all waters, regardless of beneficial use. An example of a narrative water quality objective for toxicity that applies to all waters follows:

> *"All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with the objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, toxicity bioassays of appropriate duration, or other appropriate methods*."

An example of a general narrative water quality objective for pesticides that also applies to all waters follows:

> *"No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life."*

An example of a specific numeric water quality objective that applies to all waters with a municipal and domestic water supply beneficial use follows:

> *"Waters shall not contain phenol concentrations in excess of 1.0 µg/L."*

C. Water Boards Regulatory Tools

1. Waste Discharge Requirements (Water Code, § 13260)

A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted. A person who discharges or proposes to discharge waste to waters of the state must file a report of waste discharge to the regional board, which includes a description of physical and chemical characteristics of the waste that could cause pollution. The regional board then prescribes requirements for the discharge(s) that implement relevant water quality plans and consider the protection of beneficial uses and the achievement of water quality objectives.

2. Investigations and/or Inspections (Water Code, § 13267)

A regional board, in establishing or reviewing any water quality control plan or waste discharge requirements, may investigate the quality of any waters of the state within its region. The regional board may require that any entity that has discharged, discharges, or is suspected of having discharged or discharging, or that proposes to discharge

waste within its region, or outside of its region that could affect the quality of waters within its region, shall furnish technical or monitoring program reports.

3. National Pollutant Discharges Elimination System Program

CWA Section 402, the United State Environmental Protection Agency (U.S. EPA)'s National Pollutant Discharge Elimination System (NPDES) permit program, controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches (40 CFR section 122.2). U.S. EPA Region 9 has granted the State Board the authority to issue general NPDES permits.

NPDES permits are a specific type of waste discharge requirements allowing a facility to discharge a specified amount of a pollutant into a receiving water under certain conditions. NPDES permits are issued to individual facilities or to multiple facilities as a general permit (40 CFR section 122.28) covering categories of point sources with common elements. General permits allow the Water Boards to allocate resources in a more efficient manner, provide timely permit coverage for large numbers of facilities in the same category, and ensure consistency of permit conditions for similar facilities.

a) Pesticide Permits

An NPDES permit is required for applications of pesticides that result in a discharge of pollutants to waters of the United States. U.S. Courts have determined that pesticides may constitute "chemical wastes" or "biological materials," and therefore may be pollutants within the meaning of the CWA. Under current federal case law, biological pesticides are pollutants and a chemical pesticide is a pollutant if any residue from its application winds up in U.S. waters.[2] Therefore, discharges of biological pesticides and residual chemical pesticides in, over, or near surface waters require an NPDES permit[3], even if the discharge is in compliance with the registration requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

There are four Statewide NPDES General Permits issued by the State Water Resources Control Board covering pesticide applications:

Aquatic Animal Invasive Species Control: Water Quality Order 2011-003-DWQ[4] currently serves as the statewide general NPDES permit for all direct applications (point source discharges) of Aquatic Animal Invasive Species Control (AAISC) biological pesticides and residual chemical pesticides to waters of the U.S. for AAISC. In

[2] Nat'l Cotton Council of Am. v. EPA, 553 F.3d 927 (6th Cir. 2009)

[3] Under current case law, whether a permit is required depends upon whether it is a biological or chemical pesticide and, for chemical pesticides, whether there is any residue or unintended effect from its application.

[4] https://www.waterboards.ca.gov/board_info/agendas/2016/mar/030116_4.pdf

October 2014, the State Water Board amended the permit through Order 2014-0173-DWQ to add Pseudumonas fluorescens strain CL 145A cells and spent fermentation medica Pf CL 145A-S) as an active ingredient for the control of aquatic invasive mollusks. AAISC pesticide dischargers must obtain coverage and maintain compliance under the Order. AAISC pesticide dischargers must obtain coverage and maintain compliance under the Order.

Spray Applications: Water Quality Order 2011-004-DWQ[5] currently serves as a statewide NPDES permit for point source discharges of biological and residual chemical pesticides to waters of the U.S. resulting from spray applications by the California Department of Food and Agriculture (CDFA). The CDFA's Program is currently in litigation, check for updates on the current status.

Vector Control: Water Quality Order 2016-0039-DWQ[6] currently serves as a statewide general NPDES permit for point source discharges of biological and residual chemical pesticides to the waters of the U.S from larvicide and adulticide applications for vector control. While most vector control in California involves mosquitoes, a vector is any insect or animal that can transmit or harbor a disease or other injury harmful to humans. *See* http://www.mvcac.org/vectors-and-public-health/other-vectors. The Order also covers minimum risk pesticides as specified in 40 C.F.R. section 152.25. Vector control is administered or overseen by local vector control agencies and applicators must be certified.[7] All dischargers must submit a Notice of Intent and a Pesticides Application Plan to the State Water Resources Control Board and be approved for coverage under the permit.

Weed Control: Water Quality Order 2013-0002-DWQ[8] currently serves as a statewide NPDES permit for any entity that discharges residual algaecides or aquatic herbicide and their degradation byproducts to the waters of the U.S. from algae and aquatic weed control applications. [9] All Dischargers must submit a Notice of Intent and an Aquatic Pesticides Application Plan to the State Water Resources Control Board and be approved for coverage under the permit.

b) Storm Water Permits

The Water Boards implement multiple storm water permitting programs as follows:

[5] https://www.waterboards.ca.gov/board_info/agendas/2016/mar/030116_4.pdf
[6] https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2016/wqo2016_0039_dwq.pdf
[7] http://www.mvcac.org/amg/wp-content/uploads/CE-Guide.pdf
[8] https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0002dwq.pdf
[9] For a list of covered products, see the current permit and Amending Orders.
https://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/weed_control.shtml#currentpermit

Municipal Separate Storm Sewer System (MS4): Large and small municipal sewer system operators must comply with MS4 permits to control storm water to the maximum extent practicable [CWA 402(p)(3)(B)] under the following two-phase system:

- Phase 1 MS4 permits[10] regulate storm water permits for medium (serving between 100,000 and 250,000 people), large (serving 250,000 people or more), and designated small (population of less than 100,000 people) municipalities.
- Phase II MS4 permits[11] regulate small municipalities and non-traditional small operations such as military bases, public campuses, prisons and hospital complexes that are not jointly regulated under a Phase I MS4 permit.

California Department of Transportation (Caltrans) Phase I MS4 Permit:[12] Regulates storm water discharges from the network of highways and road facilities through this one statewide permit.

Statewide Construction Storm Water General Permit (CGP): Regulates storm water from construction projects that disturb one or more acres of soil, or that disturb less than one acre but are part of a larger common plan of development, are required to obtain coverage. The CGP requires temporary and post-construction best management practices and measures to prevent erosion and reduce sediment and pollutants in discharges from construction sites.

Statewide Industrial Storm Water General Permit (IGP): Regulates storm water from facilities associated with industrial activity. Industry facility owners or operators must implement best available technology economically achievable controls to reduce pollutants in their storm water discharges, develop a storm water pollution prevention plan and monitor it in accordance with regulatory levels.

Storm Water Strategy: The Strategy to Optimize Resource Management of Storm Water[13] (Storm Water Strategy, STORMS), was adopted by the State Board in January 2016 to lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management and pollution prevention, and integrating regulatory and non-regulatory interests.

***Storm Water Multiple Application and Report Tracking System*:[14] (SMARTS)** is the online database for permittees to electronically submit permit compliance data and

[10] http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_i_municipal.shtml
[11] http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml
[12] http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml
[13] https://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/
[14] https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp

allows the public to view reports and information on water quality control efforts with storm water.

c) Municipal Wastewater NPDES Permits

The Water Boards issue individual and general NPDES Permits for dischargers of treated municipal and domestic wastewater. These permits often have limits on pesticides and/or toxicity. Permit limits on toxicity or pesticides are required if monitoring data indicate there is reasonable potential for pesticides or other toxic constituents to be discharged at concentrations that would cause or contribute to standard exceedances, or if the discharge limits are required as a result of a TMDL. NPDES permits must be updated every five years, at which time requirements are re-assessed by the Water Boards.

4. Other Regulatory Tools

Porter-Cologne also includes the following tools that the Water Boards may use, as appropriate:

- Time Schedules (Water Code, § 13300)
- Cease and Desist Order (Water Code, § 13301)
- Cleanup and Abatement Orders (Water Code, § 13304)

D. Addressing Impairments on the 303(d) List of Impaired waters

The CWA contains two strategies for managing water quality. One is a technology-based approach that envisions requirements to maintain a minimum level of pollutant management using the best available technology. The other is a water quality-based approach, which relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. The California Impaired Water Policy**,** and accompanying guidance provide further detail on how the State addresses impaired waters on the 303(d) list.

1. Section 303(d)/305(b) Integrated Report

The Water Boards assess water quality for surface waters every two years to determine if waters contain pollutants at levels that exceed water quality standards. Those that exceed the standard(s) are placed on the 303(d) list. U.S. EPA also requires states to report biennially on the condition of its surface water quality, referred to as the 305(b) report. The U.S. EPA also requires that the 303(d) list and 305(b) report be combined and is referred to as the California 303(d)/305(b) Integrated Report.

2. Total Maximum Daily Load

For waters on the 303(d) list, the state is required to develop total maximum daily loads or TMDLs. A TMDL must account for all sources of the pollutants that caused or are

causing the water to be impaired. TMDLs establish limits on all significant sources of the pollutant(s) causing the impairments (termed “waste load allocations” for point sources and “load allocations” for nonpoint sources) so that the water quality standard can be attained. These allocations are then integrated into permits and/or waste discharge requirements.

E. Nonpoint Source Pollution

Nonpoint source (NPS) pollutants are the leading cause of water quality degradation in California’s waterways. NPS pollutants originate from many diffuse sources and are transported into waters of the state through irrigation, rainfall, snow, air, and other pathways. Sources include, but are not limited to: pesticides, oils, and other organic materials, pesticide and sediment erosion from land-use practices, and sediment erosion from roads. The CWA section 319 requires states to develop a program to protect the quality of water resources from the adverse effects of NPS water pollution. The California NPS Program aims to minimize NPS pollution from land use activities in agriculture, urban development, forestry, recreational boating and marinas, hydromodification and wetlands. The Water Boards address nonpoint source pollution through the following programs.

1. NPS Grant Program

The State Board receives funding annually from the United States Environmental Protection Agency (U.S. EPA) and solicits the public for project proposals that will implement management practices to reduce pollutants to certain waterbodies, including pesticides. Management Practices are activities that include, but are not limited to, structural and non-structural (operational) controls which may be applied before, during and after pollution producing activities to eliminate or reduce the generation of nonpoint source pollution discharges to water.

2. Irrigated Lands Regulatory Program

Water discharges from agricultural operations in California include irrigation runoff, flows from tile drains, and storm water runoff. These discharges can affect water quality by transporting pollutants, including pesticides, sediment, nutrients, salts (including selenium and boron), pathogens, and heavy metals from cultivated fields into surface waters. Many surface water bodies are impaired because of pollutants from agricultural sources. Elevated concentrations of pesticides, nitrate, and salts are detected in groundwater. At high enough concentrations, these pollutants can harm aquatic life or make water unusable for drinking water or agricultural uses.

To prevent agricultural discharges from impairing the waters that receive these discharges, the Irrigated Lands Regulatory Program (ILRP) regulates discharges from irrigated agricultural lands. This is done by issuing waste discharge requirements (WDRs) or conditional waivers of WDRs (Orders) to growers and/or third-party coalition

groups. These Orders contain conditions requiring water quality monitoring of receiving waters and corrective actions when impairments are found. The number of acres of agricultural land enrolled in the ILRP is about six million acres. The number of growers enrolled is approximately 40,000. For more information about the ILRP see: https://www.waterboards.ca.gov/water_issues/programs/agriculture/.

3. Dairies and Other Confined Animal Facilities

A confined animal facility (CAF) is defined in California regulations as "any place where cattle, calves, sheep, swine, horses, mules, goats, fowl, or other domestic animals are corralled, penned, tethered, or otherwise enclosed or held and where feeding is by means other than grazing." An animal feeding operation (AFO) is defined in federal regulations as: a lot or facility (other than an aquatic animal facility) where animals are confined and fed or maintained for a total of 45 days or more in any 12-month period, and where vegetation is not sustained in the normal growing season. A concentrated animal feeding operation (CAFO) is an AFO that has a certain number of animals and meets the other criteria contained in federal regulations. Most dairies that have 700 or more mature dairy cows are CAFOs.

Most of the CAFs in California are in the Central Valley Region including about 75% of the dairies and most of the poultry facilities. There are about 160 dairies and feedlots in the Santa Ana Region and about 200 dairies (mostly smaller facilities with less than 300 milk cows) in the North Coast and San Francisco Bay Regions. There are also a few CAFs in other regions, including a few CAFOs.

AFOs that meet the regulatory definition of CAFO are regulated under the NPDES permitting program. Other confined animal facilities are regulated with waste discharge requirements or conditional waivers of waste discharge requirements, which regulate the discharges to both surface water and groundwater. These include regulation of discharges from croplands where manure is applied. Discharges to surface water from the CAFs are prohibited, but discharges to surface water from cropland are allowed if they meet waste discharge requirements. These cropland discharges can contain pesticides so the WDRs can also contain provisions relative to pesticide discharges.

The California Dairy Quality Assurance Program (CDQAP), an industry supported group provides training and assistance to the dairy operators in complying with state WDRs. More information on the CDQAP is available at http://cdrf.org/home/checkoff-investments/cdqap/about-the-cdqap/.

4. Cannabis Cultivation Programs

The Water Boards Cannabis Cultivation Program has four main components to address potential water quality and quantity issues related to cannabis cultivation. The Cannabis Policy establishes principles and guidelines for cannabis cultivation activities

to protect water quality and instream flows. The purpose of the Cannabis Policy is to ensure that the diversion of water and discharge of waste associated with cannabis cultivation does not have a negative impact on water quality, aquatic habitat, riparian habitat, wetlands, and springs.

The Cannabis Policy requirements are primarily implemented through the Water Boards Cannabis Cultivation General Order and Cannabis Small Irrigation Use Registration (SIUR) permits in addition to the California Department of Food and Agriculture's CalCannabis Cultivation Licensing Program. The Cannabis Cultivation General Order, which adopted a waste discharge requirement is available to cannabis cultivators to regulate discharges of waste associated with cannabis cultivation. Threats of waste discharge may be from pesticide application (including from pesticides not legally allowed for use on cannabis), nonpoint source storm water runoff, irrigation runoff, over fertilization, pond failure, road construction, grading activities, domestic and cultivation related waste, etc. All commercial cannabis cultivators must obtain coverage under the Cannabis Cultivation General Order. More information about program components can be found at https://www.waterboards.ca.gov/water_issues/programs/cannabis/.

5. Forest Activities

The Regional Water Boards issue waste discharge requirements and waivers of waste discharge requirements that contain conditions for timber management activities, including pesticide application.

6. Vineyards

Several regional boards have adopted orders to implement conditions on vineyard discharges. Although most discharges of concern from vineyards are sediment related, pesticides may need to be addressed through coordinated agency efforts.

F. Land Disposal Program

The State Water Board's Land Disposal Program and each Regional Board's Land Disposal Program coordinate to implement the regulations pertaining to solid or liquid waste discharged to lands with the potential to impact water quality. The Porter Cologne Water Quality Control Act and the federal Resource Conservation and Recovery Act (RCRA) provide the Water Boards with the authority to regulate waste discharges.[15]

These regulations are implemented through the issuance of waste discharge requirements (WDRs) or conditional waivers, enforcement orders, or voluntary informal corrective action. The regulations prescribe protective measures as well as require performance standards to be met in waste containment.

[15] The Land Disposal Program has been approved by the EPA for implementing RCRA Subtitle D regulations.

Groundwater monitoring is required at each discharge site to detect a release of waste constituents as soon as possible. Corrective action is required when a release occurs and if waste is released to groundwater, it must be reported and cleaned up.

1. Site Cleanup

The Site Cleanup Program (SCP) regulates and oversees the investigation and cleanup of sites where recent or historical unauthorized releases of pollutants to the environment, including soil, groundwater, surface water, and sediment, have occurred. Sites in the program are varied and include, but are not limited to, pesticide and fertilizer facilities, rail yards, ports, equipment supply facilities, metals facilities, industrial manufacturing and maintenance sites, dry cleaners, bulk transfer facilities, refineries, and some brownfields. These releases are generally not from strictly petroleum underground storage tanks (USTs). The types of pollutants encountered at the sites are plentiful and diverse and include solvents, pesticides, heavy metals, and fuel constituents to name a few.

The State Water Resources Control Board (SWRCB) and Regional Boards have legal authority to regulate site cleanup via Division 7 of the California Water Code (WC), State Board plans and policies, and the Regional Water Quality Control Plans (Basin Plans). The Regional Boards oversee the dischargers' (i.e., responsible parties' (RPs')) activities pertaining to the cleanup of pollution at sites to ensure that the dischargers clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored.

G. Monitoring Programs

1. Surface Water Ambient Monitoring Program

The SWAMP mission is to provide resource managers, decision makers, and the public with timely, high-quality information to evaluate the condition of all waters throughout California. SWAMP accomplishes this through carefully designed, externally reviewed monitoring programs, and by assisting other entities state-wide in the generation of comparable data that can be brought together in integrated assessments that provide answers to current management questions.

a) Statewide Monitoring

SWAMP facilitates five specialized statewide monitoring programs that support the Water Board's mission to evaluate and protect the environment, human health, and beneficial uses on a statewide scale. Each program may contain multiple sub-projects that address specific components of the larger program, such as water body types, reference conditions, special studies, or stakeholder involvement. These programs also

work towards the programmatic goals of coordination, infrastructure, and resource support. These five programs are:

1. Stream Pollution Trends Program (SPOT)
2. Bioassessment Monitoring Program
3. Bioaccumulation Monitoring Program
4. Citizen Monitoring Program (Clean Water Team)

SPOT and The Bioassessment Monitoring Program efforts focus on protection of aquatic life beneficial uses by assessing aquatic ecosystem health in streams and rivers. These programs provide data for development of the CWA Section 303(d) List/305(b) Report (Integrated Report) that assesses California surface water and stream health. The data produced from these programs are also used in the development of new water-quality regulations.

SPOT program is designed to improve our understanding of watersheds and water quality by monitoring changes in both over time, evaluating impacts of development, and assessing the effectiveness of regulatory programs and conservation efforts at a watershed scale. The overall goal of this long-term trends assessment program is to detect meaningful change in the concentrations of contaminants and their biological effects in large watersheds at time scales appropriate to management decision making. SPOT sampling locations are selected to provide a statewide network of sites at the drainage points of large watersheds to support collaboration with watershed-based monitoring programs throughout the state. SPOT is also specifically designed to assist with the watershed-scale effectiveness evaluation of management actions implemented to improve water quality, such as pesticide reduction or irrigation management on farms, and installation of storm water treatment devices or low impact development in urban areas. For more detail https://www.waterboards.ca.gov/water_issues/programs/swamp/spot/

The Biological assessment (bioassessment) focuses in evaluation of the condition of a waterbody based on the organisms living within it. It involves surveying the types and numbers of organisms present in the water and comparing the results to established benchmarks of biological health. Benthic macroinvertebrates (BMIs) and benthic algae are the primary biota used for bioassessments in California. For more detail https://www.waterboards.ca.gov/water_issues/programs/swamp/bioassessment/

The statewide efforts of the Bioaccumulation Monitoring focus on the protection of human health and beneficial uses pertaining to fishing, drinking, and water-contact recreation, by assessing fish consumption safety in fishable waters in our lakes and streams. The data collected by the Bioaccumulation Monitoring Program are utilized by the State Board to assess the impairment of fishing and shellfish harvesting in

California's water bodies through the Integrated Report process. In addition, fish tissue studies have led to the development of OEHHA's fish advisories and statewide mercury monitoring programs. For more detail http://www.mywaterquality.ca.gov/monitoring_council/bioaccumulation_oversight_group/index.html

The Citizen Monitoring Program is a SWAMP initiative to support the efforts of citizen monitoring groups in California. The program addresses the Water Boards' mission to provide information, training, and coordination to our citizen monitoring partners. Those partners assist the Water Boards in filling information gaps in watersheds within their own communities and share in the observation and protection of California's watersheds. Citizen monitoring data are primarily used by local groups to answer questions or address concerns related to water quality in their own watersheds. Citizen monitoring data have also been used to support activities such as water-quality assessments for the Integrated Report; compliance monitoring of discharge permits; monitoring the safety of swimming holes (Safe-to-Swim studies); and others. For more detail https://www.waterboards.ca.gov/water_issues/programs/swamp/cwt_volunteer.html

b) Regional Monitoring

SWAMP's regional assessments are individually planned and executed by each of the nine Regional Water Boards. Each region identifies its own ambient monitoring priorities and designs assessments at the appropriate scale (i.e., regional, watershed, or water body-scale) to answer specific monitoring questions of priority to that region. For example, regional monitoring projects may be designed to:

- Identify pollutant sources
- Provide long-term data sets (to track trends over time)
- Target information gaps (to meet the needs of multiple programs)
- Support the Integrated Report process
- Support enforcement actions
- Measure success of regulatory/management efforts
- Match/leverage funding of multiple partners for studies within the region
- Pilot innovations (which, once vetted, are used by others)

Regional programs are also used to develop new monitoring methods or indicators of water quality and environmental health. The following are regional monitoring programs links.

- Region 1 North Coast - SWAMP
- Region 2 San Francisco Bay Region - SWAMP
- Region 3 Central Coast Region - SWAMP

- Region 4 Los Angeles Region - SWAMP
- Region 5 Central Valley Region - SWAMP
- Region 6 Lahontan - SWAMP
- Region 7 Colorado River Basing - SWAMP
- Region 8 Santa Ana - SWAMP
- Region 9 San Diego - SWAMP

2. Groundwater Ambient Monitoring and Assessment Program

The Groundwater Ambient Monitoring and Assessment (GAMA) Program is California's comprehensive groundwater quality monitoring program that was created by the State Water Resources Control Board (State Water Board) in 2000. It was later expanded by Assembly Bill 599 - the Groundwater Quality Monitoring Act of 2001. AB 599 required the State Water Board, in coordination with an Interagency Task Force (ITF) and Public Advisory Committee (PAC) to integrate existing monitoring programs and design new program elements as necessary, resulting in a publicly accepted plan to monitor and assess groundwater quality in basins that account for 95% of the state's groundwater use. The GAMA Program is based on interagency collaboration with the State and Regional Water Boards, Department of Water Resources, Department of Pesticide Regulations, U.S. Geological Survey, and Lawrence Livermore National Laboratory, and cooperation with local water agencies and well owners.

The GAMA online groundwater information system integrates and displays groundwater information from various sources on an interactive map. This online tool increases the availability of groundwater information to the public and decision makers and provides analytical tools to help users assess groundwater quality and identify potential groundwater issues. The information system is supported by more than 83 million analytical records from over 286,000 monitoring, domestic, water supply and agricultural wells.

The GAMA Priority Basin Project provides a comprehensive assessment of statewide groundwater quality to help identify and understand the risks to groundwater. The United States Geological Survey (USGS) is the project technical lead. This program started assessing public water system wells (deep groundwater) in 2002. In 2012, the focus of the program shifted to shallow aquifer assessments. Over 2,900 public and domestic water supply wells sampled which represent 95% of the groundwater used in California.

H. Division of Drinking

In 2014 the California Department of Public Health Drinking Water Program (DWP) was transferred to the State Water Board which brought with it not only the primary enforcement authority (primacy) to enforce federal and state Safe Drinking Water Acts, the regulatory oversight of ~8,000 public water systems throughout the state, and the

responsibility for completing the next Safe Drinking Water Plan in 2020. The DWP is now the Division of Drinking Water at the State Water Board.

The Division of Drinking Water protects the standards for drinking water referred to as maximum contaminant levels (MCLs) and are found in Title 22 of the California Code of Regulations. MCLs are adopted as regulations and are health protective drinking water standards to be met by public water systems. MCLs take into account not only a chemicals health risks but also factors such as their detectability and treatability, as well as costs of treatment. Health & Safety Code §116365(a) requires a contaminant's MCL to be established at a level as close to its Public Health Goal as is technologically and economically feasible, placing primary emphasis on the protection of public health. Some chemicals on the MCL list are either pesticides or derivatives of pesticides. Primary MCLs[16] address health concerns while esthetics such as taste and odor are addressed by secondary MCLs.

Along with the MCL, a regulated chemical also has a detection limit for purposes of reporting (DLR), the level at which there is confidence about quantification being reported.

[16] (https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/ccr/MCLsEPAvsDWP-2018-10-02.pdf

Appendix C Abbreviations

Abbreviations	Full Form
AFP	Antifouling Paint
CAC	County Agricultural Commissioners
CalEPA	California Environmental Protection Agency
CCR	California Code of Regulations
3 CCR	Title 3, California Code of Regulations
CEDEN	California Environmental Data Exchange
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CTR	California Toxics Rule
CWA	Clean Water Act of 1972
CWC	California Water Code
DMC	Deputy Management Committee
DPR	Department of Pesticide Regulation
DTSC	Department of Toxic Substances Control
EM	Environmental Monitoring
FAC	Food and Agricultural Code
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
IPM	Integrated Pest Management
MAA	Management Agency Agreement
MCC	Management Coordination Committee
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Water System

NPDES	National Pollutant Discharge Elimination System
PCPA	Pesticide Contamination Prevention Act
PMP	Pest Management Practices
PREC	Pesticide Registration and Evaluation Committee
PREM	Pesticide Registration Evaluation Model
PUR	Pesticide Use Reporting Database
RCD	Resource Conservation District
RCRA	Resource Conservation and Recovery Act
SWAMP	Surface Water Ambient Monitoring Program
SPOT	Stream Pollution Trends Monitoring Program
SWMP	Surface Water Monitoring Prioritization Model
SWPP	Surface Water Protection Program
State Board	State Water Resources Control Board
SURF	Surface Water Protection Database
TMDL	Total Maximum Daily Load
U.S. EPA	United States Environmental Protection Agency
UPCMP	Urban Pesticides Coordinated Monitoring Program
Water Boards	State Board and nine Regional Water Quality Control Boards
WDR	Waste Discharge Requirements