Department of Pesticide Regulation

Brian R. Leahy
Director

M E M O R A N D U M

Edmund G. Brown Jr.
Governor

TO: David Duncan
Environmental Program Manager
Environmental Monitoring Branch

FROM: Joy Dias
Environmental Scientist
Environmental Monitoring Branch
916-324-4183

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SUBJECT: GUIDELINES FOR IDENTIFYING PESTICIDES TO BE ADDED TO AND REMOVED FROM THE GROUNDWATER PROTECTION LIST: TITLE 3, CALIFORNIA CODE OF REGULATIONS SECTION 6800(B)

Background

The Department of Pesticide Regulation's (DPR's) Ground Water Protection Program is mandated by the Pesticide Contamination Prevention Act (PCPA) (Statutes of 1985, Chapter 1298, Section 1). The PCPA was enacted in 1985 to prevent further pesticide pollution of California ground water that may be used for drinking water.

The PCPA outlines procedures for (1) gathering physical and chemical data on pesticides, (2) establishing specific numerical values (SNVs [threshold values]) for specified types of those data that the PCPA associates with the potential of a pesticide to leach through soil to ground water, (3) identifying pesticides that "exceed" those SNVs, and (4) placing pesticides that "exceed" the SNVs and are applied in specified ways on the Groundwater Protection List (GWPL) (Title 3, California Code of Regulations [3 CCR] section 6800[b]). DPR is then required to monitor ground water for the GWPL pesticides to determine if these pesticides have migrated to ground water as a result of legal agricultural use.

Since the PCPA requires DPR to conduct ground water monitoring for all of the pesticides on the GWPL, it is important to ensure that the GWPL accurately includes the pesticides that have the potential to pollute ground water but does not include pesticides that are not likely to move to ground water. Pesticides that are no longer applied to soil or have been determined to not be a threat to ground water through monitoring, modeling, or other scientific evidence should be removed from the GWPL so that resources are not spent monitoring for pesticides that have a very low potential to move to ground water.

This document describes the process used to determine if a pesticide should be added to or removed from the GWPL.

Adding Pesticides to the GWPL (3 CCR section 6800[b])

Qualifying Label Language

The PCPA (Statutes of 1985, Chapter 1298, Section 1) added sections 13141–13152 to the Food and Agricultural Code (FAC). Section 13145(d) requires DPR's Director to establish a list of pesticides that have the potential to pollute ground water, the GWPL. Pesticide active ingredients (AIs) are placed on this list if they "exceed" the SNVs and if products containing these AIs are

- Intended to be applied to or injected into the soil by ground-based application equipment, or
- Intended to be applied to or injected into the soil by chemigation, or
- The label of the pesticide requires or recommends that the application be followed, within 72 hours, by flood or furrow irrigation.

Definition of "Applied to Soil" (3 CCR section 6000)

"Applied to the soil" or "applied to the ground" means the labeling of a pesticide product includes terminology such as:

- Soil fumigant
- Soil applied
- Soil treatment product
- Can be used as a soil drench
- Application to soil
- Inject into the soil
- Incorporate in top (x) inches of soil; pre-plant incorporation
- Use on soil for control of soil-borne diseases
- Surface application; band treatment, surface blend
- Side dressing both/one side of row and cultivate into soil
- Should be mixed uniformly into top (x) inches of soil
- Pre-emergent to the weed
- Broadcast to the soil
- Apply in seed furrow

Interpretation of Qualifying Label Language

This statutory language can be subject to various interpretations. The following regulatory language and examples should be used as guidance in applying this language.

"Applied to soil" shall have the definition specified in 3 CCR section 6000 (listed above), except as follows:

- Although "band treatment" is in the definition of "applied to soil," it is insufficient without additional information about application to bare soil to qualify a pesticide for listing because band treatments can be made to crop plants or to growing weeds as well as to bare soil.
- Some pesticide products have application instructions for directed sprays to insect nests. Even though some insects are cited on the label as ground-nesting insects, applications of these pesticides are not considered to be applied to the soil.
- Chemigation, the application of pesticides in irrigation water, is not automatically considered a "soil application" of a pesticide. Many pesticides with label language for applications by chemigation are foliar active fungicides that have no soil activity. These foliar pesticides are not "intended to be applied to or injected into soil . . . by chemigation."
- If the purpose of a pesticide application to turf is to control pests in the soil or if the pesticide is said to be taken up, absorbed, or the equivalent by roots of target plants then the application is considered "intended to be applied to or injected into the soil."
- Pesticide applications to potting soil or soil media for container grown plants in greenhouses or nurseries are not considered "applied to soil," but pesticide applications to the soil of field grown plants in nurseries or greenhouses would qualify as "applied to soil."

A pesticide that "exceeds" the SNVs is required to be placed on the GWPL if the label of the pesticide requires or recommends that the application be followed, within 72 hours, by flood or furrow irrigation.

- The environmental fate of pesticides applied to water on agricultural fields, such as applications to rice, is considered to be similar to pesticides applied to soil by chemigation and to pesticide applications that are required or recommended by the label to be followed by flood or furrow irrigation within 72 hours after application. Therefore, AIs that exceed the SNVs with registered labels allowing application to water under these circumstances should be added to 3 CCR section 6800(b).
- Pesticide applications to water or emerged aquatic weeds in sites such as ponds, marshes, sloughs, ditches, canals, and lakes will not be considered having qualifying label language and will not be added to 3 CCR section 6800(b).

Combining AIs for Monitoring Purposes

Some pesticide AIs are analytically indistinguishable for ground water monitoring purposes. DPR will combine pesticides on the GWPL under the following conditions:

- The parent pesticide has registered salts and esters, or
- The pesticides are stereoisomers.

Removing Pesticides from the GWPL (3CCR section 6800[b])

DPR will remove pesticides from the GWPL under the following conditions:

- The pesticide is no longer registered for use in California,
- A thorough review of the pesticide labels indicates that the pesticide labels do not have language that would qualify the pesticide for the GWPL,
- When a preponderance of evidence indicates that the pesticide will not move to ground water. DPR will consider ground water modeling scenarios, physical chemical properties, pesticide use patterns, ground water monitoring data, environmental fate data, and other scientific evidence before making this determination, or
- If new environmental fate data submitted by the registrant and approved by DPR indicates that the pesticide no longer "exceeds" the SNVs.

DPR will annually re-evaluate the pesticides that have been removed from to the GWPL to determine if the conditions for their removal are still valid.

Appendix I

Requirements in the PCPA

1. The PCPA applies to pesticides registered for agricultural use. FAC section 11408 defines "agricultural use" to mean the use of any pesticide or method or device for the control of plant or animal pests, or any other pests, or the use of any pesticide for the regulation of plant growth or defoliation of plants. It excludes the sale or use of pesticides intended for home use, use in structural pest control, industrial or institutional use, the control of an animal pest under the written prescription of a veterinarian, or use of a pesticides by local districts or other public agencies for disease vector control under certain conditions. "Agricultural use" includes use in production agriculture (such as crops, livestock, rangeland, wholesale nurseries, aquaculture, and timber production), and other uses such as on parks, city-owned trees and grass strips, golf courses, cemeteries, roadsides, and other rights-of-way, ditch banks, irrigation canals, and other water bodies. Pesticides registered for use on any of these sites are subject to the data requirements and other provisions of the PCPA.

2. FAC section 13143 requires pesticide registrants to submit acceptable data to DPR's Director for the following physical and chemical properties of pesticidal AIs contained in pesticide products registered for agricultural use: water solubility, soil adsorption coefficient, hydrolysis, aerobic soil metabolism, anaerobic soil metabolism, and field dissipation. DPR's Director may also require these data to be submitted for other specified ingredients or degradation products associated with AIs in pesticides registered for agricultural use. These physical and chemical properties are characteristics that the PCPA associates with the potential of a pesticide to leach through soil to ground water.

3. FAC section 13144(a) requires DPR to establish SNVs for water solubility, soil adsorption coefficient, hydrolysis, aerobic soil metabolism, anaerobic soil metabolism, and field dissipation. The purpose of the SNVs is to predict which pesticide chemicals are most likely to leach to ground water as a result of normal use by establishing numerical thresholds for their mobility and persistence. A pesticide is thought to have a potential to leach to ground water if it is both mobile and persistent, and is applied in certain ways. Within the context of the PCPA, the mobility of a pesticide chemical is described by its solubility and soil adsorption coefficient; the persistence of a pesticide is described by its hydrolysis, aerobic soil metabolism, anaerobic soil metabolism, and field dissipation half-lives. The SNVs were calculated using a procedure first described in the report, "Setting Revised Specific Numerical Values," published by the California Department of Food and Agriculture, Environmental Hazards Assessment Program (1991). The Environmental Hazards Assessment Program is now part of DPR within the California Environmental Protection Agency. Although an SNV has not been established for field dissipation, field dissipation

data are used in the probabilistic modeling procedures used to assess the leaching potential of new products proposed for registration. In 1989, the SNVs were established by regulation in 3 CCR section 6804, and they were last updated in 1993.

The SNVs currently have the following values:

water solubility	> 3 ppm
soil adsorption coefficient (Koc)	< 1900 cm3/gm
hydrolysis half-life	> 14 days
aerobic half-life	> 610 days
anaerobic half-life	> 9 days

4. After the SNVs are placed in regulation, they are compared with the physical and chemical data submitted pursuant to FAC section 13143. Pesticide chemicals that exceed the SNVs, or in the case of soil adsorption coefficient are less than the SNV, are posted at least annually on DPR's Web site, as required by FAC section 13144(b)(2).

5. FAC section 13145(d) requires DPR's Director to establish a list, called the GWPL, of pesticides that have the potential to pollute ground water. Pesticidal AIs are placed on this list, which is contained in 3 CCR section 6800(b), if they meet the following conditions: (a) "exceed" the SNVs and (b) products containing these AIs are intended to be applied to or injected into the soil by ground-based application equipment or by chemigation, or if the product labels require or recommend that the application be followed, within 72 hours, by flood or furrow irrigation.