STATE WATER RESOURCES CONTROL BOARD

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State Water Resources Control Board Pesticide Permit page
(http://www.waterboards.ca.gov/water_issues/programs/npdes/aquatic.shtml)

DRAFT WATER QUALITY ORDER 2016-XXXX-DWQ
PERMIT NO. CAG990007

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STATEWIDE PERMIT FOR BIOLOGICAL AND RESIDUAL PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM SPRAY APPLICATIONS FOR THE CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Table 1. Administrative Information

The State Water Resources Control Board (hereinafter State Water Board) adopted 2016-XXXX-DWQ on:	**March 1, 2016**
Order 2016-XXXX-DWQ shall become effective on:	**July 1, 2016**
Order 2016-XXXX-DWQ shall expire on:	**June 30, 2021**

The U.S. Environmental Protection Agency (U.S. EPA) and the State Water Board have classified this discharge as a minor discharge.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the State Water Board on **March 1, 2016**.

AYE:
NAY:
ABSENT:
ABSTAIN:

Jeanine Townsend
Clerk to the Board

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I. DISCHARGER INFORMATION

The California Department of Food and Agriculture (CDFA) is mandated to prevent the introduction and spread of injurious insect or animal pests, plant diseases, and noxious weeds in California (California Food and Agricultural Code section 403). To accomplish this, CDFA implements the Statewide Plant Pest Prevention and Management Program, an ongoing effort by CDFA to protect California's agriculture from damage caused by invasive pests. As a part of this program, CDFA conducts pesticide spray applications for pest management and eradication.

II. PERMIT COVERAGE

Pesticide formulations may include “active ingredients”[1] and “inert ingredients.”[2] Adjuvants[3] or surfactants may be added to the ingredients in the application equipment that is used in the delivery of the pesticide. As part of the registration process of pesticides for use in California, U.S. Environmental Protection Agency (U.S. EPA), and the California Department of Pesticide Regulation (DPR) evaluate data submitted by registrants to ensure that a product used according to label instructions will cause no harm or adverse impact on non-target organisms that cannot be reduced or mitigated with protective measures or use restrictions. The Clean Water Act (CWA), at section 301(a), broadly prohibits the discharge of any pollutant to waters of the U.S.*, except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Biological and residual pesticides* discharged into surface waters constitute pollutants within the meaning of the CWA even if the discharge is in compliance with the registration requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Therefore, coverage under an NPDES permit is required.

The discharge of biological and residual pesticides to waters of the U.S. from spray applications for pest control throughout the State of California may pose a threat to existing and potential beneficial uses of waters of the U.S. if not properly controlled and regulated. Therefore, this Order incorporates discharge prohibitions contained in water quality control plans (Basin Plans), as implemented by the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards (Regional Water Boards).This Order covers the point source* discharge of biological and residual pesticides resulting from spray applications using the following: acetamiprid, aminopyralid, Bacillus thuringiensis kurstaki,

[1] Active ingredients are manufacturer disclosed ingredients that yield toxic effects on target organisms.
[2] Inert ingredients are additional ingredients and are often trade secrets; therefore, they are not always disclosed by the manufacturer.
[3] Adjuvants are ingredients that are added to pesticides during an application event and are whose exact formulation is often a trade secret. These ingredients are chosen by the Discharger, based on site characteristics, and typically increase the effectiveness of pesticides on target organisms.
* Defined in Attachment A – Definitions.

carbaryl, chlorsulfuron, clopyralid, cyfluthrin, dinotefuran, glyphosate, imazapyr, imidacloprid, malathion, naled, nuclear polyhedrosis virus , pheromone, pyrethrins, spinosyn A and D, triclopyr butoxyethyl ester, and triclopyr triethylamine salt.

III. FINDINGS

The State Water Board finds:

A. Background

1. An NPDES permit is required for applications of pesticides that result in a discharge of pollutants to waters of the U.S. Courts have determined that pesticides may constitute chemical wastes or biological materials within the meaning of the CWA.[4] 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.
2. U.S. EPA's 2006 regulation attempting to exempt certain FIFRA compliant applications of pesticides was invalidated and vacated by the Sixth Circuit Court of Appeals in 2009.[5] A two-year stay of the effect of that decision was granted, such that the invalidated regulation remained in effect until April 9, 2011.
3. Although the point at which a pesticide becomes a pollutant may not be known, a permit is required if a pollutant will be deposited into waters of the U.S. This Order is intended to regulate applications of pesticides that result in a discharge of pollutants to waters of the U.S., consistent with the CWA.
4. In 2001, the State Water Board adopted Water Quality Order 2001-0012-DWQ, Statewide General NPDES Permit for Discharges of Aquatic Pesticides to Waters of the U.S., issued in response to a Ninth Circuit decision.[6] Order 2001-0012-DWQ covered broad categories of aquatic pesticide use in California. When that permit expired in 2004, it was replaced by Orders 2004-0008-DWQ (larvicide discharges for vector control) and 2004-0009-DWQ (aquatic herbicide discharges for weed control).
5. Order-2011-0002-DWQ required the State Water Board to conduct a toxicity study to determine if residues, including active ingredients, inert ingredients, and degradation byproducts, in any combination, from pesticide applications cause toxicity to the receiving water or add toxicity to it if there is pre-existing toxicity prior to pesticide applications. Order-2011-

[4] Headwaters, Inc. v. Talent Irrigation District, (9th Cir. 2001) 243 F.3d 526; League of Wilderness Defenders v. Forsgren (9th Cir. 2002) 309 F.3d 526; Fairhurst v. Hagener (9th Cir. 2005) 422 F.3d. 1146.
[5] National Cotton Council v. U.S. EPA (6th Cir. 2009) 553 F.3d 927.
[6] Headwaters, Inc. v. Talent Irrigation District (9th Cir. 2001) 243F.3d 526.

0002-DWQ included a provision that the order be reopened and modified to incorporate toxicity monitoring requirements if the State Water Board-funded toxicity study demonstrated probable toxicity for particular pesticide ingredients. The toxicity study was completed in December 2012. Based on that study, the State Water Board determined that there were no significant impacts to waters of the U.S. outside of the pesticide application areas and there were no significant impacts to non-target species resulting from pesticide applications. Thus, it was unnecessary to reopen Order 2011-0002-DWQ. Consequently, this Order does not contain toxicity testing requirements.

B. Legal Authorities

This Order is issued pursuant to section 402 of the federal CWA and implementing regulations adopted by U.S. EPA and chapter 5.5, division 7 of the California Water Code (commencing with § 13370). Section 122.28(a)(1) of title 40 of the Code of Federal Regulations (40 C.F.R.) allows NPDES permits to be written to cover a category of discharges within the state political boundaries, except as provided by Federal law for recognized Indian Reservations, as a general NPDES permit. U.S. EPA Region 9 has granted the State Water Board the authority to issue general NPDES permits.

This Order shall serve as a statewide NPDES permit for point source discharges of biological and residual pesticides from spray applications for pest control by CDFA. Pest control covered by this Order includes, but is not limited to, invasive species of both insects and weeds. This Order also serves as waste discharge requirements pursuant to article 4, chapter 4, and division 7 of the California Water Code (commencing with § 13260).

C. Background and Rationale for Requirements

The State Water Board developed the requirements in this Order based on information submitted by CDFA and other available information and studies. The Fact Sheet (Attachment D), which contains background information and rationale for requirements in this Order, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through F are also incorporated into this Order.

D. California Environmental Quality Act

Pursuant to California Water Code section 13389, State and Regional Water Boards are exempt from the requirement to comply with chapter 3, division 13 of the Public Resources Code when adopting NPDES permits.

E. Related Pesticide Regulations

U.S. Environmental Protection Agency, California Department of Pesticide Regulation, and county agricultural commissioners regulate pesticide uses in California. The responsibility of each agency is summarized in detail below:

1. United States Environmental Protection Agency

U.S. EPA has the sole jurisdiction of pesticide label language according to the FIFRA. Label language and any changes thereto must be approved by U.S. EPA before the product can be sold in this country.

As part of the labeling process, U.S. EPA evaluates data submitted by registrants to ensure that a product will cause no harm (or "adverse impact") on non-target organism if it is used in accordance with label instructions. Pesticide registrants are required to submit data on the effects of pesticides on target pests (efficacy) as well as effects on non-target pests. Data on non-target effects include plant effects (phytotoxicity), fish and wildlife hazards (ecotoxicity), impacts on endangered species, effects on the environment, environmental fate, degradation byproducts, leach ability, and persistence. However, FIFRA is not necessarily as protective of water quality as the CWA.

2. California Department of Pesticide Regulation

DPR regulates the sale and use of pesticides in California. DPR is responsible for reviewing the toxic effects of pesticide formulations and determining whether a pesticide is suitable for use in California through a registration process. DPR also reviews data submitted by the registrants. Although DPR cannot require manufacturers to make changes in labels, it can refuse to register products in California unless manufacturers address unmitigated hazards by amending the pesticide label. Consequently, many pesticide labels already approved by U.S. EPA include California-specific requirements.

DPR also issues licenses to applicators who apply those pesticides designated as a "restricted material."[7] To legally apply these pesticides, the applicator must hold a Qualified Applicator Certificate or License from DPR or work under the supervision of a certified applicator.

3. County Agricultural Commissioners

County agricultural commissioners also regulate sale and use of pesticides in California. In addition, county agricultural commissioners issue Use Permits for applications of pesticides that are deemed as restricted materials by DPR.

During the Use Permit permitting process, county agricultural commissioners determine if the pesticide use will result in substantial adverse environmental impact, whether appropriate alternatives were considered, and if any potential adverse effects are mitigated. The Use

[7] CDPR designates a pesticide as a restricted material in California if it poses hazards to public health, farm workers, domestic animals, honeybees, the environment, wildlife, or crops other than those being treated ("Regulating Pesticides: A Guide to Pesticide Regulation in California," October 2001, CDPR).

Permit conditions contain minimum measures necessary to protect people and the environment.

The county agricultural commissioners also conduct pre-project inspections on at least five percent of projects.

F. Technology-Based Effluent Limitations

Section 301(b) of the CWA and 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards.

G. Water Quality-Based Effluent Limitations

Section 301(b) of the CWA and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. The federal regulation mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an excursion above a water quality standard, including numeric and narrative objectives within a standard. Section 122.44(k)(3) of 40 C.F.R. allows the use of other requirements such as best management practices (BMPs) in lieu of numeric effluent limits if the latter are infeasible. The State Water Board finds that numeric effluent limits for pollutant discharges associated with the application of pesticides are infeasible because:

1. This Order regulates discharges of biological and residual pesticides which are pesticide ingredients or degradation byproducts that are present after the use of the pesticide for pest control. Therefore, the exact effluent is unknown; and
2. It would be impractical to provide effective treatment for biological and residual pesticide to protect water quality, given that typically, pesticide applications consist of the numerous short duration intermittent pesticide releases to surface waters from many different locations.

The effluent limitations contained in this Order are narrative and include requirements to: (1) develop and implement a pesticide application plan (PAP) that describes appropriate BMPs, including compliance with all pesticide label instructions; and (2) to comply with receiving water limitations.

The BMPs required herein are intended to: (1) minimize the area and duration of impacts caused by the discharge of biological and residual pesticides in the target area* and (2) allow for restoration of water quality and protection of beneficial uses of the receiving waters to pre-application quality following completion of an application event*.

H. Receiving Water Monitoring Triggers

Following pesticide applications in or near surface waters, biological and residual pesticides may cause both acute and chronic toxicity to aquatic life. Regional Water Boards' Basin Plans include a narrative toxicity objective ("no toxics in toxic amounts"), which specifically prevents the presence of toxic substances, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. Since information regarding biological and residual pesticides deposited in the receiving water as a result of spray applications is not adequate to develop receiving water limitations for individual and combinations of pesticides, this Order only contains receiving water monitoring triggers for residual pesticides of concern except malathion. The monitoring triggers will be used to assess compliance with the narrative toxicity receiving water limitation and to initiate additional investigations for the toxicity caused by the insecticides and herbicides used and their additive or synergistic effects. If monitoring data for residual pesticides of concern indicate that concentrations of these residual pesticides exceed the monitoring trigger, this Order may be reopened and Receiving Water Limitations for these pesticide ingredients may be added. This Order includes an Instantaneous Maximum Receiving Water Monitoring Trigger for each residual pesticide of concern. Receiving Water Monitoring Triggers for residual pesticides of concern are summarized in Section VII, Table 4 (Receiving Water Monitoring Triggers) of this Order.

I. Beneficial Uses in Basin Plans

The typical relevant beneficial uses identified in the Regional Water Boards' Basin Plans include: municipal and domestic supply, agricultural irrigation, stock watering, process supply, service supply, hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater habitat, warm fish migration habitat, cold fish migration habitat, warm and cold spawning habitat, wildlife habitat, navigation, rare, threatened, or endangered species habitat, groundwater recharge, and freshwater replenishment. Requirements of this Order implement the applicable Basin Plans.

J. National Toxics Rule and California Toxics Rule

U.S. EPA adopted the National Toxics Rule on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About 40 criteria in the National Toxics Rule were applicable in California. On May 18, 2000, U.S. EPA adopted the California Toxics Rule. The California Toxics Rule promulgated new toxics criteria for California and, in addition, incorporated the previously adopted National Toxics Rule criteria that were applicable in the state. The California Toxics Rule was amended on February 13, 2001. These rules contain water quality standards for priority pollutants.

K. State Implementation Policy

The State Water Board adopted the State Water Board Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) in March 2000 and amended it in February 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control.

As stated in Finding III.A.5, the State Water Board conducted toxicity studies which determined that there were no significant impacts to waters of the U.S. from pesticide applications. Based on these toxicity studies, this Order does not contain toxicity testing requirements. However, this Order includes a narrative Receiving Water Limitation for toxicity to protect the beneficial uses of receiving waters. Therefore, requirements of this Order implement the SIP.

L. Antidegradation Policy

Section 131.12 of 40 C.F.R. requires that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plans implement, and incorporate by reference, both the state and federal antidegradation policies.

This Order requires that discharges must be consistent with the provisions of 40 C.F.R. section 131.12 and Resolution 68-16. The conditions of this Order require biological and residual pesticide discharges to meet applicable water quality objectives. Specifically, this Order sets a receiving water limitation for malathion and receiving water monitoring triggers for the other active ingredients of chemical pesticides.

The requirements of this Order are protective of the broad range of beneficial uses set forth in Basin Plans throughout the state, constituting best control available consistent with the purposes of the pesticide application to ensure that pollution or nuisance will not occur. The conditions also ensure maintenance of the highest water quality consistent with maximum benefit to the people of the state. The nature of pesticides is to be toxic in order to protect beneficial uses such as human health or long-term viability of native aquatic life. Section III.C.4 of the Fact Sheet (Attachment D) of this Order provides examples of control programs where resource agencies used pesticides to protect beneficial uses such as long-term viability of native aquatic life. Given the nature of a statewide NPDES permit and the broad range of beneficial uses to be protected across the state, data analysis of specific water bodies is infeasible. While applications of pesticides may temporarily degrade surface waters, it will not result in exceedance of water quality standards and objectives upon project completion. The nature of pesticides is to be toxic in order to protect human health. However, compliance with receiving water

limitations and other permit requirements is required. Therefore, this Order is consistent with state and federal antidegradation policies.

M. Endangered Species Act

This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Wildlife Code §§ 2050 et seq.) or the Federal Endangered Species Act (16 U.S.C. §§ 1531 et seq.). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

N. Monitoring and Reporting

Section 122.48 of title 40 C.F.R. requires that all NPDES permits specify requirements for recording and reporting monitoring results. California Water Code sections 13267 and 13383 authorize the State and Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment C.

O. Standard and Special Provisions

Attachment B provides the Standard Provisions which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 C.F.R. section 122.42. In addition, the Discharger must comply with all the Special Provisions which are provided in Section IX.C of this Order.

P. Delegation to Executive Director

This Order covers the application of pesticides which are based on active ingredients that are currently registered by DPR for pest control using spray applications. When DPR registers a new active ingredient for pest control spray applications, this Order must be reopened to add the new active ingredient and its receiving water limitation before CDFA may begin using the active ingredient. In addition, when DPR registers a new active ingredient that is also a priority pollutant and the State Water Board has added the new active ingredient to this Order, this Order may also be reopened to allow CDFA to obtain an exception from complying with receiving water limitations for the priority pollutant in accordance with SIP section 5.3. Furthermore, this Order may be reopened to allow CDFA to obtain an exception from complying with receiving water limitations for pollutants discharged into the Pacific Ocean in accordance with the California Ocean Plan. Amending this Order on a case-by-case basis is resource intensive for the State Water Board. Thus, this Order

includes a delegation from the State Water Board to the Executive Director or his/her designee to amend this Order to add: (1) new active ingredients that have been registered by DPR, and corresponding receiving water limitations; and (2) any requisite SIP or California Ocean Plan exception.

Q. Notification of Interested Parties

The State Water Board will notify interested agencies and persons of its intent to prescribe waste discharge requirements and has provided them with an opportunity to submit comments. Details of the notifications are provided in the Fact Sheet of this Order.

R. Consideration of Public Comment

The State Water Board, in a public meeting, heard and considered all comments pertaining to discharges to be regulated by this Order. Details of the Public Hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED that this Order supersedes Order 2011-0004-DWQ upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the State Water Board and Regional Water Quality Control Boards from taking enforcement action for past violations of the previous Order 2011-0004-DWQ(https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2011/wqo2011_0004.pdf). IT IS ALSO HEREBY ORDERED that in order to meet the provisions contained in Division 7 of the California Water Code (commencing with § 13000) and regulations adopted there under, and the provisions of the federal CWA and regulations and guidelines adopted there under:

A. CDFA shall comply with the requirements in this Order.

B. The Executive Director or his/her designee is authorized to amend this Order to add products that are registered by DPR for spray applications, and to grant exceptions pursuant to section 5.3 of the SIP and the exception provisions of the California Ocean Plan. If the Executive Director or his/her designee adds an active ingredient for spray applications that is newly registered in DPR, then the receiving water limitation shall be consistent with the water quality objectives in the California Ocean Plan and Regional Water Board Basin Plans, and the California Toxics Rule criteria.

IV. DISCHARGE PROHIBITIONS

A. The discharge of biological and residual pesticides at a location or in a manner different from that described in this Order is prohibited.

B. The discharge of biological and residual pesticides shall not create a nuisance as defined in section 13050 of the California Water Code.

C. The discharge shall not cause, have a reasonable potential to cause, or contribute to an in-stream excursion above any applicable standard or criterion promulgated by U.S. EPA pursuant to section 303 of the Clean Water Act, or water quality objective adopted by the State or Regional Water Boards..

D. The discharge of biological pesticides and residual chemical pesticides from pesticide products that are based on active ingredients not listed in this Order or that do not have current DPR registration is prohibited.

V. EFFLUENT LIMITATIONS

A. The discharge of biological and residual pesticides must meet applicable water quality standards; and

B. Dischargers shall implement BMPs when applying pesticides. The BMPs must be provided in the PAP, which is described in Section VIII.C.

VI. RECEIVING WATER LIMITATIONS

The discharges shall not result in any of the following:

A. Floating Material. Floating material to be present in the amounts that cause nuisance or adversely affect beneficial uses.

B. Settleable Substances. Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

C. Suspended Material. Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

D. Taste and Odors. Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses or domestic or municipal water supplies.

E. Toxic Pollutants. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

F. Temperature. The ambient temperature to increase more than 5ºF.

G. Color. Esthetically undesirable discoloration.

H. Aquatic Communities. Aquatic communities and populations, including vertebrates, invertebrates, and plant species to be degraded.

I. Numeric Receiving Water Limitations. The numeric Receiving Water Limitations shown in Table 3 below will be used to assess compliance of biological pesticides and residual chemical pesticide discharges resulting from pesticide spray applications.

Table 2. Receiving Water Limitation

Ingredient	Unit	Instantaneous Maximum	Basis
Malathion	µg/L	0.1	U.S. EPA's Ambient Water Quality Criteria

VII. RECEIVING WATER MONITORING TRIGGERS

The Receiving Water Monitoring Triggers shown in Table 4 below will be used to assess compliance with the narrative receiving water toxicity limitation and initiate additional investigations for the toxicity caused by the residual pesticides used and their additive or synergistic effects.

Table 3. Receiving Water Monitoring Triggers

Ingredient	Unit	Instantaneous Maximum Monitoring Trigger	Basis
Insecticide Active Ingredients			
Acetamiprid	µg/L	6.6	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Carbaryl	µg/L	2.53	California Department Fish and Wildlife Criterion
Cyfluthrin	µg/L	0.00022	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Dinotefuran	µg/L	79	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Imidacloprid	µg/L	3.8	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Naled	µg/L	0.014	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Herbicide Active Ingredients			
Pyrethrins	µg/L	0.14	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Clopyralid	µg/L	2,874	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Glyphosate	µg/L	700	U.S. EPA primary maximum contaminant level for protection of drinking water quality
Triclopyr Butoxyethyl Ester	µg/L	36	U.S. EPA Office of Pesticides *Ecotoxicity Database*

VIII. PESTICIDE USE REQUIREMENTS

A. Application Schedule

CDFA shall provide a phone number or other specific contact information to all persons who request CDFA's application schedule. CDFA shall provide the requester with the most current application schedule and inform the requester if the schedule is subject to change. Information may be made available by electronic means, including posting prominently on a well-known webpage.

B. Public Notice Requirements

CDFA shall notify potentially affected governmental agencies and the public as soon as a pesticide application for a project is scheduled by posting a notification on its website. The notification shall include the following information:

1. A statement of CDFA's intent to apply pesticide(s);
2. Name of pesticide(s);
3. Purpose of use;
4. General time period and locations of expected use;
5. Any water use restrictions or precautions during treatment; and
6. A phone number that interested persons may call to obtain additional information from CDFA.

C. Pesticides Application Plan

CDFA shall develop a project- or program-specific PAP tailored to each pest control project or program. The PAP shall contain the following elements:

1. Description of all the water bodies or water body systems in which pesticides are being planned to be applied or may be applied within and near the application area;
2. Discussion of the factors influencing the decision to select pesticide spray applications for pest control;
3. Pesticide products or types of pesticides expected to be used and if known, their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;
4. Description of the application area* and the target area in the system that are being planned to be applied or may be applied. Provide a map showing these areas;
5. Other control methods used (alternatives) and their limitations;
6. How much product is needed and how this amount was determined;
7. Representative monitoring locations* and the justification for selecting these locations;

8. Off-Target Drift Management Plan, including the following:
    a. Procedures used when applying pesticides;
    b. Procedures used when off-target drift is anticipated due to the nature of the application and environmental conditions;
    c. Procedures used when off-target drift is not anticipated, but does occur; and
    d. Site record sheet.
9. If applicable, describe details of the buffer zone that will be used to prevent off-target spray drift Description of implementation of all reasonable alternatives to limit amount of biological and residual pesticide discharge;
10. Description of implementation of all reasonable alternatives to limit amount of biological and residual pesticide discharge;
11. Evaluation of available BMPs to determine if there are feasible alternatives to the selected pesticide application project that could reduce potential water quality impacts;
12. Description of site-specific BMPs to be implemented. The BMPs shall include, at the minimum:
    a. Measures to prevent pesticide spill;
    b. Measures to ensure that only a minimum and consistent amount of pesticide is used in all applications;
    c. A plan to educate Discharger's staff and pesticide applicator on any potential adverse effects from the pesticide application;
    d. Descriptions of specific BMPs for each spray mode, e.g. aerial spray, truck spray, hand spray, etc.;
    e. Descriptions of specific BMPs for each pesticide products to be used; and
    f. Descriptions of specific BMPs for each type of environmental settings, i.e., agricultural, urban, and wetland.
13. Identification of the Problem. Prior to the first pesticide application covered under this Order that will result in a discharge of biological and residual pesticides to waters of the U.S., and at least once each calendar year thereafter prior to the first pesticide application for that calendar year, CDFA must do the following for each pest management area:
    a. If applicable, establish densities for pest populations to serve as action threshold(s) for implementing pest management strategies;
    b. Identify each target pest species to develop species-specific pest management strategies based on developmental and behavioral considerations for each species;

c. Identify known breeding areas for source reduction, larval control program, and habitat management; and

d. Analyze existing surveillance data to identify new or unidentified sources of each pest problem as well as areas that have recurring pest problems.

14. Examination of the Possible Alternatives. Dischargers should examine the alternatives to pesticide use to reduce the need for applying pesticide. Such methods include:

a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms, pesticide resistance, feasibility, and cost effectiveness should be considered:

- No action
- Prevention
- Mechanical or physical methods Cultural methods
- Biological control agents
- Pesticides

If there are no alternatives to pesticides, CDFA shall use the least amount of pesticide necessary to effectively control the pest.

b. Using the least intrusive method of pesticide application.

c. Applying a decision matrix concept to choose the most appropriate formulation.

15. Correct Use of Pesticides

CDFA must ensure that all reasonable precautions are taken to prevent off-target spray drift. Reasonable precautions include using the right spraying techniques and equipment, taking account of weather conditions and the need to protect the environment.

a. Consider Buffer Zone

When spraying near water with certain pesticides, it might be necessary to leave an unsprayed area, or buffer zone, at the margin to prevent spray drifting out of the target area. The size of the margin is dependent upon the type of sprayer used, e.g. aerial application will require a larger buffer zone than ground application.

b. Prevent Off-Target Spray Drift

Users of pesticides must ensure that the Discharger takes all reasonable precautions to prevent off-target spray drift. A combination of factors may affect off-target spray drift, including wind velocity at spray nozzle height, stability of the local atmospheric conditions, wrong nozzles or pressure choice affecting spray quality, vehicle

speed, boom height, poor equipment maintenance, and incorrect equipment setting.

It is important that CDFA contacts the appropriate environmental or conservation agency before spraying, in case there are particularly susceptible areas that the spray operator is not aware of. CDFA should consider the following to avoid off-target spray drift:

i. Check the weather forecast before starting the spray application;

ii. Do not spray if the wind direction and speed would cause spray to drift onto sensitive areas;

iii. If applicable, release the pesticide as close as possible to the target;

iv. Check spray angles and adjust height accordingly; and

v. Use the lowest effective rates of application.

c. All errors in application and spills are reported to the proper authority.

d. Staff training in the proper application of pesticides and handling of spills.

16. If applicable, specify a website where public notices may be found as required in Section VIII.B.

D. Pesticide Application Package Approval and Modification

CDFA shall submit major changes to the PAP to the Deputy Director or his/her designee for approval. Examples of major changes include using a different product other than what is specified in the PAP, changing an application method that may result in different amounts of pesticides being applied, or adding or deleting BMPs. Since the PAP shall include ALL (1) the water bodies or water body systems in which pesticides are being planned to be applied or may be applied and (2) the application areas and the target areas in the system that are being planned to be applied or may be applied. Changes in monitoring locations are not considered major changes. However, CDFA must report these changes in the annual report.

E. Pesticide Application Log

CDFA shall maintain a log for each pesticide application. The application log shall contain, at a minimum, the following information:

1. Date of application;
2. Location of application;
3. Name of applicator;
4. The names of the water bodies treated impacted (e.g. canal, creek, lake. etc.);

5. Application details, such as time application started and stopped, pesticide application rate and concentration, wind speed and direction, vehicle speed;
6. Visual monitoring assessment; and
7. Certification that applicator(s) followed the PAP.

IX. PROVISIONS

A. Standard Provisions

1. CDFA authorized to discharge under this Order shall comply with the Federal Standard Provisions included in Attachment B of this Order.
2. This Order does not authorize the discharge of biological and residual chemical pesticides or their degradation byproducts to waters of the U.S. that are impaired by the same pesticides used for pesticide spray applications. Impaired waters are those waters not meeting water quality standards pursuant to section 303(d) of the CWA. California impaired waters are listed on the State Waterboard website (http://gispublic.waterboards.ca.gov/webmap/303d_2012/files/2012_USEPA_approv_303d_List_Final_20150807.xlsx).
3. The State Water Board may use this Order to regulate the discharge of biological and residual pesticides to waters of the U.S. classified as Outstanding National Resource Waters (Lake Tahoe and Mono Lake) or as a water body impaired by unknown toxicity only after the following conditions are satisfied: (a) the proposed project will comply with the limitations and discharge requirements specified in the Order; and (b) if required, the proposed pesticide application qualifies for and has been granted a Basin Plan prohibition exception prior to discharge.
4. CDFA must follow all Federal Insecticide, Fungicide, and Rodenticide Act pesticide label instructions and any Use Permits issued by a county agricultural commissioner.
5. CDFA must be licensed by DPR if such licensing is required for the pesticide application project.
6. CDFA must comply with effluent limitations and must develop and implement a PAP.
7. In accordance with the PAP, Section VIII.C.12, CDFA shall implement the identified alternative measures that are feasible and effective to the selected pesticide application project that could reduce potential water quality impacts.
8. This Order incorporates discharge prohibitions and other requirements contained in water quality control plans, as implemented by the State and the nine Regional Water Boards.

9. CDFA authorized to discharge under this Order shall comply with the following provisions:

    a. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

        i. violation of any term or condition contained in this Order;

        ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

        iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

        iv. a material change in the character, location, or volume of discharge (if applicable).

    b. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

    c. CDFA shall maintain a copy of this Order and make it available at all times to operating personnel. Key operating personnel shall be familiar with its content.

    d. CDFA must identify laboratories that perform sample analyses in all monitoring reports submitted to the State Water Board.

    e. CDFA shall maintain and calibrate all monitoring and analysis instruments and devices used to fulfill the prescribed monitoring program to ensure their continued accuracy as necessary and at least yearly.

    f. CDFA shall file with the State Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.

    g. The State and Regional Water Board are authorized to enforce the terms of this Order under several provisions of the California Water Code, including, but not limited to, sections 13385, 13386, and 13387.

B. Monitoring and Reporting Program Requirements

1. CDFA shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment C of this Order.

2. The Deputy Director or his/her designee may add monitoring and reporting requirements to the Monitoring and Reporting Program.

3. The Deputy Director or his/her designee may approve reductions in monitoring frequencies if CDFA makes a request and the request is backed by statistical trends of monitoring data submitted.

C. Special Provisions

1. Reopener Provisions

a. This Order may be reopened for modification, or revocation and reissuance in accordance with the provisions contained in 40 C.F.R. section122.62.

b. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, including:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this Order may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

c. Acute and Chronic Toxicity. If the State Water Board revises its toxicity control provisions that would require the establishment of numeric acute and chronic toxicity limitations, this Order may be reopened to include numeric acute and chronic toxicity receiving water limitations based on the new provisions.

d. Receiving Water Limitations. This Order may be reopened to add receiving water limitations if the monitoring result for residual pesticides specified in the Table 4 (Receiving Water Monitoring Triggers) exceeded the associated monitoring trigger.

e. Endangered Species Act. If U.S. EPA develops biological opinions regarding pesticides included in this Order, this Order may be reopened to add or modify Receiving Water Limitations/Monitoring Triggers for biological and residual pesticides of concern, if necessary.

2. Pesticide Active Ingredients. This Order covers the application of pesticides which are based on active ingredients that are currently registered by DPR for spray applications. The Executive Director may reopen this Order to add new pesticide active ingredients registered by DPR for spray applications. The Executive Director may also reopen this Order to grant a regulatory exception to CDFA from complying with pollutant receiving water limitations in accordance with the SIP and/or the California Ocean Plan.

3. Reporting

a. **Twenty-Four Hour Report**

CDFA shall report to the State Water Board and the appropriate Regional Water Board any noncompliance, including any effect of a pesticide's use that is unexpected or unintended, that may endanger

health or the environment. Any information shall be provided orally within 24 hours from the time CDFA becomes aware of the circumstances and must include the following information:

i. The caller's name and telephone number;

ii. Applicator name and mailing address;

iii. Waste Discharge Identification D number;

iv. The name and telephone number of a contact person, if different than the person providing the 24-hour notice;

v. How and when the CDFA become aware of the noncompliance;

vi. Description of the location of the noncompliance;

vii. Description of the noncompliance identified and the U.S. EPA pesticide registration number for each product CDFA applied in the area of the noncompliance; and

viii. Description of any steps CDFA has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects.

If CDFA is unable to notify the State Water Board and the appropriate Regional Water Board within 24 hours, CDFA must do so as soon as possible and also provide the rationale for why CDFA was unable to provide such notification within 24 hours.

b. **Five-Day Written Report**

CDFA shall also provide a written submission within five (5) days of the time CDFA becomes aware of the noncompliance. The written submission shall contain the following information:

i. Date and time CDFA contacted the State Water Board and the appropriate Regional Water Board notifying of the noncompliance and any instructions received from the State and/or Regional Water Board;

ii. Information required to be provided in Section C.2.a above;

iii. A description of the noncompliance and its cause, including exact date and time and species affected, estimated number of individual and approximate size of dead or distressed organisms (other than the pests to be eliminated);

iv. Location of incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc.);

v. Magnitude and scope of the affected area (e.g. aquatic square area or total stream distance affected);

vi. Pesticide application rate, intended use site (e.g., banks, above, or direct to water), method of application, and name of pesticide product, description of pesticide ingredients, and U.S. EPA registration number;

vii. Description of the habitat and the circumstances under which the noncompliance activity occurred (including any available ambient water data for pesticides applied);

viii. Laboratory tests performed, if any, and timing of tests. Provide a summary of the test results within five days after they become available;

ix. If applicable, explain why CDFA believes the noncompliance could not have been caused by exposure to the pesticide from CDFA's application; and

x. Actions to be taken to prevent recurrence of adverse incidents.

4. Corrective Action

a. **Situations Requiring Revision of Control Measures.** If any of the following situations occur, CDFA must review and, as necessary, revise the evaluation and selection of the control measures to ensure that the situation is eliminated and will not be repeated in the future:

i. An unauthorized release or discharge associated with the application of pesticides (e.g., spill, leak, or discharge not authorized by this or another NPDES permit) occurs;

ii. CDFA becomes aware, or the State Water Board concludes, that the control measures are not adequate or sufficient for the discharge to meet applicable water quality standards;

iii. Any monitoring activities indicate that CDFA failed to:

(a) Follow the label instructions for the product used;

(b) Use the lowest amount of pesticide product per application and optimum frequency of pesticide applications necessary to control pests, consistent with reducing the potential for development of pest resistance;

(c) Perform regular maintenance activities to reduce leaks, spills, or other unintended discharges of pesticides associated with the application of pesticides covered under this Order;

(d) Maintain pesticide application equipment in proper operating condition by adhering to any manufacturer's conditions and industry practices, and by calibrating, cleaning, and repairing such equipment on a regular basis to ensure effective pesticide application and pest control. CDFA must ensure

that the equipment's rate of pesticide application is calibrated to deliver the precise minimum quantity of pesticide needed to achieve greatest efficacy against pests.

b. **Corrective Action Deadlines.** If CDFA determines that changes to the control measures are necessary to eliminate any situation identified in Section C.4 above, CDFA shall make such changes within 60 days. CDFA shall take the corrective action before any further discharge of the biological and residual pesticides will be allowed.

c. **Effect of Corrective Action.** The occurrence of a situation identified in Section C.4 above may constitute a violation of this Order. Correcting the situation according to Section C.4 does not absolve CDFA of liability for any original violation. However, failure to comply with Section C.4 constitutes an additional permit violation. The State Water Board will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

The State Water Board and the appropriate Regional Water Board may impose additional requirements and schedules of compliance, including requirements to submit additional information concerning the condition(s) triggering corrective action or schedules and requirements more stringent than specified in this Order. Those requirements and schedules will supersede those of Section C.4 if such requirements conflict.

5. Adverse Incident to Threatened or Endangered Species or Critical Habitat

If CDFA becomes aware of an adverse incident* to a federally-listed threatened or endangered species or its federally-designated critical habitat, that may have resulted from CDFA's pesticide application, CDFA must immediately notify the National Marine Fisheries Service in the case of an anadromous or marine species, or the U.S. Fish and Wildlife Service in the case of a terrestrial or freshwater species. This notification must be made by telephone or email immediately when CDFA becomes aware of the adverse incident and must include at least the following information:

a. The caller's name, telephone number, and email address;

b. Applicator name and mailing address;

c. The name of the affected species;

d. How and when CDFA became aware of the adverse incident;

e. Description of the location of the adverse incident;

f. Description of the adverse incident, including the U.S. EPA pesticide registration number for each product applied in the area of the adverse incident; and

g. Description of any steps that have been taken or will be taken to alleviate the adverse impact to the species.

Additional information on federally-listed threatened or endangered species and federally-designated critical habitat is available from NMFS (www.nmfs.noaa.gov) for anadromous or marine species or the U.S. Fish and Wildlife Service (www.fws.gov) for terrestrial or freshwater species.

6. Change in Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by CDFA, CDFA shall notify the succeeding discharger of the existence of this Order by letter, a copy of which shall be immediately forwarded to the State Water Board.

To assume operation under this Order, the succeeding discharger must apply in writing to the Deputy Director or his/her designee requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the State Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment B) and state that the new discharger assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

ATTACHMENT A - DEFINITIONS

Active Ingredient

Active ingredients are manufacturer disclosed ingredients that yield toxic effects on target organisms.

Adjuvants

Adjuvants are ingredients that are added to pesticides during an application event and are often trade secrets. These ingredients are chosen by California Department of Food and Agriculture (CDFA), based on site characteristics, and typically increase the effectiveness of pesticides on target organisms.

Adverse Incident

Adverse Incident means a situation where CDFA observes upon inspection or becomes aware of in which:

- A person or non-target organism may have been exposed to a pesticide residue, and
- The person or non-target organism suffered an adverse or toxic effect.

Adverse or Toxic Effect

An “adverse or toxic effect” includes are impacts that occur within U.S. waters on nontarget plants, fish, or wildlife that is unusual or unexpected (e.g., effects are to organisms not otherwise described on the pesticide product label or otherwise not expected to be present) as a result of exposure to a biological or residual pesticide, and may include:

- Distressed or dead juvenile and small fishes
- Washed up or floating fish
- Fish swimming abnormally or erratically
- Fish lying lethargically at water surface or in shallow water
- Fish that are listless or nonresponsive to disturbance
- Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants
- Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.)

An “adverse or toxic effect” also includes any adverse effects to humans (e.g., skin rashes) or domesticated animals that occur either directly or indirectly from a discharge to waters of the U.S. that are temporally and spatially related to exposure to a biological or residual pesticide (e.g., vomiting, lethargy).

Adulticides

Insecticides used to kill adult vectors.

Agricultural Supply

Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing.

Application Area

The application area is the area to which pesticides are directly applied. It is the responsibility of CDFA to determine the application area. The application area may be synonymous with the target area.

Application Event

The application event is the time that introduction of the pesticide to the application area takes place, not the length of time that the environment is exposed to the pesticide.

Biological Pesticides

A chemical which is derived from plants, fungi, bacteria, or other non-man-made synthesis and which can be used for pest control.

Cold Freshwater Habitat

Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuaries do not include inland surface waters or ocean waters.

Freshwater Replenishment

Uses of water for natural or artificial maintenance of surface water quantity or quality.

Groundwater Recharge

Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Half-Life

Half-life is the time required for half of the compound introduced into an ecosystem to be eliminated or disintegrated by natural processes.

Hydropower Supply

Uses of water for hydropower supply.

Industrial Process Supply

Uses of water for industrial activities that depend primarily on water quality.

Inert Ingredients

Inert ingredients are additional ingredients and are often trade secrets; therefore, they are not always disclosed by the manufacturer.

Larvicides

Insecticides used to control vector larvae in their aquatic habitat. Larvicides include biological insecticides, such as the microbial larvicides Bacillus sphaericus and Bacillus thuringiensis israelensis, and other pesticides, such as petroleum distillates, temephos, methoprene, spinosad, and monomolecular films. Larvicide treatment of breeding habitats helps reduce the adult vector population in nearby areas.

Migration of Aquatic Organisms

Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

Municipal and Domestic Supply

Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Navigation

Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

Non-Contact Water Recreation

Uses of water for recreational activities involving proximity to water, but where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, etc.

Off-Target Area

The off-target area is the area adjacent to the target area where off-target spray drift may occur.

Off-Target Spray Drift

Off-target spray drift is the physical movement of a pesticide through air at the time of application or soon thereafter, to any area other than that intended for application.

Pesticide applications for pest control are generally intended to drift through the application and target areas.

Point Source

Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Priority Pollutants

Priority pollutants are listed within the California Toxics Rule in 40 Code of Federal Regulations, section 131.38(b)(1). Criteria to protect aquatic life and human health are set for priority pollutants in the California Toxics Rule.

Rare, Threatened, or Endangered Species Habitat

Uses of water that support aquatic habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

Receiving Waters

See Waters of the U.S.

Representative Monitoring Location

To be considered “representative,” at a minimum, a location must be similar in hydrology, pesticide use, and other factors that affect the biological and residual pesticide discharge to the areas being represented in that environmental setting.

Residual Pesticides

Residual pesticides are those portions of the pesticides that remain in the water after the application and its intended purpose (elimination of targeted pests) have been completed. Residual pesticides include also include excess amounts of pesticides during and after application.

Self-Monitoring

Sampling and analyses performed by a permittee to determine compliance with a permit or other regulatory requirements. All analyses must be conducted by a laboratory certified by the California Department of Public Health.

Source of Drinking Water

Any water designated as municipal or domestic supply in a Regional Water Board water quality control plan and/or as defined in State Water Resources Control Board Resolution 88-63.

Spawning, Reproduction, and/or Early Development

Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Target Area

The target area is the area designated for vector control. This may be synonymous with the application area. (See Figure 1.)

Warm Freshwater Habitat

Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Water Contact Recreation

Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

Waters of the United States (Waters of the U.S.)

Generally refers to surface waters, as defined for the purposes of the federal Clean Water Act.

Wildlife Habitat

Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.)

ATTACHMENT B- STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE (IF APPLICABLE)

A. Duty to Comply

1. California Department of Food and Agriculture (CDFA) must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)
2. CDFA shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

E. Inspection and Entry

CDFA shall allow the Regional Water Quality Control Board (Regional Water Board), State Water Resources Control Board (State Water Board), United States Environmental Protection Agency (U.S. EPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, §§ 13267, 13383):

1. Enter upon CDFA's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of

this Order (33 U.S.C. § 1318(a)(4)(B)(i); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of ensuring compliance with this Order or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by CDFA for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If CDFA wishes to continue an activity regulated by this Order after the expiration date of this Order, CDFA must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the State Water Board. The State Water Board may require modification or revocation and reissuance of the Order to change the name of CDFA and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under part 136 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. CDFA shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the State Water Board Deputy Director of the Division of Water Quality (Deputy Director) or his/her designee at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

CDFA shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, CDFA shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.1, V.B.2, V.B.3, and V.B.4 below. (40 C.F.R. § 122.41(k).)

1. **For a municipality, state, federal, or other public agency:** All permit applications shall be signed by either a principal executive officer or ranking elected official. (40 C.F.R. § 122.22(a)(3).)
2. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.1 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
    a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.1 above (40 C.F.R. § 122.22(b)(1));
    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or an individual or a position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
    c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
3. If an authorization under Standard Provisions – Reporting V.B.1 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.1 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
4. Any person signing a document under Standard Provisions – Reporting V.B.1 or V.B.3 above shall make the following certification:

    “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment C) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Self-Monitoring Report (SMR) or form as agreed by the Deputy Director or his/her designee and the Discharger
3. If CDFA monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136 or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the SMR or other reporting form specified by the State Water Board (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Planned Changes

CDFA shall give notice to the State Water Board and Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted activity or discharge. Notice is required under this provision (40 C.F.R. § 122.41(l)(1)) only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1). (40 C.F.R. § 122.41(l)(1)(ii).)

F. Anticipated Noncompliance

CDFA shall give advance notice to the Regional Water Board and State Water Board of any planned changes in the permitted discharge or activity that may result in noncompliance with Order requirements. (40 C.F.R. § 122.41(l)(2).)

G. Other Noncompliance

CDFA shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.F above. (40 C.F.R. § 122.41(l)(7).)

H. Other Information

When CDFA becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or U.S. EPA, CDFA shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

The State Water Board and Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

ATTACHMENT C - MONITORING AND REPORTING PROGRAM

Contents

Tables

ATTACHMENT C - MONITORING AND REPORTING PROGRAM

Section 122.48 of Title 40 of the Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code sections 13267 and 13383 also authorize the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements which implement state and federal laws and regulations.

This Monitoring and Reporting Program is designed to address the two key questions shown below.

Question No. 1: Does the biological and residual pesticide from spray applications cause an exceedance of receiving water limitations or monitoring triggers?

Question No. 2: Does the biological and residual pesticide, including active ingredients, inert ingredients, and degradation byproducts, in any combination cause or contribute to an exceedance of the “no toxics in toxic amount” narrative toxicity objective?

I. GENERAL MONITORING PROVISIONS

Samples and measurements taken as required herein shall be representative of the nature of the monitored discharge. All samples shall be taken at the monitoring locations specified in the Pesticides Application Plan submitted by California Department of Food and Agriculture (CDFA). CDFA may change monitoring locations; however, CDFA must clearly indicate the revised monitoring locations and the corresponding monitoring results in its annual report.

All laboratory analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health. All monitoring reports must identify the laboratories that perform sample analyses. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by the State Water Board and the appropriate Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to U.S. Environmental Protection Agency (U.S. EPA) guidelines or to procedures approved by the Deputy Director or his/her designee.

All laboratory analyses shall be conducted in accordance with the latest edition of “Guidelines Establishing Test Procedures for Analysis of Pollutants” (Guidelines), promulgated by U.S. EPA (40 C.F.R. part 136). If a test method for any of active ingredients is not available, CDFA may use alternative analytical methods. The alternative analytical methods must be capable of achieving the method detection limits below the Receiving Water Monitoring Triggers for the active ingredients and approved by the Deputy Director or his/her designee. Any procedures to prevent the contamination of samples as described by the Pesticide Application Plan (PAP) shall be implemented.

Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements;
2. The individuals who performed the sampling or measurements;
3. The dates analyses were performed;
4. The individuals who performed the analyses;
5. The analytical techniques or methods uses; and
6. The results of such analyses.

CDFA shall properly maintain and calibrate all monitoring instruments and devices used to fulfill the prescribed monitoring program to ensure their accuracy.

CDFA shall report all monitoring results, including noncompliance, at intervals and in a manner specified in the Monitoring and Reporting Program of this Order.

Laboratories that conduct the analysis shall be certified by California Department of Public Health, in accordance with the provision of California Water Code section 13176, and must include quality assurance/quality control data with their reports.

II. MONITORING LOCATIONS AND SAMPLE TYPES

A. Monitoring Locations

Each Discharger shall establish monitoring locations specified in the PAP to demonstrate compliance with the receiving water limitations, discharge specifications, and other requirements in this Order. The number and location of samples shall be selected to answer the two key questions. CDFA may use representative monitoring locations to characterize water quality for all waters of the U.S. within CDFA's boundaries for each environmental setting (agriculture, urban, and wetland). However, CDFA must provide justification for the selection of the representative monitoring locations. To be considered "representative," at a minimum, a location must be similar in hydrology, pesticide use, and other factors that affect the discharge of biological and residual pesticides to surface waters as a result of applications to the areas being represented in that environmental setting. Each Discharger must provide technical justification and identify which areas are to be considered representative. Monitoring location information shall include a description of the treatment area, GPS coordinates, and pesticides being applied. The specific monitoring locations initially identified as representative monitoring locations may be changed based on surveillance of CDFA.

B. Sample Types

1. **Background Monitoring.** Background samples shall be collected in the application area or target area within 24 hours before application.
2. **Event Monitoring.** Event monitoring samples shall be collected in the application area or the target area immediately after the application event but shall not exceed 24 hours after the application event.

III. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

The PAP shall be designed to answer the two key questions stated above. The PAP shall describe the tasks and time schedules in which these two key questions will be addressed. Monitoring shall take place at locations that are being planned to be applied or may be applied as described in CDFA's PAP. A. The basic geographic and hydrographic features of the area, particularly application points and the pathway(s) of residue flows;

A. Monitoring Plan Design

Development of a monitoring plan requires clearly defining several inputs to the design and then organizing these inputs in a logical framework that supports effective decision making about indicators, monitoring area locations, and monitoring frequency. The logical framework should describe:

1. The basic geographic and hydrographic features of the area, particularly application points and the pathways(s) of residue flows;
2. Pesticide application practices and how they are distributed in space and time;
3. Relevant knowledge about the transport, fates, and effects of pesticides, including best- and worst-case scenarios;
4. Description of the designated uses in each water body;
5. Relevant knowledge about the action of cumulative and indirect effects, and of other sources of impact;
6. Mechanisms through which pesticide applications could lead to designated use impacts, given the basic features of the area;
7. Known and potential impacts of pesticide applications on water quality, ranked in terms of relative risk, based on factors such as magnitude, frequency and duration;
8. Sufficient number of sampling areas to assess the entire Discharger's area of influence; and
9. The approach, including a schedule, to sample monitoring areas.

B. Monitoring Log

CDFA shall keep a log of the receiving water conditions through conducting the receiving water sampling, a log shall be kept of the receiving water conditions within the treatment area. Attention shall be given to the presence or absence of:

1. Floating or suspended matter;
2. Discoloration;
3. Bottom deposits;

4. Aquatic life;
5. Visible films, sheens, or coatings;
6. Fungi, slimes, or objectionable growths; and
7. Potential nuisance conditions.

Notes on receiving water conditions shall be summarized in the monitoring report.

Monitoring for all active ingredients must include frequent and routine monitoring on a pre-determined schedule, as summarized in Table C-1 below:

Table C- 1 Monitoring Requirements

Sample Type	Constituent/Parameter	Units	Sample Method	Minimum Sampling Frequency	Sample Type Requirement	Required Analytical Test Method
Visual	1. Monitoring area description (pond, lake, open waterway, channel, etc.) 2. Appearance of waterway (sheen, color, clarity, etc.) 3. Weather conditions (fog, rain, wind, etc.)	Not applicable	Visual Observation	[1]	Background and Event Monitoring	Not applicable
Physical	1. Temperature[2]	ºF	Grab[4]	[5]	Background and Event Monitoring	[6]
Physical	2. pH[3]	Number	Grab[4]	[5]	Background and Event Monitoring	[6]
Physical	3. Turbidity[3]	NTU	Grab[4]	[5]	Background and Event Monitoring	[6]
Physical	4. Electrical Conductivity[3] @ 25°C	µmhos/cm	Grab[4]	[5]	Background and Event Monitoring	[6]

Sample Type	Constituent/Parameter	Units	Sample Method	Minimum Sampling Frequency	Sample Type Requirement	Required Analytical Test Method
Chemical	1. Active Ingredient[7]	µg/L	Grab[4]	[5]	Background and Event Monitoring	[6]
Chemical	2. Dissolved Oxygen[3]	mg/L	Grab[4]	[5]	Background and Event Monitoring	[6]

[1] All applications at 10% of all application areas or six application areas, whichever is greater, unless inappropriate. If applying to less than six application areas, monitor at all application areas, unless inappropriate.

[2] Field testing.

[3] Field or laboratory testing.

[4] Samples shall be collected at the surface of the water body.

[5] If applying six or more times a year, collect six samples for each active ingredient in each environmental setting (agricultural, urban, or wetland). If applying less than six times a year, collect a sample during each application for each active ingredient in each environmental setting (agricultural, urban, or wetland).

[6] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136.

[7] 1) Insecticides containing acetamiprid, carbaryl, cyfluthrin, dinotefuran, imidacloprid, malathion, naled, and pyrethrins; 2) Herbicides containing aminopyralid, chlorsulfuron, clopyralid, glyphosate, imazapyr, and triclopyr butoxyethyl ester.

IV. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. CDFA shall inform the State Water Board and the appropriate Regional Water Boards 24 hours or the earliest feasible time before the start of each application.
2. CDFA shall comply with all Standard Provisions (Attachment B) related to monitoring, reporting, and recordkeeping.
3. Upon written request of the State or the appropriate Regional Water Board, CDFA shall submit a summary monitoring report.
4. CDFA shall report to the State Water Board and the appropriate Regional Water Boards any toxic chemical release data it reports to the State

Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the Emergency Planning and Community Right to Know Act of 1986. (42 U.S.C. §§ 11001 et seq.)

5. The Deputy Director or his/her designee may adjust monitoring frequencies to a less frequent basis if CDFA makes a request and provides justification that includes statistical trends of monitoring data submitted.

6. The Deputy Director or his/her designee may add additional monitoring and reporting requirements to the Monitoring and Reporting Program.

B. Annual Reports

1. CDFA shall include the following information in annual reports:

   a. An Executive Summary discussing compliance or violation of this Order and the effectiveness of the PAP to reduce or prevent the discharge of pollutants associated with pesticide applications;

   b. A summary of monitoring data, including the identification of water quality improvements or degradation, and recommendations for improvements to the PAP, including proposed best management practices (BMPs), and monitoring program based on the monitoring results. All receiving water monitoring data shall be compared to applicable water quality standards;

   c. Identification of BMPs currently in use and a discussion of their effectiveness in meeting the requirements in this Order;

   d. A discussion of BMP modifications addressing violations of this Order;

   e. A map showing the location of each application area where spray drift may occur;

   f. Types and amounts of pesticides used at each application event during each application;

   g. Information on surface area and/or volume of application and target areas and any other information used to calculate dosage, concentration, and quantity of each pesticide used;

   h. Sampling results shall indicate the name of the sampling agency or organization, detailed sampling location information (including latitude and longitude or township/range/section if available), detailed map or description of each sampling area (i.e., address, cross roads, etc.), collection date, name of constituent/parameter and its concentration detected, minimum levels, method detection limits for each constituent analysis, name or description of water body sampled, and a comparison with applicable water quality standards, description of analytical quality assurance/quality control plan. Sampling results shall be tabulated so that they are readily discernible; and

i. Recommendations to improve the monitoring program, BMPs, and PAP to ascertain compliance with this Order; and

j. Pesticide Application Log.

2. CDFA shall include in the annual report any updated information regarding specific monitoring locations from its PAP.

3. At any time during the term of this Order, the State Water Board or the appropriate Regional Water Boards may notify CDFA of the requirement to electronically submit Self-Monitoring Reports (SMRs) and/or Discharge Monitoring Reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, CDFA shall submit hard copy SMRs and/or Discharge Monitoring Reports. The CIWQS website will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

4. CDFA shall report the results for all monitoring specified in this Monitoring and Reporting Program in the SMR. CDFA shall submit annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. If CDFA monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

5. CDFA shall submit monitoring reports to the Deputy Director or his/her designee in accordance with the following schedule:

Table C- 2 Reporting Schedule

Reporting Frequency	Reporting Period	Annual Report Due
Annual	January 1 through December 31	March 1

6. If there is no discharge of residual pesticides, or the discharge is to dry riverbeds, CDFA shall provide the Deputy Director or his/her designee a certification that pesticide application activities did not result in a discharge to any water body.

C. Reporting Protocols

CDFA shall report with each sample result the applicable reported Minimum Level (ML) and the current Minimum Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136.

CDFA shall report the results of analytical determinations for the presence of biological or chemical constituents in a sample using the following reporting protocols:

1. For chemical analyses, sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
2. For chemical analyses, sample results less than the Report Limit, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (plus a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
3. Sample results less than the laboratory's MDL shall be reported as "<" followed by the MDL.
4. CDFA shall instruct its laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is CDFA to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. Multiple Sample Data: If two or more sample results are available, each Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, CDFA shall compute the median in place of the arithmetic mean in accordance with the following procedure:
   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant. The median value of the data set shall be determined.
   b. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
6. CDFA shall submit the annual report in accordance with the following requirements:

a. CDFA shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the spray applications are conducted in compliance with effluent and receiving water limitations. CDFA is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, CDFA shall electronically submit the data in a tabular format as an attachment.

b. CDFA shall attach a cover letter to the annual report. The information contained in the cover letter shall clearly identify violations of the permit; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. CDFA must submit an annual report to the State Water Board, signed and certified as required by the Standard Provisions (Attachment B).

ATTACHMENT D – FACT SHEET

Tables

ATTACHMENT D – FACT SHEET

As described in the Findings in Section III of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for California Department of Food and Agriculture (CDFA).

I. DISCHARGER DESCRIPTION

CDFA is mandated to prevent the introduction and spread of injurious insect or animal pests, plant diseases, and noxious weeds in California (California Food and Agricultural Code section 403). To accomplish this, CDFA implements the Statewide Plant Pest Prevention and Management Program, an ongoing effort by CDFA to protect California's agriculture from damage caused by invasive plant pests. As a part of this program, CDFA conducts pesticide spray applications for the pest management and eradication. Following are CDFA's programs:

A. Emergency Invasive Insect Control

Specific emergency program action is based on current information available at the time the pest is detected. Each new project will commence with guidance from an Emergency Action Plan developed by CDFA, in consultation with the Pest Prevention Committee of the California Agricultural Commissioner's Association, the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Services and a Science Advisory Panel. These plans contain Action Statements, Pest Profiles, Organization, Responsibilities and Staffing, Administrative Actions, Delimitation Procedures, Eradication Activities, Pesticide Monitoring, Regulatory Procedures and Public Information. Specific Work Plans are generated for field use. Work plans will contain trapping, survey, and treatment information. Eradication treatment plans begin with proper pesticide selection. CDFA's selection criteria include the following: the material is registered for use in California; the material must have been tested and found to be effective against the target pest; the material must be suitable for use in target environment; the environmental fate and non-target effects are understood; and the environmental persistence and toxicity to non-target organisms must be minimal.

In order to present accurate information in an understandable and non-threatening format to concerned groups, CDFA begins a notification/public awareness campaign prior to start of each eradication program. Local and state elected representatives of the residents in the treatment are will be notified and apprised of major developments before and during treatment. During ground treatment, each resident in the treatment area will be notified in writing prior to the treatment. This notification will include name of pest to be eradicated, material to be used, and a phone number to call for more information on project operations. Following treatments, a completion notice is

left detailing precautions a homeowner should take, including harvest intervals on treated fruit.

1. Beetle Program

CDFA's beetle program uses both foliar and systemic insecticides, which are applied depending on insect population models. Foliar treatments may be used to kill adult beetles to knock down adult populations. If used, foliar treatments will occur during the adult season and in the following years according to the recommendations of a Technical Working Group assembled for consultation on the new invasive beetle. A degree day model protocol will be used in each case to predict adult emergence. The foliar treatment method kills adult beetles to reduce the adult beetle populations. Ground sprays will be applied to all host foliage on all properties in a treatment area at pre-specified day intervals using hydraulic (tank) spray or hand spray equipment. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal. Affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, homeowners will receive completion notices detailing precautions to take and pre-harvest intervals applicable to any fruit or vegetables on the property.

Treatment Options: Both foliar and systemic insecticides are applied depending on insect population models. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal, while systemic insecticides are necessary to kill other life stages including sedentary and active stages. The frequency of the treatment is dependent on the insecticide applied and severity of the infestation. A degree day model protocol is again used to predict when sedentary and active stages are most vulnerable.

CDFA's beetle program uses pesticide products such as Sevin® SL (active ingredient: carbaryl) and Merit® 75 WSP (active ingredient: imidacloprid) and Merit®0.5G (active ingredient imidacloprid).

2. Moth Program

CDFA's moth program may use foliar and mating disruption treatment methods. For foliar treatment, it uses spinosad products such as Naturalyte® for control or suppression of many foliage feeding pests. The program uses Bacillus thuringiensis kurstaki (Btk) products such as DiPel®Pro DF and DiPel® DF specifically for control of caterpillars of many species of moths and butterflies. They do not have significant risk to healthy humans, wildlife, or the environment. Ground sprays will be applied to all host foliage on all infected properties using hydraulic spray or hand spray equipment.

Affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, homeowners will receive completion

notices detailing precautions to take and pre-harvest intervals applicable to any fruit or vegetables on the property. The European grapevine moth project is an example of a CDFA Moth Program.

Lobesia botrana or European grapevine moth (EGVM) is a significant pest of berries and berry-like fruits in Europe, the Mediterranean, southern Russia, Japan, the Middle East, Near East, Chile, and Northern and Western Africa. EGVM is particularly damaging to grape production because larvae feed on the flowers and berries. In October 2009, EGVM was detected for the first time in the United States in a commercial vineyard in Napa County, California. Since that detection, nearly 50,000 traps to capture EGVM adult males have been placed around California to determine the extent of the infestation. Although EGVM attacks many hosts (such as olives, pomegranate, persimmon, rosemary, and stone fruits), grapes are the primary host and the most economically vulnerable. (United States Department of Agriculture (USDA) Movement of Grapes and Other Regulated articles from the European Grapevine Moth (Lobesia botrana) Quarantine Zone, EA June 2010 (http://www.aphis.usda.gov/plant_health/ea/downloads/egvm-ea.pdf)

One of the tools for suppression of the EGVM population is Mating Disruption. Organic and conventional growers can use a synthetic pheromone to disrupt and reduce mating success of the population.

CDFA uses Isomate®-EGVM, (E,Z)-7,9-Dodecadien-1-yl Acetate). Isomate-EGVM is a double tube dispenser that is hand applied to the plant or a trellis wire. The double tube dispenser is made of polyethylene plastic. One side of the double tube contains a thin piece of aluminum wire which assures that the dispenser will stay as applied throughout the season, and the other side contains 0.0097 fluid ounce of the pheromone.

These pheromone formulations were developed for and are used mainly in agriculture. The primary objective is to aid in the production of high quality, pest-free crops using economically viable and ecologically sound methods of pest control with minimal use of insecticides. These dispensers are deployed per square mile or per acre depending on the recommendation of a Technical Working Group. Locations may include natural areas and/or hard to reach areas such as steep terrain where it is not feasible to perform foliar treatment.

3. Fruit Fly Program

This program controls Mediterranean fruit fly (Medfly), Mexican fruit fly, oriental fruit fly, and all other target flies deemed harmful to agriculture may at some time be included in this program. This program uses foliar treatment, aerial bait spray, male attractant technique, and sterile insect technique.

For foliar treatment, CDFA uses the product GF-120® NR Naturalyte® (active ingredient: spinosad). If a mated female, immature life stages, or multiple flies are detected on a property, the foliage of host shrubs and trees on the infested and adjacent properties is treated using hand spray equipment.

For aerial bait spray (pertaining to Mexican fruit fly and Medfly), CDFA would use GF-120® NF Naturalyte® (active ingredient: spinosad). Aerial spray is only used for extremely large infestations in cropland areas.

In the male attractant technique, CDFA uses Dibrom® Concentrate (active ingredient: naled). The male attractant technique uses small amounts of attractant (methyl eugenol) and pesticide (naled) to lure the male flies to bait stations. The flies are killed when they contact at the stations. The naled/lure mixture is applied to utility poles, street trees, and other unpainted surfaces using pressurized tree marking guns. Application is made to at least 600 evenly distributed sites in each square mile. Treatment repeats every two weeks and continues for two fly life cycles beyond the date of the last fly find or for a minimum of four applications. Project boundaries may be enlarged if warranted by subsequent trapped flies. The sterile insect technique relies on flooding the infested area with sterile Medflies. When the sterile males mate with wild females, no offspring are produced. Gradually, the wild fly population decreases, while the sterile fly population increases through continued release. When wild flies can find only sterile flies with which to mate, the wild population will become extinct. This technique is used after bait sprays have been used to kill existing fertile wild Medflies. For the technique to succeed, a minimum over-flooding ratio of 100:1 must be maintained. The release area will be nine square miles around each infested site. Release of sterile flies will be continued for at least two life cycles past the last fly find. Multilure and Jackson traps are deployed to monitor the success of the sterile insect release program. If the goal of 100:1 is not maintained due to environmental pressures on the sterile flies, additional baits sprays must be resumed to control wild fly populations. Bait sprays will again continue for two life cycles of the Medfly.

4. Asian Citrus Psyllid (ACP)

ACP, an aphid-like insect, is a serious pest of all citrus and closely-related plants because it can transmit the disease huanglongbing (HLB) when it feeds on the plants' leaves and stems. HLB is the most devastating disease of citrus in the world. Symptoms of HLB include yellow shoots, leaf mottle, small upright leaves and lopsided fruit with a bitter flavor. Infected trees decline in health, produce inedible fruit and eventually die. There is no cure for the disease and infected trees must be removed and destroyed to prevent further spread of HLB. Establishment of ACP and HLB would cause economic losses via direct damage to citrus plants and

quarantine restrictions designed to mitigate the spread of ACP. California has a $1.88 billion citrus industry. If the ACP begins to transmit the disease HLB, the entire industry could be at risk. In one recent study in Florida, the presence of HLB increased citrus production costs by 40%.

CDFA's ACP program uses both foliar and systemic insecticides. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal, while systemic insecticides are necessary to kill the sedentary nymphs. Treatment frequency is dependent on the insecticide applied and severity of the infestation. Foliar treatment uses Tempo® SC Ultra (active ingredient: cyfluthrin) and, Sevin® SL (active ingredient: carbaryl). Sevin® is held as an alternative knockdown tool, used rarely and with limitations. Pesticides are applied with hydraulic spray or hand spray equipment at least once to the foliage of host plants at designated residential properties. This insecticide may be applied to all host plants within a 200 to 800-meter radius of the detection sites. The treatment area is determined both by funding and insect flight dispersal patterns.

A second contact insecticide (Sevin® at this time) may be used due to yearly label use restrictions or Scientific Advisory Panel recommendations.

For soil treatment, a systemic insecticide will be applied to soil beneath the drip line of host plants to kill developing nymphs and adult psyllids. Systemic insecticides, such as Merit 75 WSP (active ingredient: imidacloprid), are applied to the soil below the host plant and are absorbed by the plant roots and then moved (or translocated) to the above-ground parts (leaves, twigs, and branches). Insects ingest the insecticide while feeding on the plants. The most common application method of systemic insecticides is soil drenching around the host plants. The pesticides will be applied at least once to the soil of host plants at designated residential properties.

5. Palm Weevil Program

Palm weevil program includes the control of red palm weevil (RPW), scientific name Rhynchophorus ferrugineus. The RPW is considered the most destructive pest of palms worldwide. RPW is a native of Southeast Asia; its discovery in a residential planting in Laguna Beach in the fall of 2010 is the first time this weevil has been found in the United States. The presence of the RPW in California represents a serious threat to palms, many of which are highly valued as landscaping plants. The sale of palms generates approximately $70 million in nursery plant sales in California annually. Palm trees are also used for producing crops and marketable agricultural commodities including coconuts, dates and oils. In California, date palm growers harvest an annual crop worth approximately $30 million. The vast majority of these farms are in the Coachella Valley region.

Female red palm weevils bore into a palm tree to form a hole into which they lay eggs. Each female may lay an average of 250 eggs, which take about three days to hatch. Larvae emerge and tunnel toward the interior of the tree, inhibiting the tree's ability to transport water and nutrients upward to the crown. After about two months of feeding, larvae pupate inside the tree for an average of three weeks before the reddish-brown adults emerge. Adults live for two to three months, during which time they feed on palms, mate multiple times and lay eggs.

Adult weevils are considered strong fliers, venturing more than a half-mile in search of host trees. With repeated flights over three to five days, weevils are reportedly capable of traveling nearly four-and-a-half miles from their hatch site. They are attracted to dying or damaged palms, but can also attack undamaged host trees. Feeding symptoms of the weevil and the larval holes are often difficult to detect because these sites can be covered with offshoots and tree fibers. Careful inspection of infested palms may show holes in the crown or trunk, possibly along with oozing brown liquid and chewed fibers.

A Technical Working Group comprised of scientific experts on RPW has been formed by USDA, and treatment options are being evaluated at this time. Preliminary recommendations include a drench/foliar spray with Merit 2F® (active ingredient: imidacloprid), and/or a trunk spray/foliar spray with Safari® 20 SG (active ingredient: dinotefuran) and/or a crown foliar treatment with Sevin® SL (active ingredient: carbaryl). Timing of these treatments has not been decided. As an example of what might be decided upon, treatment for RPW in other countries can involve an imidacloprid drench applied twice a year, with the other treatments applied at least once, or more often as needed.

B. Ongoing Invasive Insect Control

1. Beet Curly Top Virus Control Program (BCTVCP)

The BCTVCP is an overall strategy for the statewide control of the sugar beet leafhopper (BLH), Circulifer tenellus (Baker), the only known vector of beet curly top virus (BCTV). BCTV is a viral disease of sugar beets, tomatoes, melons, peppers, beans, cucumbers, squash, pumpkins, spinach, vine seed and ornamentals. On an annual basis, the BCTVCP surveys for and monitors the development and movement of the BLH from historical breeding grounds on the west side of the San Joaquin Valley, and portions of the Salinas, Cuyama, Imperial and Palo Verde Valleys. Sweep net surveys determine the size and location of BLH populations during the winter, spring and fall. Control is a year-round effort linked to disrupting the continuity of the BLH's life cycle. Aerial treatments (fixed-wing) are employed to control BLH populations in rangeland habitat, oil fields and large cultivated fallow fields. Ground-rigs are utilized to spot

treat BLH populations host plants developing on roadsides and rights-of-way within intensive agriculture adjacent to BCTV susceptible crops.

The Program uses Fyfanon ULV AG (67760-35) in both aerial and ground-rig spot applications. The malathion product is diluted with water at a rate of 7.7 ounces per gallon of mix. The end use dilution is applied by aircraft, or ground-rig, to BLH host plants at a rate of one gallon mix per acre.

2. The Light Brown Apple Moth (LBAM) Epiphyas Postvittana

LBAM is originally from Australia. LBAM is an invasive species and is reported to attack more than 120 plant genera in over 50 families, including many economically important species. LBAM feeding “destroys, stunts, or deforms young seedlings, spoils the appearance of ornamental plants, and injures deciduous fruit-tree crops, citrus, and grapes (U.S. EPA 2007a).” Because the LBAM is a new pest to the North American Continent that affects a broad range of plants (as many as 2,042 plants, including native plants, forest species, agronomically important crops and ornamentals), CDFA has taken immediate action to control and suppress LBAM from California to prevent its spread to susceptible host plants throughout the United States and neighboring Mexico and Canada.

The CDFA control and suppress strategy is to delimit and contain LBAM populations and is expected to take three to five years to achieve. The strategy will require ongoing monitoring of the infestation, suppression at the edges of the populations, and population reduction in areas with a higher LBAM population density. The control and suppression strategy will require ground application of several control techniques: mating disruption (using pheromones), insecticide treatments, sterile insects, and other techniques such as biological control (biocontrol) (USDA 2008a[1]). Products containing the following active ingredients are used in the LBAM eradication program: spinosyn A and D, and Btk.

3. Pierce’s Disease Control Program

CDFA's Pierce’s Disease Control Program uses both foliar and systemic insecticides to control or eradicate populations of the glassy-winged sharpshooter, a leafhopper-type insect which spreads Pierce’s disease. Foliar insecticides are used to achieve immediate control of glassy-winged sharpshooter adults and nymphs present on host plants at the time of treatment, while systemic insecticides are used to control glassy-winged sharpshooter adults and nymphs which arrive later on the host plants.

For foliar treatments, products containing cyfluthrin, imidacloprid, acetamiprid, or carbaryl are used. For systemic treatments, products containing imidacloprid are used. Foliar treatments are applied from the

[1] USDA. 2008a. Treatment program for light brown apple moth in California. Environmental Assessment, February 2008. 46 pp.

ground using hydraulic spray or hand spray equipment. Systemic treatments are applied from the ground as either soil drenches or soil injections.

C. Noxious Weeds Control

The objective of the Noxious Weeds Control Program is the early detection, containment, and eradication of state and federal listed noxious weeds. A-rated noxious weeds are those weeds with potential great economic or environmental importance, and with the current limited distribution in the state and for which eradication efforts will likely be successful. Noxious Weed Eradication projects are a cooperative effort between the CDFA, county agricultural commissioners, USDA Forest Service, and weed management areas across the state. The program mainly uses herbicide products with aminopyralid, chlorsulfuron, clopyralid, glyphosate, imazapyr, triclopyr butoxyethyl ester, and triclopyr triethylamine salt as active ingredients. The herbicides are applied by backpack spray by truck-mounted spray rigs, all-terrain vehicle mounted spray rigs, backpack spray or other handheld low pressure equipment, and in rare instances, CDFA cooperators may apply herbicides to rangeland by helicopter. These applications are far removed from water sources.

II. PERMIT COVERAGE

A. Discharge Description

This Order covers the point source discharge of pesticide residues resulting from spray applications using acetamiprid, aminopyralid, Bacillus thuringiensis kurstaki, carbaryl, chlorsulfuron, clopyralid, cyfluthrin, dinotefuran, glyphosate, imazapyr, imidacloprid, malathion, naled, nuclear polyhedrosis virus, pheromone, pyrethrins, spinosyn A and D, triclopyr butoxyethyl ester and triclopyr triethylamine salt (TEA).

This Order permits pesticide products labeled for land use only. The biological and residual pesticide discharges regulated by this Order are from accidental pesticide drifts during spray applications occur near surface waters. The discharge is necessary only when no feasible alternative to the discharge (alternative application techniques, buffer zones, etc.) is available; and the discharge is limited to that increment of waste that remains after treatment.

B. Background

1. Regulatory Background

   In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act) was amended to provide that the discharge of pollutants to waters of the U.S. from any point source is effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit.

On September 22, 1989, the U.S. EPA granted California, through the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Regional Water Boards), the authority to issue general NPDES permits pursuant to 40 Code of Federal Regulations (40 C.F.R.) parts 122 and 123.

Section 122.28 of 40 C.F.R. provides for issuance of general permits to regulate a category of point sources if the sources involve the same or substantially similar types of operations; discharge the same type of waste; require the same type of effluent limitations or operating conditions; require similar monitoring; and are more appropriately regulated under a general permit rather than individual permits.

On March 12, 2001, the Ninth Circuit Court of Appeals held that discharges of pollutants from the use of aquatic pesticides in waters of the U.S. require coverage under an NPDES permit. (Headwaters, Inc. v. Talent Irrigation District).[2] The Talent decision was issued just prior to the major season for applying aquatic pesticides.

Because of the serious public health, safety, and economic implications of delaying pesticide applications, in 2001 the State Water Board adopted Water Quality Order (Order) 2001-0012-DWQ, Statewide General NPDES Permit for Discharges of Aquatic Pesticides to Waters of the U.S. on an emergency basis to provide immediate NPDES permit coverage for broad categories of aquatic pesticide use in California.

Order 2001-0012-DWQ imposed requirements on any discharge of aquatic pesticides by public entities to waters of the U.S. in accordance with the State Water Board's State Water Board Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). The SIP establishes procedures for implementing water quality standards for priority pollutants in NPDES permits.

Section 5.3 of the SIP allows for short-term or seasonal exceptions from its requirements for resource or pest management conducted by public entities. In order to qualify for an exception from complying with priority pollutant standards, a public entity must fulfill the requirements listed in section 5.3 and the State Water Board must decide to grant the exception. Among other requirements, entities seeking an exception to complying with water quality standards for priority pollutants must submit documents in compliance with California Environmental Quality Act.[3] Because of the emergency adoption of Order 2001-0012-DWQ, the State Water Board invoked an exemption to the requirements of section 5.3 of the SIP and

[2] 243 F.3d 526 (9th Cir 2001).
[3] Cal. Pub. Resources Code sections 21000 et seq.

issued the permit incorporating a categorical exception to water quality standards for priority pollutants.

Order 2001-0012-DWQ required that Dischargers develop a best management practices (BMPs) plan that minimizes adverse impacts to receiving waters and a monitoring and reporting plan that is representative of each type of aquatic pesticide application.

In August 2001, Waterkeepers Northern California (Waterkeepers) filed a lawsuit against the State Water Board challenging several aspects of Order 2001-0012-DWQ. Major aspects of the challenge included the emergency adoption of the Order without compliance with California Environmental Quality Act and other exception requirements of the SIP; failure to address cumulative impacts; and failure to comply with the California Toxics Rule (CTR).[4]

In a settlement of the Waterkeepers' lawsuit, the State Water Board agreed to fund a comprehensive aquatic pesticide monitoring program that would assess receiving water toxicity caused by aquatic pesticide residues. Pesticide formulations may include "active ingredients" and "inert ingredients". Adjuvants or surfactants may be added to the active ingredients in the application equipment that is used in the delivery of the pesticide. In November 2002, the Ninth Circuit issued another opinion concerning the need for an NPDES permit for pesticide application. (*League of Wilderness Defenders v. Forsgren*.)[5] In this case, the court held that the USDA Forest Service must obtain an NPDES permit before it sprays insecticides from an aircraft directly into or over rivers as part of silviculture activities. The court found that the insecticides are pollutants under the Clean Water Act (CWA). The court also defined the exemption for silvicultural pest control from the definition of "point source" in U.S. EPA's regulations to be limited to pest control activities from which there is natural runoff.

Also in 2002, the Second Circuit issued an unpublished decision regarding the need for an NPDES permit for application of pesticides for mosquito control in federal wetland areas. (*Altman v. Town of Amherst*.) The lower court had dismissed a citizens' suit, holding that pesticides, when used for their intended purpose, do not constitute a "pollutant" for purposes of the CWA, and are more appropriately regulated under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The appeals court vacated the trial court's decision and remanded the matter. In its unpublished decision, the Second Circuit expressed concern that: [u]ntil the EPA articulates a clear interpretation of current law - among other things, whether properly used pesticides released into or over waters of the U.S. can trigger the

[4] 40 C.F.R. Section 131.38.
[5] 309 F.3d 1181 (9th Cir., 2002).

requirements for NPDES permits - the question of whether properly used pesticides can become pollutants that violate the [Clean Water Act] will remain open.

Order 2001-0012-DWQ expired on January 31, 2004. In May 2004, it was replaced by two general permits: a vector control permit for larvicides (Order 2004-0008-DWQ) and a weed control permit (Order 2004-0009-DWQ). The vector control permit does not cover spray applications of pesticides to control adult mosquitoes. The State Water Board determined that adoption of these two permits was consistent with the Ninth Circuit decisions.

In 2005, the Ninth Circuit held that a pesticide that is applied consistent with FIFRA is not a "chemical waste" (*Fairhurst v. Hagener*)[6], but also stated that it would not change its decision in Headwaters. The court stated that whether an NPDES permit was required depends on whether there was any "residue or unintended effect" from application of the pesticide. In Fairhurst, the court found neither residue nor unintended effect was present. Therefore, the pesticide application at issue did not require an NPDES permit.

U.S. EPA's Final Rule: On November 20, 2006, U.S. EPA adopted a final regulation providing that NPDES permits are not required for pesticide applications as long as the discharger follows FIFRA label instructions. According to this new regulation, pesticides applied under the following two circumstances are not pollutants and, therefore, are not subject to NPDES permitting requirements:

(1) The application of pesticides directly to waters of the U.S. in order to control pests. Examples of such applications include applications to control mosquito larvae, aquatic weeds, or other pests that are present in waters of the U.S.

(2) The application of pesticides to control pests that are present over waters of the U.S., including near such waters, where a portion of the pesticides will unavoidably be deposited to waters of the U.S. in order to target the pests effectively; for example, when insecticides are aerially applied to a forest canopy where waters of the U.S. may be present below the canopy or when pesticides are applied over or near water for control of adult mosquitoes or other pests.

Lawsuits Against U.S. EPA's Final Rule: After U.S. EPA's new regulation was adopted in 2006, lawsuits were filed by both the pesticide industry and environmental groups in 11 of the 13 Circuits, including the Ninth Circuit Court, challenging U.S. EPA's Final Rule.

[6] 422 F.3d 1146 (9th Cir. 2005).

***The National Cotton Council of America v. U.S. EPA*[7]:** The petitions for review were consolidated in the Sixth Circuit Court by an order of the Judicial Panel on Multidistrict Litigation.

On January 7, 2009, the Sixth Circuit Court of Appeals determined that

U.S. EPA's Final Rule is not a reasonable interpretation of the CWA and vacated the Final Rule. U.S. EPA did not request reconsideration of the decision, but did file a motion for a two-year stay of the effect of the decision in order to provide agencies time to develop, propose, and issue NPDES general permits for pesticide applications covered by the ruling. On June 8, 2009, the Sixth Circuit granted the motion, such that the U.S. EPA exemption remained in place until April 9, 2011.

2. **Related Pesticide Regulation Information**

Pesticide formulations may include "active ingredients" and "inert ingredients". Adjuvants or surfactants may be added to the ingredients in the application equipment that is used in the delivery of the pesticide.

As part of the registration process of pesticides for use in California, U.S. EPA and California Department of Pesticide Regulation (DPR) evaluate data submitted by registrants to ensure that a product used according to label instructions will cause no harm or adverse impact on non-target organisms that cannot be reduced or mitigated with protective measures or use restrictions. Registrants are required to submit data on the effects of pesticides on target pests (efficacy) as well as non-target effects. Data on non-target effects include plant effects (phytotoxicity), fish and wildlife hazards (ecotoxicity), impacts on endangered species, effects on the environment, environmental fate, degradation byproducts, leachability, and persistence. California-specific requirements are included in many U.S. EPA-approved pesticide labels. Use must be reported to the county agricultural commissioner where required by law or by agreement with DPR.

The CWA at section 301(a), broadly prohibits the discharge of any pollutant to waters of the U.S., except in compliance with an NPDES permit. Pesticides discharged into surface waters may constitute pollutants within the meaning of the CWA even if the discharge is in compliance with the registration requirements of FIFRA, thus, requiring coverage under a valid NPDES permit.

DPR and the county agricultural commissioners regulate the sale and use of pesticides in California. Pesticide applications subject to this Order must be consistent with permits issued by County agricultural commissioners and the pesticide label instructions approved by U.S. EPA under FIFRA. According to federal law, pesticide label language is under the sole

[7] 553 F.3d 927 (6th Cir. 2009).

jurisdiction of U.S. EPA. U.S. EPA must approve label language and any changes thereto before the product can be sold in this country. DPR cannot require manufacturers to make changes on labels; however, DPR can refuse to register products unless manufacturers address unmitigated hazards by amending the pesticide label.

State regulations require that the county agricultural commissioners determine if a substantial adverse environmental impact will result from the proposed use of a restricted material. If the county agricultural commissioner determines that this is likely, the commissioner may deny the Use Permit or may issue it under the condition that site-specific use practices be followed (beyond the label and applicable regulations) to mitigate potentially adverse effects. DPR conducts scientific evaluations of potential health and environmental impacts and provides commissioners with information in the form of suggested permit conditions. DPR's suggested permit conditions reflect minimum measures necessary to protect people and the environment. County agricultural commissioners use this information and its evaluation of local conditions to set site-specific limits in permits.

C. Pesticide Applications

1. Insecticides

a. Immature Insect Treatments

CDFA applies pesticides to immature insect life stages as part of a complete eradication program that is triggered by an insect of significance found and submitted to the State Plant Pest Diagnostic Center. The CDFA Plant Pest Diagnostics Branch serves as a scientific resource, providing timely and accurate plant pest diagnostics and professional expertise. If USDA and the Animal and Plant Health Inspection Services require CDFA to submit samples, the National Identification Services collaborates with scientists who specialize in various plant pest groups, including weeds, insects, mites, snails and plant diseases. These scientists are stationed at a variety of institutions around the country, including federal research laboratories, plant inspection stations, land-grant universities, and natural history museums.

Pesticides used to control immature life stages are applied using foliar or soil treatment methods once an infestation is determined to exist. Treatment begins when an up to date Action Plan is in place. When a new insect pest is found and there is no Action Plan in place, treatment is held until the extent of infestation is determined, California registered chemicals are examined by qualified experts, and consultations are completed. Approved treatments do not begin until notification of local agencies, affected property owners, and cooperative partners has been made.

A contact insecticide can be applied from a low pressure system, equipped with a jet agitator in tank to ensure continuous mixing. Hydraulic spray equipment is fixed to treatment trucks. Currently, programs use fan type nozzle spray guns which are set at 90-100 pounds per square inch (psi) pressure. Product is applied to foliage of host trees at designated residential properties. The operator and spotter monitor and control spray coverage to ensure light coverage and that no there is no overspray on fences, adjacent yards, and personal items. Property owners are notified 24 hours in advance and appointments are made for properties with special needs. Personal items, fish ponds, bird feeders and pet items are covered or removed. Wind speed and weather conditions are monitored throughout the treatment. More than 50 percent chance of rain 48 hours prior to treatment will result in postponement of treatment as well as chance of high winds, or unstable weather conditions. Local officials are notified in case of public events that may warrant postponement of treatment.

Additionally, ground treatment may utilize hand spray equipment. Applicators use hand spray equipment when the hose cannot reach the host and/or when treatment requires ultra-low pressure. These hand sprayer treatments use non-motorized pump type backpack sprayers (Solo). In some instances, applicators also use motorized pump type backpack sprayers (Echo-USA) which are also low-pressure systems operated between 30-50 psi.

b. Mature Insect Treatments

Integrated pest management (IPM) is an ecological approach to managing pests that often provides economical long-term protection from pest damage and competition. Pest managers must understand pest history, growth and development of host, weather, visual observations, pest monitoring and cultural practices to determine appropriate pest management methods.

CDFA is primarily responsible for the early detection and prompt eradication of serious agricultural pests in California. An IPM approach addresses many of the problems associated with chemical pest control, resulting in less pesticide use and lower risks to human health and the environment. CDFA uses the most efficacious and environmentally friendly pesticides in their eradication program.

Generally, eradication is the only option for pests that are unacceptable at any level. Once pest monitoring confirms the need for eradication, agencies determine the geographical extent of pest infestation. CDFA then can begin measures to eliminate this pest from the defined area. Presence of adult insects is usually the first evidence of an infestation. To eradicate the adult insects, CDFA uses

practices which include: mechanical, cultural, sterile insect release, intensive monitoring, host-free periods, host-free areas, and other IPM methods. CDFA always considers the mode of pesticidal action and insect specificity including susceptible life stages.

For adult insects, CDFA may utilize the same foliar and soil treatments that they use for immature insects. Monitoring is essential to determine the presence of an adult population. Biologically, some insects go into diapauses during a season or may be at a stage inside the host foliage or fruit which can leave them protected from pesticide treatment. Trapping and visual survey can predict the presence of an adult population. Trapping is very effective for catching emergence of the first generation to emerge after diapauses. Visual survey includes observing for the pest and for insect damage.

Once the presence of an adult population is determined, CDFA uses foliar contact sprays. An example of a foliar program is the ACP program, which uses the hydraulic fixed mount spray equipment. The spray gun is a fan type nozzle set at approximately 90 to 100 psi pressure. In the event that a host cannot be reached, the program uses a motorized backpack sprayer that operates at 30 to 50 psi pressure.

For Fruit Fly Bait applications, diluting a bait concentrate a large droplet size of water four to six mm optimizes the length of attraction. The solution is viscous and is similar to sugar-based syrup in consistency. Fruit flies can detect the bait from several yards away. A foliar spray is applied as a spot spray inside the canopy at an application rate of undiluted product equals one to three ounces per tree (SLN CA-020018). Spray equipment consists of non-motorized, pump type, backpack sprayer (e.g. Solo) with very low pressure. Applicators monitor weather conditions that could result in drift to non-target areas and strictly enforce the BMPs. Drift is minimal due to droplet size.

Male attractant technique is another ground treatment that uses spot application for Bactrocera or Dacus fruit flies. The spot treatment is a mixture of methyl eugenol or cuelure, naled, and a thickening agent. This is applied to tree trunks, utility poles and similar structures out of reach of people. However, public exposure to naled and related residues as a result of its use in fruit fly eradication is negligible and well below levels of concern. This program is specific to the male as the target pest. The bait station attracts the male fruit fly which dies before mating with the female fruit fly. This treatment option disrupts the breeding cycle and eliminates the population. As California has used this approach for over 30 years, CDFA periodically reviews the literature for any updates or improvements to this technique. With

consultation from the Primary State Entomologist and a Technical Working Group, this option is currently still in use as an effective eradication tool for “Q” and “A” rated fruit fly pests.

Soil treatments are also used for adults. A systemic insecticide will be applied to the soil beneath the drip line of host plants. Currently, the systemic insecticide in use by the program works by fitting into the insect nerve receptors meant to receive the insect neurotransmitter acetylcholine.

2. Herbicides

Herbicides are effectively used to control invasive and noxious plants that threaten natural communities, rare species, high value sites, forested lands, recreational sites, parkways, public rights-of-way, riparian areas, vegetation under or adjacent to power transmission lines, and other situations. Applicators may spray herbicides onto the leaves or other vegetative plant structures of targeted weeds to kill the weed plant or may basally apply the herbicide or cut stump treat the targeted species and hollow-stem treatments. Applicators may use truck mounted spray rigs, all-terrain vehicles, backpack sprayer or other handheld low-pressure equipment to spray herbicides. Applicators may use aerial herbicide applications to private rangelands, usually in remote locations that are inaccessible. These applications use helicopters and are far from water sources. The applicators obtain licenses from the Federal Aviation Administration and certifications from DPR. Normal flight altitudes are well below 100 feet and most occur at 10 feet above the target weeds.

D. Annual Report Review

CDFA does not typically conduct spray applications that impact nearby surface water bodies. CDFA collected samples from sites where it applied pesticides near surface water bodies. Staff’s review of annual reports from 2011 through 2014 found that all constituent concentrations from post-event application samples were below receiving monitoring limitations.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in Section III of this Order. This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authorities

This Order is issued pursuant to section 402 of the CWA and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the California Water Code; commencing with § 13370). It shall serve as an NPDES permit for point source discharges of biological and residual pesticides to surface waters. This Order also serves as

waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with § 13260).

B. California Environmental Quality Act

Pursuant to California Water Code section 13389, State and Regional Water Boards are exempt from the requirement to comply with chapter 3, division 13 of the Public Resources Code when adopting NPDES permits.

C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plans

The Regional Water Boards have adopted water quality control plans (hereinafter Basin Plans) that designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters addressed through the plans. In addition, the Basin Plans implement State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plans identify typical beneficial uses as follows: municipal and domestic supply, agricultural irrigation, stock watering, process supply, service supply, hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater habitat, warm fish migration habitat, cold fish migration habitat, warm and cold spawning habitat, wildlife habitat, navigation, rare, threatened, or endangered species habitat, groundwater recharge, and freshwater replenishment.

Requirements of this Order implement provisions contained in the applicable Basin Plans.

2. National Toxics Rule and California Toxics Rule

U.S. EPA adopted the National Toxics Rule (NTR) on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About 40 criteria in the NTR applied in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

3. State Implementation Policy

On March 2, 2000, the State Water Board adopted the SIP. The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by U.S. EPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plans. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by U.S. EPA through the CTR.

The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy**

Section 131.12 of 40 C.F.R. requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plans implement, and incorporate by reference, both the state and federal antidegradation policies.

The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and Resolution 68-16. The conditions of this Order require biological and residual pesticide discharges to meet applicable water quality objectives. Specifically, the Order sets receiving water limitations for malathion to protect aquatic life from the toxic effects of malathion. The BMPs and other controls required pursuant to the Order constitute Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology.

The requirements in this Order are protective of the broad range of beneficial uses set forth in Basin Plans throughout the state, constituting best control available consistent with the purposes of the pesticide application in order to ensure that pollution or nuisance will not occur. The conditions also ensure maintenance of the highest water quality consistent with maximum benefit to the people of the state. The nature of pesticides is to be toxic in order to protect beneficial uses such as human health or long-term viability of native aquatic life. Lake Davis and Silver King Creek are examples of water bodies where the Department of Fish and Wildlife has used chemical pesticides to eradicate the Northern Pike and non-native trout, respectively. Application of pesticides may degrade waters of exceptional quality; however, it would only be temporary and in the best interest of the people of the state. While application of pesticides may temporarily degrade surface waters, it will not result in exceedance of water quality standards and objectives upon project completion.

Another example of the benefits of pesticide application and any temporary degradation of water quality occurring as a result is the Asian clam infestation in Lake Tahoe which may require the use of pesticides to eradicate the pest. The Asian clam is undesirable because it: (1) displaces native clams, snails, and other organisms living on the lake bottom, which

are important members of the lake's native food web; (2) fosters the growth of bright green algae, which change the look of the water, and smell when they decompose; and (3) could help foster an invasion of quagga mussels, another aggressive non-native species, by creating desirable habitat for them. Eradication of these species is important to protect beneficial uses, including habitat for native species, and water conveyance. Discharges in compliance with this permit will maintain existing levels of water quality over the long term.

Given the nature of a statewide NPDES permit and the broad range of beneficial uses to be protected across the state, data analysis of specific water bodies is infeasible. While surface waters may be temporarily degraded, water quality standards and objectives will not be exceeded. The nature of pesticides is to be toxic in order to protect human health. However, compliance with receiving water limitations is required. Therefore, this Order is consistent with state and federal antidegradation policies.

5. **Endangered Species Act**

This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§ 2050 et seq.) or the Federal Endangered Species Act (16 U.S.C. §§ 1531 et seq.). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. CDFA is responsible for complying with all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on Clean Water Act 303(d) List

Under section 303(d) of the 1972 CWA, states, territories, and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On June 26, 2015, U.S. EPA approved California's 2012 Water Quality Integrated Report and supporting documentation pursuant to CWA sections 303(d) and 305(b). The Basin Plans reference this list of Water Quality Limited Segments (WQLSs), which are defined as "…those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources

(40 C.F.R. §130.2(j))." The Basin Plans also state, "Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." Impaired waters do not support beneficial uses.

This Order does not authorize the discharge of biological and residual chemical pesticides or their degradation byproducts to waters of the U.S. that are impaired by pesticides used for spray applications due to the same product active ingredients or their degradation byproducts. California impaired waters, as approved by the State Water Board, are listed on http://gispublic.waterboards.ca.gov/webmap/303d_2012/files/2012_USEPA_approv_303d_List_Final_20150807.xlsx.

E. Delegation to the Executive Director

This Order covers the spray application of pesticides which are based on active ingredients that are currently registered by DPR for pest control using spray applications. When DPR registers a new active ingredient for pest control spray applications, this Order must be reopened to add the new active ingredient and its receiving water limitations to the Order before CDFA may begin using the active ingredient. In addition, when DPR registers a new active ingredient that is also a priority pollutant and the State Water Board added the new active ingredient to this Order, this Order may also be reopened to allow CDFA to obtain an exception from complying with receiving water limitations for the priority pollutant in accordance with SIP section 5.3. Furthermore, this Order may be reopened to allow CDFA to obtain an exception from complying with receiving water limitations for pollutants discharged into the Pacific Ocean in accordance with the California Ocean Plan. Amending this Order on a case-by-case basis is resource intensive for the State Water Board. Thus, this Order includes a delegation from the State Water Board to the Executive Director or his/her designee to amend this Order to add: (1) new active ingredients that have been newly registered by DPR for pesticide spray applications, and corresponding receiving water limitations; and (2) any requisite SIP and/or California Ocean Plan exception.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 C.F.R. 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to numeric criteria specifying maximum amounts of particular pollutants. Pursuant to 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." Section 122.44(d)(1)(vi)

of 40 C.F.R. further provides that "[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable state water quality standard, the permitting authority must establish effluent limits."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the U.S. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in 40 C.F.R.: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established.

With respect to narrative objectives, the State Water Board must establish effluent limitations using one or more of three specified sources: (1) U.S. EPA's published water quality criteria; (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria; or (3) an indicator parameter (i.e., 40 C.F.R. § 122.44(d)(1)(vi)(A), (B) or (C)). Basin Plans contain a narrative objective requiring that: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." Basin Plans require the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. Basin Plans state that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. Basin Plans also limit chemical constituents in concentrations that adversely affect surface water beneficial uses. Basin Plans further state that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than maximum contaminant levels.

A. Discharge Prohibitions

1. The discharge of biological and residual pesticides at a location or in a manner different from that described in the Findings is prohibited.
2. The discharge of biological and residual pesticides shall not create a nuisance as defined in section 13050 of the California Water Code.
3. The discharge shall not cause, have a reasonable potential to cause, or contribute to an in-stream excursion above any applicable criterion promulgated by U.S. EPA pursuant to section 303 of the CWA, or any water quality objective adopted by the State or Regional Water Boards.

B. Effluent Limitations

NPDES permits for discharges to surface waters must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require controls that use Best Available Technology Economically Achievable, Best Conventional Pollutant Control Technology, and any more stringent controls necessary to reduce pollutant discharge and meet water quality standards.

Title 40, C.F.R. section 122.44 states that if a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a numeric or narrative water quality criterion, the permitting authority must develop effluent limits as necessary to meet water quality standards. Section 122.44(k)(3) of 40 C.F.R. allows the use of other requirements such as BMPs in lieu of numeric effluent limits if the latter are infeasible. It is infeasible for the State Water Board to establish numeric effluent limitations in this Order because:

1. The application of pesticides is not necessarily considered a discharge of pollutants according to the *National Cotton Council of America v. U.S.* EPA 553 F.3d 927 (6th Cir. 2009) and other applicable case law. However, the Sixth Circuit Court of Appeals ruled that residual pesticides associated with the application of pesticides at, over, or near water constitute pollutants within the meaning of the CWA and that the discharge of such pollutants must be regulated under an NPDES permit;
2. This Order regulates biological and residual pesticides which are degradation byproducts or other pesticide ingredients that are present after the use of the pesticide for vector control. In larvicide applications, pesticides are applied directly to the water body and/or to vector larvae in the water or on the water surface and are not considered pollutants until sometime after actual discharge. In adulticide applications, any pesticide product or its degradation by-product that is deposited in waters of the U.S. is a pollutant. However, at what point the pesticide becomes a residue is not precisely known and varies depending on the type of spray system, wind speed and direction, temperature, droplet size distribution, droplet drift, water chemistry, etc. Therefore, in the application of pesticides, the exact effluent is unknown;
3. It would be impractical to provide effective treatment of biological and residual pesticides from vector control applications, given that typically, pesticide applications consist of numerous short duration intermittent pesticide residue releases to surface waters from many different locations; and
4. Treatment may render the pesticide useless for pest control. Therefore, the effluent limitations contained in this Order are narrative and include requirements to develop and implement a PAP that describes appropriate BMPs such as compliance with all pesticide label instructions. In addition, this Order requires compliance with: (a) narrative receiving water

limitations; (b) a numeric receiving water limitation for malathion; and (c) required actions if receiving water monitoring triggers are exceeded.

The BMPs required herein constitute Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology and are intended to: (1) minimize the area and duration of impacts caused by the discharge of biological and residual pesticides in the target area* and (2) allow for restoration of water quality and protection of beneficial uses of the receiving waters to pre-application quality following completion of an application event.

C. Best Management Practices

The development of BMPs provides the flexibility necessary to establish controls to minimize the area extent and duration of impacts caused by the discharge of pesticides. This flexibility allows dischargers to implement appropriate BMPs for different types of applications and different types of waters.

U.S. EPA, DPR, the California Department of Public Health, and county agricultural commissioners have incorporated much of the BMP development into the pesticide regulation process. CDFA must be licensed by DPR or the California Department of Public Health if such licensing is required for the pesticide application project. The pesticide use must be consistent with the pesticide label instructions and any Use Permits issued by county agricultural commissioners.

U.S. EPA and DPR scientists review pesticide labels to ensure that a product used according to label instructions will cause no harm (or “adverse impact”) on non-target organisms that cannot be reduced (or “mitigated”) with protective measures or use restrictions. Many of the label directions constitute BMPs to protect water quality and beneficial uses. Label directions may include: precautionary statements regarding toxicity and environmental hazards; directions for proper handling, dosage, application, and disposal practices; prohibited activities; spill prevention and response measures; and restrictions on type of water body and flow conditions.

A Use Permit issued by the county agricultural commissioner incorporates applicable suggested permit conditions from DPR and local site-specific conditions necessary to protect the environment. State regulations require that specific types of information be provided in an application to the county agricultural commissioners for a pesticide use permit. The county agricultural commissioners review the application to ensure that CDFA considered appropriate alternatives and that any potential adverse effects are mitigated. The county agricultural commissioners also conduct pre-project inspections on at least five percent of projects.

This Order requires that Dischargers use BMPs when implementing control programs in order to mitigate effects to water quality resulting from pesticide

applications. Dischargers are required to consider alternative control measures to determine if there are feasible alternatives to the selected pesticide application project that could reduce potential water quality impacts. If CDFA identifies alternative control measures to the selected pesticide application project that could reduce potential water quality impacts and that are also feasible, practicable, and cost-effective, CDFA shall implement the identified alternative measures. The selection of control measures that use non-toxic and less toxic alternatives is an example of an effective BMP.

1. CDFA General Best Management Practices for Spray Applications

   California's agricultural abundance includes more than 400 commodities. The state produces nearly half of U.S.-grown fruits, nuts, and vegetables. CDFA is tasked with protecting this food supply from the devastating impact of exotic pests and protecting the environment and natural resources from direct pest impacts and increased pesticide use. It is imperative that CDFA maintain a rapid response capability to quickly and safely protect California agriculture and the environment. The ability to act quickly in the event of an infestation allows for localized eradication programs with minimal pesticide use.

   The following general BMP guidelines have been developed by CDFA for spray applications. They will facilitate an optimal pesticide application and protect the natural environment by preventing off-site movement. These BMPs will prevent unintentional discharge to waters of the U.S.

   a. Conduct a site assessment.

      i. Identify the pest species to be treated. CDFA has compiled environmental impact reports for many pests of concern.

      ii. Take note of site conditions, such as soil texture, slope, irrigation or storm drains.

      iii. Identify and avoid streamside management areas and surface water to prevent chemicals not labeled for aquatic use from drifting over open water, or from accidentally being applied directly on the water.

      iv. Choose integrated pest management methods designed to minimize the scale and number of pesticide applications: integrating multiple measures such as quarantines, sterile release, host removal, bait stations or mass trapping. Programs use small quantities of materials.

      v. Choose the least persistent and lowest toxicity pesticide that will efficaciously treat the target pest.

   b. All equipment must be properly cleaned and calibrated to apply chemicals uniformly and in the correct quantities.

i. Calibrate spray equipment per manufactures specifications.

ii. Equipment screening tests and tank sampling.

iii. Dedicate specific equipment for specific products.

iv. Clean equipment regularly following the manufactures specifications and the pesticide label directions.

v. Select the appropriate nozzle to ensure proper coverage.

vi. Maintain an equipment log to track calibration, cleaning and repairs.

vii. Conduct visual inspection of equipment prior to use. Check all equipment for leaking hoses, connections and nozzles.

viii. Monitor the operation of the nozzles during the application.

ix. Request county agricultural commissioners pesticide use enforcement inspections of all programs.

x. DO NOT use any equipment that appears to be damaged.

xi. Discontinue use immediately in the event of an equipment malfunction.

xii. Staff are trained to clean up spills.

c. Follow pesticide label directions, regulations, or internal procedures, whichever is the most conservative.

i. Read pesticide label.

ii. Staff is trained to properly apply pesticide.

iii. Be aware of any regulations or internal procedures prior to application.

iv. Ensure that treatment is consistent with Integrated Pest Management for the pest and crop/location.

v. Use appropriate application methods and rates to minimize over application.

vi. Mix and load chemicals out of streamside areas, mix and load in areas where spills can be contained.

vii. Annual safety & endangered species training for all personnel mixing or applying pesticides.

viii. Annual search for MSDS and Label updates or revisions for materials used.

d. Apply chemicals only under favorable weather conditions.

i. Do not make spray applications if wind speeds are less than 3 miles per hour or over 10 miles per hour (limited to 5 miles per hour for BCTV program).

ii. Avoid spraying during stable (inversion) conditions (early morning and early evening) when there is little or no vertical mixing of the air. These conditions generate concentrated drift clouds and increase the chance of drift fallout.

iii. Check weather service prior to application and DO NOT make application if rain (50 percent chance or higher) is forecast 48 hours prior to an intended application.

iv. Monitor wind direction and do not spray when there are sensitive crops/areas immediately downwind.

v. Keep records of air temperature, wind speed, and wind direction for aerial applications.

e. Follow integrated pest management and drift reduction techniques.

i. Use buffer zones to protect sensitive areas, such as bodies of water, threatened and endangered “critical habitat” (as prescribed through Section 7 Consultations), and any other sensitive area.

ii. Use of spotters to avoid accidents and to aide in identifying buffer zones.

iii. Use low pressure application equipment.

iv. Use “bait station” application methods when possible over full coverage spray applications to avoid run off and or effects to non-target species.

v. Conduct spot treatment when applicable.

vi. Host plant manual removal.

vii. Solarization.

viii. Hold notices (quarantine).

f. Clean equipment and dispose of rinse water per label directions.

i. Rinse equipment according to manufacturer’s label instructions.

ii. Discharge rinse water only in areas that are part of the application site or at a certified waste treatment facility.

iii. Dispose of surplus chemical and containers according to label instructions.

D. Water Quality-Based Effluent Limitations

1. **Scope and Authority**

Section 122.44(d)(1)(i) of 40 C.F.R. mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) U.S. EPA criteria under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 C.F.R. § 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plans, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. **Receiving Water Beneficial Uses**

Spray applications for pest control may potentially deposit biological and residual pesticides to surface waters. Beneficial uses of receiving waters are as follows: municipal and domestic supply, agricultural irrigation, agricultural stock watering, process water supply, service water supply, and hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm and cold spawning habitat, wildlife habitat, navigation, groundwater recharge, and freshwater replenishment.

3. **Determining the Need for Water Quality-Based Effluent Limits**

a. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR, as well as antidegradation policies. The Basin Plans include numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." With regard to the narrative chemical constituent's objective, the Basin Plans state that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels in Title 22

of California Code of Regulations. The narrative tastes and odors objective states: “Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.”

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard.

4. **Antidegradation Policy**

The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. Due to the low volume of discharge expected from discharges regulated under this Order, the impact on existing water quality will be insignificant. CDFA must demonstrate compliance with receiving water limitations during the application. If, however, the appropriate Regional Water Board, subsequent to review of any application, finds that the impact of a discharge will be significant, then authorization for coverage under this Order will require further review (which may include preparation of an antidegradation analysis) and may require this Order to be reopened to impose additional controls to ensure compliance with water quality objectives.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS AND MONITORING TRIGGERS

A. Groundwater

[Not Applicable]

B. Surface Water

Clean Water Act (CWA) section 303(a-c), requires states to adopt water quality standards, including criteria necessary to protect beneficial uses. Regional Water Boards adopted water quality criteria as water quality objectives in the Basin Plans. The Basin Plans state that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plans include numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plans’ numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color,

temperature, floating material, settleable substances, suspended material, tastes and odors, and toxicity. This Order also requires compliance with any amendment or revision to the water quality objectives contained in the Basin Plans adopted by Regional Water Boards subsequent to adoption of this Order.

Once a pesticide has been applied to an application area, the pesticide product can actively control pests within the application area. The discharge of biological and residual pesticides from the spray applications to surface water must meet applicable water quality criteria and objectives. The receiving water limitations ensure that an application event does not result in an exceedance of a water quality standard in the receiving water. Receiving water is defined as any surface water or drainage courses where the pesticide may be deposited as a result of direct or spray applications.

To protect all designated beneficial uses of the receiving water, the most protective (lowest) and appropriate (to implement the CTR criteria and water quality objectives in the water quality control plans) limit should be selected as the water quality limit for a particular water body and constituent. In many cases, water quality standards include narrative, rather than numerical, water quality objectives. In such cases, numeric water quality limits from the literature or publicly available information may be used to ascertain compliance with these standards.

Pesticide formulations contain disclosed “active” ingredients that yield toxic effects on target organisms and may also have toxic effects on non-target organisms. Residual active ingredients that do not contain pollutants for which there are applicable numeric CTR criteria may still have toxic effects on receiving water bodies. In addition, the inactive or “inert” ingredients of pesticides, which are trade secrets and have not been publicly disclosed, may also contain toxic pollutants or pollutants that could affect water quality.

DPR is responsible for reviewing toxic effects of product formulations and determining whether a pesticide is suitable for use in California’s waters. In this Order, inert ingredients are also considered on a constituent-by-constituent basis. U.S. EPA regulates pesticide use through strict labeling requirements in order to mitigate negative impacts to human health and the environment, and DPR environmental and medical toxicologists review toxicity data on formulations and can deny registration or work with registrants or county agricultural commissioners to impose additional requirements in order to protect human health or the environment.

U.S. EPA and DPR require that pesticides undergo toxicity testing and meet specific toxicity requirements before registering the pesticide for application to surface waters. U.S. EPA has found that the application of properly registered pesticides poses a minimum threat to people and the environment. In addition, the effects of these pesticides on water quality will be mitigated through compliance with Federal Insecticide, Fungicide, and Rodenticide Act label requirements, application of best management practices, and monitoring.

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels set forth in Title 22, California Code of Regulations. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plans require the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

C. Receiving Water Limitation

This Order contains an instantaneous maximum receiving water limitation for malathion.

Malathion is an organophosphate insecticide that has been registered for use in the United States since 1956. It is used in agriculture, residential gardens, public recreation areas, and in public health pest control programs.

Malathion is used to kill adult pests. It can be applied by truck-mounted or aircraft-mounted sprayers.

Malathion is highly toxic to insects, including beneficial insects such as honeybees. For that reason, U.S. EPA has established specific precautions on the label to reduce such risks. Although it is less acutely toxic than other organophosphates, adverse health effects have been reported by exposed persons.

U.S. EPA has also refined its characterization of the potential risk from malaoxon, a more toxic compound that is formed from malathion under certain conditions. For example, malathion runoff and spray drift may reach drinking water sources downstream from where the malathion was used. Malathion present in untreated water will form malaoxon during the chlorination process in water treatment facilities. Malaoxon can also form more slowly when malathion is deposited on hard, dry surfaces and exposed to air over time. U.S. EPA's assessment shows that even when considering the presence of malaoxon on surfaces following applications of malathion, the relatively low application rates and small droplet sizes used in these types of applications result in minimal exposure to people in the treated area.

U.S. EPA has established an ambient water quality criterion of 0.1 µg/L both as a continuous concentration (four-day average) and instantaneous maximum concentration for the protection of freshwater aquatic life for malathion. U.S. EPA Aquatic Life Acute Benchmarks for freshwater fish and invertebrates are 0.295 µg/L and 0.005 µg/L, respectively. U.S. EPA Aquatic Life Chronic Benchmarks for freshwater fish and invertebrates are 0.014 µg/L and 0.000026 µg/L, respectively. U.S. EPA Aquatic Life Acute Benchmarks for nonvascular plants and vascular plants are 2,040 µg/L and 24,065 µg/L, respectively. The U.S. EPA Integrated Risk Information System Reference Dose as a drinking water level for malathion is 140 µg/L. The U.S. EPA Suggested-No-Adverse-Response-Level for toxicity other than cancer risk for malathion is 100 µg/L.

Under section 303(d) of the CWA, states, territories, and authorized tribes are required to develop a list of water quality limited segments. The waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires for waters on the list that priority rankings be established for the development of action plans, called Total Maximum Daily Loads (TMDLs), to improve the water quality. California impaired waters, as approved by the State Water Board, are listed on the GIS Public State Water Board webpage http://gispublic.waterboards.ca.gov/webmap/303d_2012/files/2012_USEPA_appr ov_303d_List_Final_20150807.xlsx. This Order does not authorize the discharge of residual malathion to the water bodies identified on the California 303(d) listing as impaired by malathion.

DPR collected water and sediment samples during the summer of 2003 for organophosphate and pyrethroid pesticides in the San Joaquin River Watershed (Stanislaus County) and Salinas River Watershed (Monterey County). The purpose of this study was to determine the presence of pyrethroid insecticides in water and bed sediments and the presence of organophosphate pesticides in water during the summer growing season. The Salinas and San Joaquin valleys were selected because they are important agricultural regions in California. Sampling sites were chosen on waterways whose flows are dominated by summer agricultural run-off. For Monterey County, malathion was detected in 17 of 64 samples with a maximum concentration of 0.544 µg/L, while 9 of 17 detected samples were reported as “trace,” which means the concentration was detected above the method detection limit (MDL) but below reporting limit (RL). The MDL and RL for malathion were reported at 0.0117 µg/L and 0.04 µg/L, respectively. For Stanislaus County, malathion was detected in 1 of 68 samples at a concentration of 0.0741 µg/L.

Based on the above information, this Order contains an Instantaneous Maximum Receiving Water limitation of 0.1 µg/L for malathion. This is because 0.1 µg/L is U.S. EPA promulgated water quality criterion per Clean Water Act section 304(a).

D. Receiving Water Monitoring Triggers

In pesticide applications for pest control, it is reasonable to conclude that some biological and residual pesticides will be deposited in surface waters and may cause toxicity to aquatic life. However, information regarding biological and residual pesticides deposited in the receiving water as a result of spray applications is not adequate to develop receiving water limitations for individual and combinations of pesticides; therefore, this Order only contains Receiving Water Monitoring Triggers. The monitoring triggers will be used to assess compliance with the narrative toxicity receiving water limitation and initiate additional investigations for the causes of toxicity from pesticides used and their additive or synergistic effects. This Order includes an Instantaneous Maximum Receiving Water Monitoring Trigger for residual pesticides of concern.

The Instantaneous Maximum Receiving Water Monitoring Triggers are based on promulgated water quality criteria such as those provided in the CTR, water quality objectives adopted by the State and Regional Water Boards in their water quality control plans, water quality criteria adopted by the California Department of Fish and Wildlife, or water quality standards such as drinking water standards adopted by the California Department of Public Health. In the absence of these adopted criteria, objectives, or standards, the State Water Board used U.S. EPA's Ambient Criteria for the Protection of Freshwater Aquatic Life (Ambient Water Quality Criteria) which are directly applicable as a regulatory measure to implement narrative toxicity limitations included in all Regional Water Board Basin Plans. Where ambient water quality criteria are unavailable in addition to adopted criteria, objectives, or standards, the State Water Board used data from the Ecotoxicity Database to develop the Receiving Water Monitoring Triggers for individual pesticides and combinations of pesticides to protect all beneficial uses of the receiving water. In most, if not all cases, protection of the most sensitive aquatic life in receiving water provides protection of all beneficial uses of that receiving water.

For constituents that do not have ambient water quality criteria, the Instantaneous Maximum Receiving Water Monitoring Trigger is based on one-tenth of the lowest 50 Percent Lethal Concentration (LC50) from the Ecotoxicity Database. Using one-tenth of the lowest LC50 as the receiving water monitoring trigger is consistent with the Central Valley Regional Water Board’s Basin Plan approach when developing the Daily Maximum limitation for pesticides that do not have water quality criteria.

The following is a detailed discussion of ecotoxicity data, applicable water quality criteria, if available, and Receiving Water Monitoring Triggers, if required, for: acetamiprid, aminopyralid, Btk, carbaryl, chlorsulfuron, clopyralid, cyfluthrin, dinotefuran, glyphosate, imazapyr, imidacloprid, malathion, naled, nuclear polyhedrosis virus (NPV), pheromone, pyrethrins, spinosyn A and D, triclopyr butoxyethyl ester (BEE) and TEA. This Order may be reopened to add

receiving water limitations if the monitoring results show exceedance of the monitoring triggers.

1. Insecticides

a. Microbial Insecticides

Microbial larvicides are bacteria or viruses that are registered as pesticides for control of invasive insect larvae. Duration of effectiveness depends primarily on the species, the environmental conditions, and the formulation of the product. Microbial insecticides may be used along with other control measures in an Integrated Pest Management (IPM) program. The microbial insecticides used for invasive insect control are Btk, NPV, and spinosyn A and D.

i. Bacillus Thuringiensis Kurstaki

Btk acts by producing proteins that react with the cells of the gut lining of susceptible insects. The Btk proteins paralyze the digestive system, and the infected insect stops feeding within hours. Btk affected insects generally die from starvation, which can take several days.

According to the U.S. EPA website, (http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet_006452.htm#description) the risk of Btk is minimal to nonexistent to non-target organisms including endangered species except endangered insect species. A label limitation to terrestrial use was necessary since 1) an aquatic risk level of concern was triggered for endangered species based on the freshwater aquatic invertebrate study, and 2) only one freshwater fish species was tested and minimal toxicity was observed.

Based on the above information from U.S. EPA, this Order does not include a Receiving Water Monitoring Trigger and does not require monitoring for Btk.

ii. Nuclear Polyhedrosis Virus

The NPV belongs to a subgroup of Baculoviruses, a virus that affects insects, predominantly moths and butterflies. It is an active ingredient in biological pesticides, such as TM Biocontrol, for crops infested by insects, such as Douglas-fir tussock moth that are susceptible to contraction.

Baculoviruses are pathogens that attack insects and other arthropods. Like some human viruses, they are usually extremely small (less than a thousandth of a millimeter across), and are composed primarily of double-stranded DNA that codes for genes needed for virus establishment and reproduction. Because exposure to sunlight or conditions in the host's gut can easily

destroy this genetic material, an infective baculovirus particle (virion) is protected by protein coat called a polyhedron. Most insect baculoviruses must be eaten by the host to produce an infection, which is typically fatal to the insect.

The majority of baculoviruses used as biological control agents are in the genus NPV, so "baculovirus" or "virus" refers to nucleopolyhedroviruses. These viruses are excellent candidates for species-specific, narrow spectrum insecticidal applications. Studies show that they have no negative impacts on plants, mammals, birds, fish, or even on non-target insects. This is especially desirable when beneficial insects are being conserved to aid in an overall IPM program, or when an ecologically sensitive area is being treated. The USDA Forest Service in California currently uses the Douglas-fir tussock moth (Orgyia pseudotsugata) nuclear polyhedrosis viruses, also referred to asOpNPV). This product, registered as TM Biocontrol, is effective against Douglas-fir tussock moths, but leaves all other animals unharmed, see the Cornell website for details (http://www.nysaes.cornell.edu/ent/biocontrol/pathogens/baculoviruses.html#references).

According to U.S. EPA re-registration, the NPV has low acute toxicity to human with the exception of eye irritation. The aerial applications of NPV to forest ecosystems to control Douglas-fir tussock moth can be expected to result in exposure to a wide variety of birds, mammals, fish, aquatic invertebrates, and non-target insects. However, submitted studies, scientific literature and twenty years of use of NPV as active ingredient in bio-pesticides for controlling Douglas-fir tussock moth indicate no adverse effects on non-target wildlife, including endangered species. Based on the above information from U.S. EPA, this Order does not include a Receiving Water Monitoring Trigger and does not require monitoring for NPV.

iii. Spinosad

Spinosad is a biologically derived insecticide produced via fermentation culture of the actinomycete Saccharopolyspora spinosa, a bacterial organism isolated from soil. It is composed of a mixture of two members of the chemical class of 12-membered macrocyclic lactones in a unique tetracyclic ring. Each component, designated spinosyn A and spinosyn D, is an unsaturated tetracyclic ester with two sugar derivatives (forosamine and rhamnose sugars) attached through ether linkages. Spinosyn A and D are identical in structure except for an additional methyl group on the core macrolide of spinosyn D.

Technical grade spinosad is a light gray to white crystalline solid with an odor of slightly stale water.

Spinosad is a naturally occurring insecticide. It activates the central nervous system of insects through interaction with the nicotinic acetylcholine receptors. Immediately after application, insect pests exhibit irreversible tremors, prostrate trembling, paralysis, and death.

It is stable to metal and metal ions for 28 days, degrades under ultra-violet light, and is non-phytotoxic when used as directed. It is non-explosive, non-reactive toward monoammonium phosphate, zinc, and water, and reactive toward potassium permanganate. Spinosad is soluble in water, and soluble in common organic solvents such as acetone, acetonitrile, methanol, and toluene. Spinosad is relatively short-lived in the field and photodegrades rapidly. Its half-life* is less than one day.

U.S. EPA determined that spinosad does not leach, bioaccumulate, volatilize, or persist in the environment. Spinosad will degrade photochemically when exposed to light after application. Because spinosad strongly adsorbs to most soils, it does not leach through soil to groundwater. Spinosad demonstrates low mammalian and avian toxicity and does not pose long-term health problems in mammals. In addition, a low potential for acute toxicity exists due to low oral, dermal, and inhalation toxicity from the use of spinosad.

Spinosad is the winner of both 1999 and 2010 Designing Greener Chemicals Award. This award promotes pollution prevention through partnerships with the chemistry community. Through high level recognition and support, the award promotes innovative developments in and uses of green chemistry for pollution prevention. U.S. EPA's Office of Pollution Prevention and Toxics is leading this voluntary partnership program with other U.S. EPA offices, other federal agencies, and members of the chemical industry, trade associations, scientific organizations, and academia.

Based on the above considerations, this Order does not contain a Receiving Water Monitoring Trigger and does not require monitoring for spinosad.

iv. Light Brown Apple Moth Pheromone Blend and European Grapevine Moth Pheromone Blend

Light Brown Apple Moth (LBAM) and Grapevine Moth (EGVM) pheromone blends consist of two synthetic straight chained lepidopteran pheromones (SCLPs). Lepidoptera is a large order

of insects that includes moths and butterflies. The SCLPs are pheromones (including identical or substantially similar synthetic compounds) produced by a member in the order Lepidoptera.

The LBAM and EGVM pheromone blends are used to disrupt the mating by a non-toxic mode of action.

According to 40 C.F.R. section 158.2050, toxicology and environmental data for SCLP manufacturing products are not required. In addition, 40 C.F.R. section 158.2060 states that toxicology and environmental data requirements for end use products are greatly reduced.

U.S. EPA's review during the SCLP product registration process confirmed that no risks to human health are expected from the use of SCLPs based on the low toxicity in animal testing and the expected low exposure to humans. Furthermore, adverse effects on non-target organisms are not expected because these pheromones are released in very small quantities in the environment and act on a select group of insects, such as LBAMs. Appropriate precautionary labeling of end use products will further minimize potential exposure and mitigate risk to non-target organisms. Based on the above considerations, this Order does not contain a Receiving Water Monitoring Trigger and does not require monitoring for LBAM or EGVM pheromone blend.

b. Organophosphate Insecticides

The receiving water monitoring trigger for each constituent below is based on the Basin Plans' narrative toxicity objective of no toxics in toxic amounts. The trigger is only applicable to spray applications.

i. Naled

Naled is an organophosphate insecticide registered in 1959 for use in the United States to control adult mosquitoes, but naled is also used on food and feed crops and in greenhouses.

Toxicity data for naled were obtained from the Ecotoxicity Database to assess toxicity of naled to freshwater aquatic life. Table D-1 summarizes toxicity data for naled.

Table D- 1: Summary of Toxicity Data for Naled (CAS# 300-76-5)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1971	1200
Bluegill Sunfish	96 h	1986	1200
Bluegill Sunfish	96 h	1986	4000
Bluegill Sunfish	96 h	1986	2200
Bluegill Sunfish	96 h	1986	240
Fathead Minnow	96 h	1986	3300
Mysid	96 h	1993	8.8
Rainbow Trout	96 h	1969	160
Rainbow Trout	96 h	1977	215
Rainbow Trout	96 h	1986	195
Rainbow Trout	96 h	1986	345
Rainbow Trout	96 h	1986	900
Rainbow Trout	96 h	1986	340
Rainbow Trout	96 h	1986	130
Scud	48 h	1969	0.14
Scud	96 h	1972	14
Scud	96 h	1986	18
			Lowest LC50/10 = 0.014

Ambient Water Quality Criteria are unavailable for naled. Table D-1 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for naled is 0.014 µg/L.

Therefore, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 0.014 µg/L based on one-tenth of the lowest LC50 from the Ecotoxicity Database.

ii. Pyrethrin

Pyrethrin is an insecticide that is derived from the extract of chrysanthemum flowers. Pyrethrins have a soil half-life of 12 days. The plant extract called pyrethrum contains pyrethrin I and pyrethrin II; collectively called pyrethrins.

A study from UC Berkeley (Aquatic Effects of Aerial Spraying for Mosquito Control over an Urban Area, Weston, et al., Environ. Sci. Technol. 2006, 40, 5817-5822) on aquatic effects of aerial spraying for adult mosquito control found that a few hours after spraying, 35 percent of the water samples contained measurable pyrethrin residues (up to 3.8 µg/L), but pyrethrin was not detected in any water sample collected before or 10 to 34 hours after spraying. Water sampling results were similar to that conducted by the local mosquito control district in which none of 14 water samples was detected with pyrethrin prior to spraying. Pyrethrin was not detected in any sediment sample in two creeks before spraying for which pre-spray data were available; however, sediments in these two creeks were found to contain pyrethrin at a maximum concentration of 372 µg/kg immediately following the aerial application (eight days later). This study was conducted to evaluate effects of mosquito control agents on aquatic life within an urban setting due to aerial applications of insecticide containing pyrethrin and the synergist piperonyl butoxide over Sacramento in an effort to combat West Nile virus in 2005.

Toxicity data for pyrethrin were obtained from the Ecotoxicity Database to assess toxicity of pyrethrin to freshwater aquatic life. Table D-2 summarizes toxicity data for pyrethrin.

Table D- 2 Summary of Toxicity Data for Pyrethrin (CAS#8003-34-7)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1976	49
Bluegill Sunfish	96 h	1986	104
Bluegill Sunfish	96 h	1986	41
Bluegill Sunfish	96 h	1994	10
Fathead Minnow	96 h	1986	74
Mysid	96 h	1994	1.4
Rainbow Trout	96 h	1976	68
Rainbow Trout	96 h	1986	20
Rainbow Trout	96 h	1994	5.1
Rainbow Trout	96 h	1994	3.2
Scud	96 h	1986	1.4
			Lowest LC50/10 = 0.014

Ambient Water Quality Criteria are unavailable for pyrethrin. Table D-2 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for pyrethrin is 0.14 µg/L. Therefore, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 0.14 µg/L based on one-tenth of the lowest LC50 from the Ecotoxicity Database.

iii. Cyfluthrin

Cyfluthrin is a synthetic pyrethroid derivative. Like most pyrethroids, cyfluthrin is highly toxic to fish. Technical-grade cyfluthrin consists of a mixture of four diastereomeric pairs of enantiomers, consisting of two cis and two trans isomeric pairs. Beta-cyfluthrin consists of two diastereoisomeric pairs, which are the biologically active isomers of cyfluthrin. They are contained in cyfluthrin at a level of about 40 percent.

U.S. EPA first registered cyfluthrin in 1987. Same as pyrethrins and pyrethroid, cyfluthrin act on tiny channels through which

sodium is pumped to cause excitation of neurons and eventual death of the insect. Cyfluthrin is used to control chewing and sucking insects such as cutworms, ants, silverfish, cockroaches, termites, grain beetles, mosquitoes, fleas, flies, etc.

Cyfluthrin is highly toxic to marine and freshwater organisms. Cyfluthrin is broken down quickly in surface water. Because it is relatively non-soluble and less dense than water, it will float on the surface film of natural waters. At the surface, it is subject to breakdown by exposure to sunlight (one day). With low water solubility and a high Soil Organic Carbon-Water Partitioning Coefficient, cyfluthrin has a strong tendency to absorb to soil and sediments. Although cyfluthrin displays high aquatic toxicity in laboratory studies, the tendency to sorb strongly to suspended sediment and dissolved organic materials in field aquatic systems probably reduces cyfluthrin's bioavailability, hence cyfluthrin's aquatic toxicity. However, the extent to which bioavailability is mitigated and the aquatic toxicity of a hydrophobic pyrethroid is reduced in the water column or in sediments is uncertain.

Toxicity data for cyfluthrin were obtained from the Ecotoxicity Database to assess toxicity of cyfluthrin to freshwater aquatic life. Table D-3 summarizes toxicity data for cyfluthrin.

Table D- 3 Summary of Toxicity Data for Cyfluthrin (CAS# 68359-37-5)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1983	1.5
Bluegill Sunfish	96 h	1989	0.87
Bluegill Sunfish	96 h	1991	0.28
Bluegill Sunfish	96 h	1994	0.566
Bluegill Sunfish	96 h	1994	0.998
Fathead Minnow	307 day	1990	0.25
Mysid	96 h	1985	0.00637
Mysid	96 h	1987	0.00242
Mysid	96 h	1994	0.0022
Mysid	96 h	1994	0.0023
Rainbow Trout	96 h	1983	0.068
Rainbow Trout	96 h	1988	0.085
Rainbow Trout	96 h	1989	0.3
Rainbow Trout	96 h	1991	0.068
Rainbow Trout	96 h	1994	0.209
Rainbow Trout	96 h	1994	0.111
Rainbow Trout	96 h	1994	0.302
			Lowest LC50/10 = 0.014

Ambient Water Quality Criteria are unavailable for cyfluthrin. Table D-3 above shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for cyfluthrin is 0.00022 µg/L.

Therefore, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 0.00022 µg/L based on the lowest one-tenth LC50 from the Ecotoxicity Database.

iv. Carbaryl

Carbaryl (1-naphthyl methylcarbamate) is a chemical in the carbamate family used chiefly as an insecticide. Carbaryl is the active ingredient for insecticide with the trade name Sevin, which controls over 100 species of insects on citrus, fruit, cotton, forests, lawns, nuts, ornamentals, shade trees, and other crops, as well as on poultry, livestock and pets. It is highly toxic to honey bees and many other beneficial insects and mites.

Degradation of carbaryl in the soil is mostly due to sunlight and bacterial action. Carbaryl bounds with organic matters and can be transported to surface water in soil through runoff. Carbaryl has a half-life of 7 days in aerobic soil and 28 days in anaerobic soil. In pond water, carbaryl is broken down by bacteria through chemical processes. Carbaryl has a half-life of from 1 to 32 days in pond water.

Carbaryl's mode of action is by disrupting the normal functions of the insect nervous system by adding a carbamoyl moiety to the active site of the acetylcholinesterase enzyme, which prevents it from interacting with acetylcholine.

U.S. EPA has a national recommended water quality criterion for freshwater aquatic life protection of instantaneous maximum value of 0.2 µg/L for carbaryl. However, this criterion is from a 1973 U.S. EPA reference, and it does not appear in the current list of recommended criteria published by U.S. EPA. U.S. EPA also has a recommended criterion for freshwater aquatic life protection maximum and continuous of 2.53 µg/L derived by the California Department of Fish and Wildlife.

This Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 2.53 µg/L based on the California Department of Fish and Wildlife criterion.

c. Neonicotinoids

i. Acetamiprid

Acetamiprid is an active ingredient in insecticides for control of sucking-type insects on leafy vegetables, fruiting vegetables, cole crops, citrus fruits, pome fruits, grapes, cotton, and ornamental plants and flowers. It was registered in 2002.

Acetamiprid belongs to a new class of insecticides called neonicotinoids, which have different effects from other insecticides. Neonicotinoids act as selective agonists at the nicotinic acetylcholine receptors, therefore, their toxicity is higher to insect pests than to humans.

Toxicity data for acetamiprid were obtained from the Ecotoxicity Database to assess toxicity of acetamiprid to freshwater aquatic life. Table D-4 summarizes toxicity data for acetamiprid.

Table D- 4 Summary of Toxicity Data for Acetamiprid (CAS# 135410-20-7)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1997	>119,300
Mysid	96 h	1997	19,000
Mysid	96 h	1998	66
Rainbow Trout	96 h	1997	>100,000
Rainbow Trout	96 h	1998	>98,100
Sheepshead Minnow	96 h	1998	100,000
			Lowest LC50/10 = 6.6

Ambient Water Quality Criteria are unavailable for acetamiprid. Table D-4 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for acetamiprid is 6.6 µg/L.

Therefore, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 6.6 µg/L based on the lowest one-tenth of LC50 from the Ecotoxicity Database.

ii. Dinotefuran

Dinotefuran is the active ingredient of a broad-spectrum insecticide that belongs to neo-nicotinoid insecticide. Dinotefuran is used to control insect pests such as aphids, whiteflies, thrips, etc. in leafy vegetables, residential and commercial buildings, golf courses, lawn and gardens. This insecticide is applied by soil incorporation, foliar application, bait application, and spot treatment. Foliar application can be made aerially or with tractor-mounted sprayers or spreaders, as well as handheld equipment such as low-pressure hand wand sprayers, backpack sprayers, turf guns, ready-to-use trigger sprayers, and hose-end sprayers.

Dinotefuran has a high water partition coefficient, which suggests that it is highly water soluble, but has a low potential for fish bioaccumulation. The available studies on dinotefuran are limited. According to a U.S. EPA Pesticide Fact Sheet for dinotefuran, it is practically nontoxic on an acute basis to freshwater and estuarine or marine fish (LC50 > 99.3 ppm), as well as freshwater

invertebrates (50 percent Effective Concentration or EC50 > 968.3 ppm). However, since an estuarine or marine chronic study was not submitted for this compound, the chronic risk to estuarine invertebrates is uncertain. The saltwater toxicity studies in mysids and oysters were all conducted at several concentrations. The study in mysid shrimp, however, reports substantial and concentration-related mortality, and the LC50 with 95 percent confidence intervals is 0.79 (0.49-1.0) mg/L. Based on this study, U.S. EPA/OPP (2004f, p. 20) classifies dinotefuran as highly toxic to shrimp.

Toxicity data for dinotefuran were obtained from the Ecotoxicity Database to assess toxicity of dinotefuran to freshwater aquatic life. Table D-5 summarizes toxicity data for dinotefuran.

Table D- 5 Summary of Toxicity Data for Dinotefuran (CAS#165252-70-0)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1997	>119,300
Mysid	96 h	1997	19,000
Mysid	96 h	1998	66
Rainbow Trout	96 h	1997	>100,000
Rainbow Trout	96 h	1998	>98,100
Sheepshead Minnow	96 h	1998	100,000
			Lowest LC50/10 = 6.6

Ambient water quality criteria are unavailable for dinotefuran. Table D-5 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for dinotefuran is 79 µg/L.

Therefore, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 79 µg/L based on the lowest one-tenth of LC50 from the Ecotoxicity Database

iii. Imidacloprid

Imidacloprid is a neonicotinoids, which are a class of insecticides that act on the central nervous system of insects with lower toxicity to mammals. Neonicotinoids are among the most widely used insecticides worldwide. In insects, neonicotinoids cause paralysis which leads to death, often within a few hours. However, they are much less toxic to mammals.

Imidacloprid is a systemic, chloronicotinyl insecticide for the control of sucking insects including rice hoppers, aphids, thrips, whiteflies, termites, turf insects, soil insects and some beetles. It is most commonly used on rice, cereal, maize, potatoes, vegetables, sugar beets, fruit, cotton, hops and turf, and is especially systemic when used as a seed or soil treatment.

Toxicity data for imidacloprid were obtained from the Ecotoxicity Database to assess toxicity of imidacloprid to freshwater aquatic life. Table D-6 summarizes toxicity data for imidacloprid.

Table D- 6 Summary of Toxicity Data for Imidacloprid (CAS# 138261-41-3)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1990	>105,000
Mysid	96 h	1990	38
Mysid	96 h	1992	159
Rainbow Trout	96 h	1988	229,100
Rainbow Trout	96 h	1990	>83,000
Amphipod/Scud	48 h	1991	115.3
Amphipod/Scud	96 h	1991	55
Sheepshead Minnow	96 h	1990	163,000
			Lowest LC50/10 = 3.8

Ambient Water Quality Criteria are unavailable for imidacloprid. Table D-6 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for imidacloprid is 3.8 µg/L.

Therefore, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 3.8 µg/L based on the lowest one-tenth of LC50 from the Ecotoxicity Database.

2. Herbicides

The receiving water monitoring trigger for each constituent below is based on the Basin Plans' narrative toxicity objective of no toxics in toxic amounts. The trigger is only applicable to spray applications using herbicide products containing the following active ingredients.

a. Aminopyralid

Aminopyralid acts as a pyridine carboxylic acid herbicide like clopyralid, which is intended for use in rangeland, permanent grass pastures, non-cropland areas (rights-of-way, roadsides and non-irrigation ditch banks), natural areas, such as wildlife management areas, natural recreation areas, campgrounds, trailheads, trails, and grazed area. Aminopyralid is a growth regulator herbicides which selectively controls broadleaf weeds in grasses.

In aquatic systems, the primary route of degradation is photolysis, where a laboratory experiment yielded a half-life of 0.6 day. Carbon dioxide and oxamic and malonamic acid were identified as major degradates. Aminopyralid was stable to direct hydrolysis and in anaerobic sediment-water systems. In aerobic sediment-water systems, degradation preceded slowly, with observed total system half-lives of 462 to 990 days. Under aerobic conditions, degradation of aminopyralid in five different soils resulted in the production of CO2 and non-extractable residues. Half-lives ranged from 31.5 to 533.2 days in five soils. For risk assessment purposes, U.S. EPA used a half-life of 103.5 days.

According to a U.S. EPA Pesticide Fact Sheet for aminopyralid, it is practically non-toxic to birds, fish, honeybees, earthworms, and aquatic invertebrates. Aminopyralid is slightly toxic to eastern oyster, algae and aquatic vascular plants. The log Kow is less than three and, thus, aminopyralid is not expected to bioaccumulate in fish tissue.

There are no acute or chronic risks to non-target endangered or non-endangered fish, birds, wild mammals, terrestrial and aquatic invertebrates, algae or aquatic plants.

Toxicity data for aminopyralid were obtained from the Ecotoxicity Database to assess toxicity of aminopyralid to freshwater aquatic life. Table D-7 summarizes toxicity data for aminopyralid.

Table D- 7 Summary of Toxicity Data for Aminopyralid (CAS#150114-71-9)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	2003	>100,000
Mysid	96 h	2002	>100,000
Rainbow Trout	96 h	2001	>100,000
Sheepshead Minnow	96 h	2002	>120,000

Ambient Water Quality Criteria are unavailable for aminopyralid. Table D-7 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for aminopyralid is 10,000 µg/L.

Due to its safe use in the environment, low or no toxicity to aquatic life as indicated in the Ecotoxicity Database and reports by U.S. EPA, this Order does not have a monitoring trigger for aminopyralid. However, because it is slightly toxic to certain aquatic life and plants, this Order requires monitoring when an aminopyralid-containing product is used.

b. Chlorsulfuron

Chlorsulfuron is an active ingredient in herbicide products used as a pre- and post-emergent herbicide to control a variety of weeds on cereal grains, pasture and rangeland, industrial sites, and turf grass. Chlorsulfuron was first registered in the United States in 1982 by E.I. du Pont de Nemours and Company.

Chlorsulfuron is likely to be persistent and highly mobile in the environment. It may be transported to non-target areas by runoff and/or spray drift. Degradation by hydrolysis appears to be the most significant mechanism for degradation of chlorsulfuron, but is only significant in acidic environments (23 day half-life at pH = 5); it is stable to hydrolysis at neutral to high pH. Degradation half-lives in soil environments range from 14 to 320 days.

U.S. EPA concluded in the chlorsulfuron Registration Eligibility Decision that it is practically nontoxic to both freshwater and estuarine/marine fish on an acute exposure basis and is slightly toxic to estuarine/marine invertebrates.

Toxicity data for chlorsulfuron were obtained from the Ecotoxicity Database to assess toxicity of chlorsulfuron to freshwater aquatic life. Table D-8 summarizes toxicity data for chlorsulfuron.

Table D- 8 Summary of Toxicity Data for Chlorsulfuron (CAS#64902-72-3)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1979	>300,000
Fathead Minnow	96 h	1979	>300,000
Mysid	96 h	1991	89,000
Rainbow Trout	96 h	1979	>250,000
Sheepshead Minnow	96 h	1991	>980,000
			Lowest LC50/10 = 8900

Ambient Water Quality Criteria are unavailable for chlorsulfuron. Table D-8 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for chlorsulfuron is 8,900 µg/L.

Due to chlorsulfuron's almost nonexistent toxicity to freshwater and estuarine/marine fish according to U.S. EPA, this Order does not have a monitoring trigger for chlorsulfuron. However, due to chlorsulfuron's slight toxicity to estuarine/marine invertebrates, this Order requires monitoring when a chlorsulfuron-containing product is used.

c. Clopyralid

Clopyralid is active ingredient used in herbicide, such as Transline, recommended for control of selective, post-emergent broad leaf weeds in non-cropland areas including equipment pathways, industrial manufacturing and storage sites, and rights-of-way such as along roadsides, electrical lines, and railroads.

Toxicity data for clopyralid were obtained from the Ecotoxicity Database to assess toxicity of clopyralid to freshwater aquatic life. Table D-9 summarizes toxicity data for clopyralid.

Table D- 9 Summary of Toxicity Data for Clopyralid (CAS#57754-85-5)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1978	125,400
Bluegill Sunfish	96 h	1986	4,686,000
Fathead Minnow	96 h	1986	>2,900,000
Rainbow Trout	96 h	1978	103,500
Rainbow Trout	96 h	1986	1,968,000
			Lowest LC50/10 = 10,350
	Monitoring trigger after considering both active and the inert ingredients	2,784	

Ambient Water Quality Criteria are unavailable for clopyralid. Table D-9 shows that the lowest one-tenth of LC50 (LC50/10) to protect the most sensitive freshwater aquatic life for clopyralid is 10,350 µg/L.

However, the product Transline Herbicide contains an inert ingredient with an LC50/10 value lower than 10,350 µg/L. To be protective of aquatic life in the receiving water, the monitoring trigger for clopyralid must consider the lowest values of LC50/10 in both the active and inert ingredients and their percentages in the product. Thus, this Order contains a calculated value for Instantaneous Maximum Receiving Water Monitoring Trigger of 2,784 µg/L for clopyralid when Transline Herbicide is used.

d. Glyphosate

Glyphosate is a broad-spectrum, non-selective systemic herbicide. It is useful on essentially all annual and perennial plants including grasses, sedges, broad-leaved weeds and woody plants. It can be used on non-cropland and among a great variety of crops.

Glyphosate is usually formulated as an isopropylamine salt. Considerable research has shown that glyphosate inhibits an enzyme pathway, preventing plants from synthesizing three aromatic amino acids. These amino acids are essential for growth and survival of most plants.

U.S. EPA has promulgated a primary maximum contaminant level of 700 µg/L for glyphosate for protection of drinking water sources or water bodies with an MUN designation. This number is protective of all beneficial uses in the receiving water. Thus, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 700 µg/L based on U.S. EPA's primary maximum contaminant level.

e. Imazapyr

The active ingredient, imazapyr, is marketed in compounds by the trade names, Arsenal, Chopper, and Assault. Upon contact, imazapyr can interfere with DNA synthesis and cell growth of the plants. The target weed species are grasses, broadleaves, vines, brambles, shrubs and trees, riparian and emerged aquatics. The result of exposure is death of new leaves. It was first registered in the United States in 1984.

Imazapyr is a slow-acting amino acid synthesis inhibitor. It has an average water half-life of four days with photodegradation as the primary form of degradation in water. Imazapyr acts quicker and is less toxic than other low-volume herbicides. According to the San Francisco Estuary Invasive Spartina Project's May 4, 2005 report titled Use of Imazapyr Herbicide to Control Invasive Cordgrass (Spartina spp.) in the San Francisco Estuary, imazapyr in water rapidly degrades via photolysis. The report further states that a number of field studies demonstrated that imazapyr rapidly dissipated from water within several days, and no detectable residues of imazapyr were found in either water or sediment within two months; and in estuarine systems, dilution of imazapyr with the incoming tides contributes to its rapid dissipation, suggesting that imazapyr is not environmentally persistent in the estuarine environment and does not result in significant impacts to water quality. The report concludes that imazapyr herbicides can be a safe, highly effective treatment for control and eradication of non-native Spartina species in the San Francisco Estuary and offers an improved risk scenario over the existing treatment regime with glyphosate herbicides. On August 30, 2005, DPR registered imazapyr for aquatic application in aquatic pesticides.

Toxicity data for imazapyr were obtained from the Ecotoxicity Database to assess toxicity of imazapyr to freshwater aquatic life. Table D-10 summarizes toxicity data for clopyralid.

Table D- 10 Summary of Toxicity Data for Imazapyr (CAS#81334-34-1)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Water Flea	48 h	1983	N/A
Water Flea	21 d	1988	N/A
Rainbow Trout	96 h	1983	>100,000
Rainbow Trout	96 h	1995	>110,000
			Lowest LC 50/10 = 10,000

Ambient Water Quality Criteria are unavailable for imazapyr. Table D-10 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for imazapyr is 10,000 µg/L.

Due to its safe use in the environment, low toxicity to aquatic life as indicated in the Ecotoxicity Database and a report by the San Francisco Estuary Invasive Spartina Project, this Order does not have a monitoring trigger for imazapyr. However, this Order requires monitoring when an imazapyr-containing product is used.

f. Triclopyr Butoxyethyl Ester

Triclopyr BEE is an active ingredient in selective foliar- and root-absorbed, translocated herbicide used for control of woody and broadleaf plants along rights-of-way, in forests, on industrial lands, and on grasslands and parklands. On an acute basis, triclopyr BEE is moderately to highly toxic to freshwater fish and highly toxic to estuarine/marine fish. The compound has little if any potential to accumulate in aquatic organisms. However, triclopyr BEE releases the degradation byproduct, 3,5,6-trichloro-2-pyridinol (TCP), which is considered to be persistent in aquatic environments and considered to have slight to moderate acute toxicity to freshwater warm- and cold-water fish species.

Toxicity data for triclopyr BEE were obtained from the Ecotoxicity Database to assess toxicity of triclopyr BEE to freshwater aquatic life. Table D-11 summarizes toxicity data for Triclopyr BEE.

Table D- 11 Summary of Toxicity Data for Triclopyr BEE (CAS#64700-56-7)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1973	1,460
Bluegill Sunfish	24 h	1991	1,300
Bluegill Sunfish	96 h	1993	360
Bluegill Sunfish	96 h	1994	440
Fathead Minnow	24 h	1980	2,400
Fathead Minnow	24 h	1981	2,310
Rainbow Trout	96 h	1973	1,290
Rainbow Trout	24 h	1991	<2,700
Rainbow Trout	96 h	1992	650
Rainbow Trout	96 h	1994	980
			Lowest LC50/10 = 36

Ambient Water Quality Criteria are unavailable for triclopyr BEE. Table D-11 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for triclopyr BEE is 36 µg/L.

Therefore, this Order contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 36 µg/L based on the lowest one-tenth of LC50 from the Ecotoxicity Database.

g. Triclopyr Triethylamine Salt

Triclopyr TEA is a systemic herbicide used on rice, rangeland and pasture, rights-of-way, forestry and turf, including home lawns, for control of broadleaf weeds and woody plants. There are currently 24 products containing triclopyr triethylamine salt. Triclopyr TEA was first registered on May 8, 1979 as an herbicide on non-crop areas and in forestry use for the control of broadleaf weeds and woody plants.

U.S. EPA concluded in its Registration Eligibility Decision documentation that triclopyr TEA is practically non-toxic to freshwater fish and aquatic invertebrates on an acute basis and triclopyr TEA is slightly toxic to practically non-toxic to estuarine/marine fish and invertebrates on an acute basis.

Triclopyr produce the metabolite or degrade 3,5,6-trichloro-2-pyridinol (TCP). Based on its analysis, U.S. EPA concludes that the existing uses of triclopyr are unlikely to result in acute or chronic dietary risks from TCP. Based on limited available data and modeling estimates, with less certainty, the

U.S. EPA concluded that existing uses of triclopyr are unlikely to result in acute or chronic drinking water risks from TCP.

Toxicity data for triclopyr TEA were obtained from the Ecotoxicity Database to assess toxicity of triclopyr TEA to freshwater aquatic life. Table D-12 summarizes toxicity data for triclopyr TEA.

Table D- 12 Summary of Toxicity Data for Triclopyr Triethylamine Salt (CAS#57213-69-1)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1978	891,000
Bluegill Sunfish	24 h	1973	471,000
Fathead Minnow	96 h	1978	947,000
Fathead Minnow	96 h	1983	546,000
Fathead Minnow	24 h	1983	279,000
Grass Shrimp	24 h	1992	326,000
Pink Shrimp	96 h	1975	895,000
Rainbow Trout	24 h	1973	240,000
Rainbow Trout	96 h	1978	552,000
			Lowest LC50/10 = 24,000

Due to its safe use in the environment, low toxicity to aquatic life as indicated in the Ecotoxicity Database and a concluded by U.S. EPA, this Order does not have a monitoring trigger and does not require monitoring for triclopyr TEA.

Summary of Receiving Water Monitoring Triggers

Table D-13 below summarizes the Receiving Water Monitoring Triggers and controlling water quality criteria and standards for all insecticides and herbicides active ingredients.

Table D- 13 Summary of Receiving Water Monitoring Triggers

Ingredient	Unit	Instantaneous Maximum Monitoring Trigger	Basis
		Insecticide Active Ingredients	
Acetamiprid	µg/L	6.6	U.S. EPA Office of Pesticides Ecotoxicity Database
Carbaryl	µg/L	2.53	California Department Fish and Wildlife Criterion
Pyrethrins	µg/L	0.14	U.S. EPA Office of Pesticides Ecotoxicity Database
Dinotefuran	µg/L	79	U.S. EPA Office of Pesticides Ecotoxicity Database
Cyfluthrin	µg/L	0.00022	U.S. EPA Office of Pesticides Ecotoxicity Database
Imidacloprid	µg/L	3.8	U.S. EPA Office of Pesticides Ecotoxicity Database
Naled	µg/L	0.014	U.S. EPA Office of Pesticides Ecotoxicity Database
		Herbicide Active Ingredients	
Clopyralid	µg/L	2,874	U.S. EPA Office of Pesticides Ecotoxicity Database
Glyphosate	µg/L	700	U.S. EPA primary maximum contaminant levels for protection of drinking water quality
Triclopyr Butoxyethyl Ester	µg/L	36	U.S. EPA Office of Pesticides Ecotoxicity Database

Acute and Chronic Toxicity

The narrative toxicity objective contained in the Regional Water Boards' Basin Plans states that "All waters shall be maintained free of toxic substances in

concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." For compliance with that objective, this Order contains a receiving water limitation for toxicity and requires CDFA to implement best management practices to identify corrective actions to reduce or eliminate any toxicity caused by biological and residual pesticides from spray applications for pest control.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 C.F.R. requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the State and Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment C) for this Order establishes monitoring and reporting requirements to implement state and federal requirements. The following provides the rationale for the requirements contained in the Monitoring and Reporting Program for discharges of biological and residual pesticides from spray applications for pest control.

A. Effluent Monitoring

Pursuant to the requirements of 40 C.F.R. section 122.44(i) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving water and groundwater.

The application of pesticides for vector control is not necessarily considered a discharge of pollutants according to the *National Cotton Council of America v. U.S. EPA* decision and other applicable case law. The regulated discharge is the discharge of biological and residual pesticides. At what point the pesticide becomes a residue is not precisely known. Therefore, in the application of pesticides, the exact effluent is unknown. Thus, effluent monitoring requirement is not applicable for applications of pesticides for vector control.

B. Toxicity Testing Requirements

The State Water Board, pursuant to the Porter-Cologne Act and the federal Clean Water Act, customarily requires the discharger to conduct toxicity monitoring. In fact, both Acts anticipate discharger self-monitoring.

Order 2011-0002-DWQ required the State Water Board to conduct a toxicity study to determine if residues, including active ingredients, inert ingredients, and degradation byproducts, in any combination, from pesticide applications cause toxicity to the receiving water or add toxicity to it if there is pre-existing toxicity prior to pesticide applications. Order 2011-0002-DWQ contained a provision that the order may be reopened and modified to incorporate toxicity monitoring requirements if the State Water Board-funded toxicity study demonstrated probable toxicity for particular pesticide ingredients. he toxicity study was completed in December 2012. Based on that study, the State Water

Board determined that there were no significant impacts to waters of the U.S. outside of the pesticide application areas and there were no significant impacts to non-target species resulting from pesticide applications. Thus, it was unnecessary to reopen Order 2011-0002-DWQ. Consequently, this Order does not contain toxicity testing requirements.

C. Receiving Water Monitoring

Receiving water monitoring is necessary to determine the impacts of the discharge on the receiving stream.

All testing for both toxicity and individual chemicals have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty. The intent of this Order's sampling program is to select a number that will detect most events of noncompliance without requiring needless or burdensome monitoring.

Table 3-1 of the EPA Region 9 and 10 Toxicity Training Tool provides guidance on the selection of the appropriate sample number. It shows that six is the minimum number of samples where there is about a 50 percent chance of detecting at least one toxic event for the three probabilities of occurrence shown on the table.

Staff also used EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) to determine the appropriate number of samples that would be needed to characterize the impacts of the residual pesticide discharge from pesticide applications. Page 53 of the TSD recommends using a coefficient of variation (CV) 0.6 when the data set contains less than 10 samples. Table 3-1 of the TSD shows that with a CV of 0.6, the multiplying factors used to determine whether a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a State water quality standard begin to stabilize when the sample number is six. Thus, this Order requires six samples to characterize VIII. RATIONALE FOR PROVISIONS

A. Standard and Special Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment B. CDFA must comply with applicable standard provisions and with those additional conditions that are applicable under 40 C.F.R. section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in this Order.

Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in

40 C.F.R. section 122.41(j)(5) and (k)(2) because the enforcement authority under the California Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference California Water Code section 13387(e).

B. Reopener Provisions

1. The reopener provisions allow the State Water Board to reopen the permit in accordance with 40 C.F.R. section 122.62.
2. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section122.62, including
    a. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the Clean Water Act, or amendments thereto, this Order may be reopened and modified in accordance with the new or amended standards.
    b. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
3. **Acute and Chronic Toxicity.** If the State Water Board revises its toxicity control provisions that would require new implementation procedures including the establishment of numeric chronic toxicity limitations, this Order may be reopened to include numeric acute and chronic toxicity receiving water limitations based on the new provisions.
4. **Endangered Species Act.** If U.S. EPA develops biological opinions regarding pesticides included in this Order, this Order may be reopened to add or modify Receiving Water Limitations/Monitoring Triggers for residual pesticides of concern, if necessary.
5. **Pesticide Active Ingredients**. This Order covers the application of pesticides which are based on active ingredients that are currently registered by DPR for spray applications. The Executive Director may reopen this Order to add new pesticide active ingredients registered by DPR for spray applications. The Executive Director may also reopen this Order to grant a regulatory exception to CDFA from complying with pollutant receiving water limitations in accordance with the SIP and/or the California Ocean Plan.

IX. PUBLIC PARTICIPATION

The State Water Board is considering the issuance of waste discharge requirements (WDRs) that will serve as a general NPDES permit for pesticide spray applications. As a step in the WDR adoption process, the State Water Board staff

has developed tentative WDRs. The State Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The State Water Board will notify interested agencies, parties, and persons of its intent to prescribe WDRs for pesticide spray applications and has provided them with an opportunity to submit their written comments and recommendations. Notification will be provided to interested parties through specific mailings, distribution through publication in major newspapers throughout California. The State Water Board, in a public meeting, will hear and consider all comments pertaining to discharges to be regulated by this Order.

The public had access to the agenda and any changes in dates and locations through the State Water Board's website. (http://www.waterboards.ca.gov/board_info/calendar)

B. Written Comments

Interested persons were invited to submit written comments concerning the tentative WDRs. Comments were due at the State Water Board offices by 12:00 noon on **January 29, 2016**.

C. Public Hearing and Meeting

The State Water Board held a public hearing and meeting on the tentative WDRs on the following date, time, and location:

Date:	**March 1, 2016**
Time:	9:00 a.m.
Location:	State Water Resources Control Board 1001 I Street Sacramento, CA 95814

Please be aware that dates and venues may change. Our web address is (http://www.waterboards.ca.gov/) where you can access the current agenda for changes in dates and locations.

D. Information and Copying

The tentative effluent limitations, receiving water limitations, and special provisions, comments received, and other information were on file and available for inspection at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents was available through arrangement with the State Water Board by calling (916) 379-9152.

E. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this Order should contact the State Water Board, reference this Order, and provide a name, address, and phone number.

F. Additional Information

Requests for additional information or questions regarding this Order should be directed to NPDES_wastewater@waterboards.ca.gov.