



# Department of Pesticide Regulation



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## MEMORANDUM

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TO: Charles M. Andrews  
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FROM: David Duncan [Original Signed By]  
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DATE: May 21, 2012

SUBJECT: COMMENTS ON THE DRAFT WASTE DISCHARGE REQUIREMENTS FOR  
THE EASTERN SAN JOAQUIN RIVER WATERSHED

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The Environmental Monitoring Branch reviewed and prepared comments on the draft document titled, "Waste Discharge Requirements General Order for Growers within the Eastern San Joaquin River Watershed" (referred to hereafter as "the Order") that has been developed by the Central Valley Regional Water Quality Control Board (CVRWQCB) as part of its Long-Term Irrigated Lands Regulatory Program (ILRP).

We recommend you forward to the CVRWQCB our comments below on the Order and its associated attachments. We would like to first highlight three particular areas of concern: (1) the requirement for data transmittal directly to DPR by third-party entities, (2) the use of DPR's ground water protection areas (GWPA's) as a means to classify a "high vulnerability" area, and (3) the potential negative impacts on DPR's ground water protection program, a scientifically-based program with a 30-year history of research, regulation, and model development designed to improve and protect ground water from pesticide contamination. The potential conflicts in regulation and the need for close coordination of efforts made by the CVRWQCB and DPR are critical if we are to continue to improve water quality.

- (1) The Order requires third-party entities or individuals to submit water quality data from surface and ground water monitoring directly to DPR. However, for ground water monitoring data, the Food and Agricultural Code section 13152 (c) requires *agencies* to report to DPR, not third-parties or individuals. This ground water reporting mandate has traditionally been fulfilled by the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards on an annual basis via staff communication between our agencies. In addition, DPR does not currently have the resources to receive and process ground water data submissions from all potential entities that will be collecting and transmitting data under this Order or assess duplicate records received from SWRCB.

For surface water monitoring data, DPR has relied on the California Environmental Data Exchange Network (CEDEN) for convenient access to pesticide-related ILRP data. Staff periodically downloads data from CEDEN to update pesticide data to our Surface Water



Database. In any case, we welcome the opportunity to discuss with CVRWQCB staff a mutually agreeable method of data transfer and minimum reporting requirements.

- (2) DPR developed the GWPA concept to provide growers with some degree of flexibility, while still protecting ground water. Growers who choose to use a pesticide regulated in California Code of Regulations, Title 3 (3CCR), section 6800(a) have several mitigation options including alternative practices approved by the Director of DPR. In addition, a grower located in a GWPA is not required to use a mitigation measure if he or she chooses a pesticide that is not regulated in 3CCR section 6800(a). Therefore, not all growers in GWPAs will be using mitigation measures. This appears to be in conflict with the requirements of this Order. If an area is designated as a “high vulnerability” area based solely on the fact it is a GWPA, what would growers be mitigating if historical well sampling data show no detections of a constituent of concern and growers are not using a regulated pesticide?

There is also an inconsistency in the classification of low and high vulnerability areas. Low vulnerability areas are areas where constituents of concern have not exceeded water quality objectives or trigger values. Once a constituent exceeds this value, the area is classified as a high vulnerability area. However, the trigger value for simazine (identified as 4 parts per billion in Table 5 on page 29 of Attachment B) has not been exceeded in any GWPA as a result of agricultural use. This raises the question why one would use GWPAs to categorize areas of high vulnerability.

Additionally, DPR’s GWPA concept is based on the potential for pesticide movement to ground water; whether it can or should be extended to address other constituents has not been investigated. The U.S. Geological Survey has developed a map showing areas in California that are at high risk of nitrate contamination of ground water. A major difference between the two classification schemes is that the U.S. Geological Survey incorporates nitrogen input (cropping pattern) as well as soil and other factors ([http://water.usgs.gov/nawqa/nutrients/pubs/wcp\\_v39\\_no12/](http://water.usgs.gov/nawqa/nutrients/pubs/wcp_v39_no12/)). The DPR approach reflects soil properties and depth to ground water to characterize a section as a GWPA. The agreement between the two approaches in classifying areas vulnerable to various constituents of concern is unknown.

- (3) The requirements of this Order could have significant negative impacts on DPR’s ground water program if adopted as drafted. The Order allows for some flexibility in identifying low vulnerability areas but no flexibility for the high vulnerability designation. In high vulnerability areas, the third-party must (1) implement management practices, (2) conduct representative monitoring by installing monitoring wells completed into first encountered ground water (or use another approach to assess impacts from agricultural activities), and (3) conduct monitoring to determine if mitigation measures are effective in protecting ground water. If our goal is to improve ground water quality, resources need to be focused on

implementing scientifically-based practices and not on representative monitoring that diverts resources from that goal.

In addition, the annual costs associated with this Order are estimated to be about \$124 per acre (derived from the overall cost estimate of \$108 million covering 870,000 acres anticipated to be affected by this Order). DPR's current set of GWPAs is not static and will be augmented over time as we evaluate new data from our monitoring efforts and the Natural Resource Conservation Service soil surveys. As there are 640 acres in each GWPA, the cost of the Order would be about \$79,000 per GWPA. When DPR adds new GWPAs, these costs will be identified when we submit the proposed regulations for adoption.

Lastly, DPR's Ground Water Protection Program relies on voluntary participation by well owners to sample their wells. Our monitoring is conducted not only to find new pesticides in ground water but also to identify additional areas vulnerable to pesticide contamination. As such, well owners, including those in the agricultural industry, will be less likely to participate in monitoring since the cost of finding a pesticide in their well water would increase significantly if GWPAs are automatically considered highly vulnerable areas.

For these reasons we strongly urge CVRWQCB to reconsider this link between the two programs on the basis that (1) it could require mitigation measures in GWPAs where constituents of concern have not been identified, (2) our GWPAs were not meant to apply to other constituents, and (3) the cost of adding one single section to our regulatory program would not only impact DPR's future ability to add GWPAs, but could also lead to conflicting regulations.

DPR also provides these additional comments on the Order and its associated documents:

### **I. Draft Waste Discharge Requirements**

**Item:** Pages 3 and 9. The Eastern San Joaquin River Watershed extends from the Sierra Nevada Mountains on the east to the San Joaquin River on the west, and from the Stanislaus River watershed on the north to the San Joaquin River watershed on the south. The Order states that approximately 3,600 growers and 870,000 associated irrigated acres will require regulatory coverage under this Order or other Waste Discharge Requirements or conditional waivers of the requirements. The Order also states there are approximately 830 GWPAs, or 531,200 acres in the Eastern San Joaquin River Watershed.

**Comment:** Approximately 61% of the acreage covered by the Order is currently regulated to protect ground water from the pesticides listed in 3CCR section 6800(a) via GWPAs. In the pesticide arena, this means that growers will be regulated by two state agencies to protect ground water from the legal agricultural use of pesticides: DPR under the provisions of the Pesticide

Contamination Prevention Act and various sections of Title 3 of the California Code of Regulations, and CVRWQCB under this Order. The DPR ground water protection program regulates the seven pesticides found in California ground water due to legal agricultural use, requires users to get permits from the County Agricultural Commissioners (CACs) before use in GWPA, requires the CAC to designate an appropriate management practice (out of several options) on the permit that the permittee must follow to protect ground water, prohibits use in recharge basins and inside canal and ditch banks under certain conditions, and requires all users of all pesticides to take actions to protect wellheads. The estimated cost to pesticide users of the 2004 DPR ground water regulations, excluding any enforcement or DPR staff costs, was about \$70/GWPA.

In contrast, the Order would require coalitions or individuals to do the following in high vulnerability areas (such as GWPA): (1) prepare a Groundwater Assessment Report and develop a ground water protection management plan, (2) identify pesticides to monitor, (3) install and sample representative monitoring wells that sample “first water”, (4) follow (and document) detailed quality assurance guidelines, (5) perform technical studies to validate management practices, (6) adopt and document grower compliance with appropriate management practices to protect ground water, (7) monitor wells to determine whether management practices are working, (8) attend annual training, and (9) submit various periodic and annual reports. This series of questions to be answered in order to comply with this Order are essentially research questions formed by the Groundwater Monitoring Advisory Workgroup. As such, it will be important for this research requirement to be evaluated in the California EPA scientific peer review process. In addition, we recommend you recognize the DPR Ground Water Protection Program as taking an appropriate strategy for monitoring the effectiveness of mitigation measures.

## **II. Draft Attachment A to Order R5-2012-XXXX. Information Sheet**

**Item:** Page 5. Vulnerability - “...the third-party has the option to identify low vulnerability areas where reduced program requirements would apply. ...Low vulnerability areas do not have exceedances of water quality objectives for which irrigated agriculture waste discharges may be a contributing source **and** are not delineated as vulnerability areas by Department of Pesticide Regulation or the State Water Board...High vulnerability areas have exceedances of water quality objectives for which irrigated agriculture waste discharges are a contributing source **or** are designated as vulnerable by the Department of Pesticide/State Water Board.”

**Comment:** The statement that the third-party has the option to identify low vulnerability areas seems to be contradicted or limited by the definitions of low and high vulnerability which provide specific criteria. Location within a GWPA appears to consign the member or third-party to the high vulnerability designation regardless of monitoring data that might indicate otherwise. DPR’s GWPA were developed based on pesticide monitoring data to address contamination by

a limited number of pesticides that have a relatively unique environmental fate and use profile: they are all mobile and persistent and applied directly to the soil. While this profile may be similar to those of nitrate and salinity – the main constituents of concern – the GWPAs should not be construed to indicate areas that may also be impacted by these constituents. Since there are already several data sources for the main constituents of concern and the third-party will produce more data through the required trend monitoring, CVRWQCB could effectively rely on existing data and trend monitoring in domestic wells rather than on GWPAs.

### **III. Draft Attachment B to Order R5-2012-XXXX. Monitoring and Reporting Program**

#### **Item:** Obtaining Pesticide Use Data

**Comment:** There are numerous references on the need to use pesticide use information in support of implementing the MRP. Dischargers and representative third-parties are typically directed to obtain use data directly from the CACs. The availability and speed at which the CACs can supply the requested information will vary among different counties. CACs are also currently transitioning into the new pesticide use data submittal and entry process known as CalAgPermits system, which could delay response on use data inquiries to CACs.

Focused pesticide use data can be alternately accessed online via DPR's CalPIP portal although there is generally a 1-year lag between CalPIP data and those available from the CACs. It is also important to note that CalPIP data are subjected to a greater level of error screening than CAC use data. CVRWQCB should explicitly state instances when CalPIP data are acceptable for use in support of the MRP. This would simplify data collection for dischargers and third-parties and possibly reduce potential workload to CACs.

**Item:** Page 27. Surface Water Quality Triggers – “Table 5 does not include water quality criteria that may be used to interpret narrative water quality objectives, which shall be considered trigger limits. Trigger limits will be proposed by the third-party through the Monitoring Parameter Report process described in section III.C.3 of this MRP. As part of the Monitoring Parameter Report, trigger limits shall be proposed by the third-party for all parameters that are scheduled for monitoring that do not have a Basin Plan numeric water quality objective or where interpretation of narrative Basin Plan objectives is necessary to ensure the protection of applicable beneficial uses. The third-party shall provide technical justification for any new proposed trigger limits for Executive Officer review. The trigger limits shall be designed to implement narrative Basin Plan objectives and to protect applicable beneficial uses.”

**Comment:** There will likely be occasions when numeric objectives do not exist to help define the trigger limits. The text cited above sets the expectation that dischargers will propose reasonable quantitative trigger limits that need to be consistent with narrative water quality objectives. The concept of trigger limits is vaguely defined in the MRP document. CVRWQCB

should provide further guidance or some examples of how the narrative objective can be precisely interpreted. The narrative objective that is most relevant for pesticides is the toxicity objective, which 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. Thus, are LC<sub>50</sub>/EC<sub>50</sub> values or U.S. EPA Office of Pesticide Program benchmarks for the aquatic organisms acceptable trigger limits? Are the LC<sub>50</sub>/EC<sub>50</sub> values of the most sensitive test organism in literature acceptable or are the lowest values from a key species (e.g., those required to be tested by U.S. EPA and DPR in support of pesticide registration) more appropriate? Should the LC<sub>50</sub>/EC<sub>50</sub> trigger values be from resident species? Should acute or chronic values be used? Should the most sensitive or most representative taxonomic values be used? There are many ways of defining the trigger. Since triggers are key values that when exceeded could result in the implementation of significant and potentially costly mitigation actions, additional guidance on triggers would be helpful to many.

#### **IV. The Order (General)**

**Item:** General information on DPR water quality programs

**Comment:** EM Branch believes that CVRWQCB would benefit from an update on DPR's coordination with the Water Boards and a brief up-to-date description of both our surface and ground water protection programs. The information below should also help provide better context for our comments.

#### **Coordination Between DPR and the Water Boards**

Because DPR and the State and Regional Water Boards have mandates and authorities bearing on pesticides and water quality, we also have responsibility to assure continuing coordination at the state and local levels. To articulate this responsibility, DPR and the State Water Resources Control Board developed a management agency agreement (MAA). With the adoption of the MAA, DPR and the State Water Resources Control Board, the nine Regional Water Quality Control Boards, and CACs have collaborated on a range of pesticide and water quality issues.

The MAA, its associated Pesticide Management Plan (the Plan), and the "Process for Responding to the Presence of Pesticides in Surface Water" have collectively guided communication between the agencies involved. Interagency staff coordination has been essential with the proliferation of Water Board activities on total maximum daily loads, basin planning, discharge permitting, and ILRPs. Such coordination is also necessary to assist DPR on activities relating to the statewide protection of water quality from pesticide use (e.g., registration evaluations, dormant spray regulations, and surface water regulations of pyrethroid pesticides), and local level regulations and permit conditions by CACs. DPR works closely with CACs to develop and enforce localized mitigation strategies.

To further improve communication, in 2011, DPR and Water Board upper management began meeting periodically through the Water Boards' Assistant Executive Officer (AEO) meetings to discuss issues of mutual interest. The purpose of these meetings is to maintain a forum for dialogue between DPR, county agricultural commissioners, and Water Board management to facilitate interagency coordination, policy discussion, and informed decision-making on pesticides and water quality issues. The AEOs and DPR management are developing a charter to define the nature of this interaction and to clarify the context of this partnership to existing interagency and stakeholder workgroups.

### **DPR's Surface Water Protection Program**

DPR established the Surface Water Protection Program (SWPP) to implement various general environmental protection mandates within Division 6 and 7 of the Food & Agricultural Code. The goal of the SWPP is to characterize pesticide residues in surface water, determine the mechanisms and sources of off-site movement, and develop site-specific mitigation strategies. These are done primarily through surface water monitoring in consultation with other agencies, and research to characterize the factors that lead to off-site movement.

The SWPP addresses both agricultural and nonagricultural sources of pesticide residues to surface waters. It has preventive and response components to reduce the presence of pesticides in surface waters. The SWPP commonly uses monitoring as a tool to assess the impacts of both these components.

The preventive component relies on DPR's registration process in which potential adverse effects to surface water quality, particularly those in high-risk situations are evaluated. Prevention could also include local outreach to promote management practices that reduce pesticide runoff. The response component includes mitigation options to meet water quality goals while recognizing the value of self-regulating efforts to reduce pesticides in surface water as well as regulatory authorities of DPR and other agencies.

#### **Prevention**

Surface water scientists evaluate new active ingredients before registration for their potential to move off-site and affect aquatic environments. In an effort to streamline these evaluations and improve consistency, the SWPP has recently changed the manner in which it evaluates new pesticides. More active ingredients (AIs) will now be evaluated for potential to impact surface water. Moreover, SWPP scientists evaluate and develop computer modeling tools, not only to evaluate new pesticides, but to also assess pesticide runoff potential, exposure and impact to aquatic organisms, and efficacy of mitigation measures for currently registered pesticides.

As a result of SWPP evaluations, additional California-specific restrictions to minimize off-site movement may be placed on a product before it can be used in the state. This can be accomplished via changes to the product label or via outreach to the product users.

### **Monitoring**

The SWPP conducts surface water monitoring for pesticides in both urban and agricultural regions and has developed prioritization schemes to identify a ranked list of candidate AIs and associated surface water monitoring locations. The ranking is based on detailed analyses of aquatic toxicity data and pesticide use data. In addition, the SWPP has begun tracking the use of newly registered active ingredients to determine if monitoring is warranted.

### **Response**

SWPP scientists conduct research to characterize the factors that lead to off-site movement and to develop mitigation measures to prevent such movement. SWPP also contracts with university researchers for studies related to the impacts of pesticides to the environment. Research topics include runoff source identification, mitigation measure identification and effectiveness evaluation, and development of outreach materials.

The SWPP also takes part in DPR's formal reevaluation of already registered products that have caused adverse effects on aquatic organisms. Reevaluations are based on monitoring surveys and toxicity studies revealing the widespread presence of certain pesticides residues in both agricultural and urban waterways at levels toxic to aquatic organisms. When a pesticide enters reevaluation, DPR reviews existing data and may require pesticide registrants to provide more data. The goal is to determine the extent of the potential hazard and to identify ways to reduce or eliminate problems.

## **DPR's Ground Water Protection Program**

DPR began addressing pesticide contamination of ground water in the early 1980s and in 1985 the Legislature passed the Pesticide Contamination Prevention Act (PCPA) codified in Food and Agricultural Code sections 13141 – 13152. The purpose of the PCPA is to prevent further pollution by agricultural pesticides of ground water used for drinking water supplies. It established a program to identify pesticides that have the potential to pollute ground water, requires sampling to determine if those pesticides are present in ground water, directs DPR to maintain a database of all wells sampled by all agencies for pesticides, and requires DPR to conduct a formal review to determine whether the use of the detected pesticides can be modified to protect ground water.

### **Mitigating pesticide contamination**

Beginning in the late 1980s, DPR adopted regulations to protect ground water from detected pesticides. In subsequent years, DPR scientists identified soil, climate, and depth-to-ground-

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water conditions that were associated with ground water contamination. In addition, DPR identified pathways of contamination (such as leaching and runoff) and mechanisms of movement to ground water (such as over-irrigation and rainfall) that were used as the scientific basis for developing mitigation measures.

In 2004, DPR adopted regulations to identify new sensitive areas, called either leaching ground water protection areas (GWPA) or runoff GWPA, depending on the predicted pathway to ground water. The GWPA are either based on detections (and include all PMZs) or on soil characteristics and depth to ground water. This increased the size of regulated areas from 333,000 acres to 2.4 million acres. To use a pesticide regulated as a ground water contaminant in a GWPA, users must obtain permits for use from county agricultural commissioners that specify the enforceable management practices required in each type of GWPA. Additional statewide restrictions apply to pesticides applied in canals, ditches, and artificial recharge basins and by chemigation. Wellhead protection measures were also adopted. This new approach was designed to not only stop continued contamination but also to prevent future contamination. DPR samples a network of wells to determine the effectiveness of these regulations. During eleven years of monitoring research, DPR has demonstrated a decline in concentrations of pesticides regulated since the early 1990s.

#### **Using computer modeling to predict pesticide behavior**

In addition to monitoring pesticides that are currently used in agriculture, DPR uses computer modeling to evaluate the contamination potential of new pesticide active ingredients proposed for registration in California. Model information is used to help determine whether a pesticide should be registered for use and what management practices should be required to protect ground water. Use of computer modeling has enhanced DPR's ground water protection capabilities.

If you have any questions or require additional clarification, please contact me at 916-445-3870 or <[dduncan@cdpr.ca.gov](mailto:dduncan@cdpr.ca.gov)>.

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