BEFORE THE DIRECTOR OF THE
DEPARTMENT OF PESTICIDE REGULATION
STATE OF CALIFORNIA

In the Matter of the Department of Pesticide Regulation Environmental Monitoring Branch's Request for Approval of Alternate Management Practices to Protect Ground Water in Runoff Ground Water Protection Areas

DECISION

DEPARTMENT OF PESTICIDE REGULATION
Environmental Monitoring Branch
P.O. Box 4015
Sacramento, California 95812
_____/

Request

The Environmental Monitoring Branch of the Department of Pesticide Regulation made a written request for approval of two alternative management practices to protect ground water in runoff ground water protection areas (GWPAs), pursuant to Title 3, California Code of Regulations (3 CCR) section 6487.4(h)(1). Specifically, the Environmental Monitoring Branch requests the Director to approve the following:

(1) That permittees be allowed to apply 3 CCR section 6800(a) pesticides in runoff GWPAs where irrigation and rainfall runoff from the treated site is stored in an excavated retention area with a percolation rate of greater than 0.2 inches per hour on the treated site, if the runoff is completely recycled every 24 hours from the retention area onto the treated site or neighboring land under certain conditions.

(2) That permittees be allowed to apply 3 CCR section 6800(a) pesticides to the tops and outer sides of canal banks and to rights of way, within runoff GWPAs, provided that runoff moves off the treated area as overland flow onto adjacent land, at least equal in area to the treated area, where it infiltrates into the soil with no chance of flow into specified structures.

Applicable Law and Regulations

The Department has adopted regulations to protect ground water from contamination that results from the legal agricultural use of certain pesticides. The Director has identified these pesticides pursuant to Food and Agricultural Code section 13149. These pesticides are listed in 3 CCR section 6800(a) (Groundwater Protection List). Title 3 CCR section 6000 defines and identifies, by reference, leaching and runoff GWPAs, which are one-square mile sections of land that are vulnerable to movement of pesticides listed in 3 CCR section 6800(a) to ground water by leaching and runoff. Further, 3 CCR section 6416 (Groundwater Protection Restrictions) requires a

permit for the possession or use of a pesticide containing a chemical listed in 3 CCR section 6800(a) when the pesticide is applied in an agricultural, outdoor institutional, or outdoor industrial use within a runoff GWPA or in a leaching GWPA. Title 3 CCR section 6487.4 (Runoff Ground Water Protection Areas) requires that, except as provided in 3 CCR sections 6487.1, 6487.2, and 6487.3, use of pesticides registered for agricultural, outdoor industrial, and outdoor institutional use containing chemicals listed in 3 CCR section 6800(a) shall be prohibited in runoff GWPAs unless one of seven management practices listed in 3 CCR section 6487.4(a) through (g) can be met and is designated by the commissioner on the permit.

One of those management practices (3 CCR section 6487.4(e) [Retention of runoff on field]) states "For six months following the application, the field shall be designed, by berms, levees, or nondraining circulation systems, to retain all irrigation runoff and all precipitation on, and drainage through, the field. The retention area on the field shall not have a percolation rate of more than 0.2 inches per hour (5 inches per 24 hours)." Currently, under most conditions this management practice may be the only one that could potentially apply to alfalfa fields treated with 3 CCR section 6800(a) herbicides. However, since many, if not most, retention areas are expected to have percolation rates of more than 0.2 inches per hour, this management practice may have limited applicability in alfalfa as well as other treatment sites.

Similarly, another management practice (3 CCR section 6587.4(g) [Runoff onto a fallow field for six months following application]) is expected to be the only practice that could apply to the tops and outer banks of canals and to most rights of way. However, since in most cases fallow fields will not be available for six months after application, this practice is seldom expected to apply in those situations.

The regulations also allow the Director to approve management practices alternative to those specifically set forth in 3 CCR section 6487 under certain conditions. Title 3 CCR section 6487.4(h)(1) states that, upon written request, the Director may evaluate and approve use of alternative management practices that are based on scientific data demonstrating their effectiveness in reducing movement of pesticides to ground water.

Alternative Management Practices and Environmental Monitoring's Justification for Approval

(1) Alternative management practice: Allowing use of 3 CCR section 6800(a) pesticides in fields where runoff is retained on the treated site in an excavated retention area with a percolation rate of more than 0.2 inches per hour, and completely recycled.

The Environmental Monitoring Branch has been supporting investigations on the mitigation of herbicide movement to ground water in cracking clay soils. Residues of the

pre-emergence herbicides atrazine, diuron, and hexazinone had been detected in wells sampled near Tracy, California. The soil in the area is dominated by cracking clay soils and the predominant crops are alfalfa, tomatoes, and beans. In 1999, collaborative studies were initiated with Dr. Terry Prichard, Cooperative Extension Irrigation and Water Management Specialist, San Joaquin County, and Mr. Mick Canevari, Cooperative Extension County Director and Weed Management Specialist, San Joaquin County, first to determine the pathway for offsite movement of the herbicide residues and then to determine potential mitigation. With respect to the pathway of offsite movement, it was concluded that collection of runoff water containing herbicide residues into ponds (drainage sumps) was the predominant source for rapid movement of residues to shallow ground water (Prichard et al., Submitted).

In a subsequent continuation of this project, Dr. Prichard conducted a study to investigate pond management practices that would mitigate infiltration of the water and residues to ground water. Dr. Prichard found that pumping water out of the pond after the end of irrigation sets was effective in reducing both the percolation of water and herbicide residues from the pond (Prichard, 2004). After reviewing that final report, Mr. Gary Stockel, Deputy Agricultural Commissioner, San Joaquin County, noted that this technique was a potential mitigation measure for ponds where the infiltration rate is greater than 0.2 inches per hour, suggesting it as an alternative management practice that could be applicable to all runoff GWPAs.

(2) Alternative management practice: Allowing use of 3 CCR section 6800(a) pesticides on the tops and outer sides of canals and on rights of way, within runoff GWPAs, where runoff water moves off the treated site as overland flow.

The scientific basis for adopting this proposed alternative management practice is the same as the basis for the fallow field option for runoff GWPAs found in 3 CCR section 6487.4(g). That option allows exposure of pesticide residues in runoff water to soil in an adjacent fallow field, which facilitates adsorption of pesticide residues to soil particles and organic matter, and thus immobilization and degradation of those residues. These processes all minimize the risk of movement of pesticides to ground water.

Director's Finding Regarding the Justification

The Director concurs with Environmental Monitoring's justification for adopting the proposed alternative management practices.

Conclusion

Pursuant to 3 CCR section 6487.4(h)(1), the requested alternative management practices are approved and will read as follows:

(1) Recycling of runoff. For six months following the application, runoff collected on the treated site in an excavated retention area that has a percolation rate of greater than 0.2 inches per hour shall be completely recycled, every 24 hours, onto the treated site, neighboring land under the control of the property operator, or neighboring land with the consent of the operator of the neighboring land.

(2) Runoff onto adjacent land. For six months following application, runoff water from the tops and outer sides of canal banks and rights of way, within runoff GWPAs, shall move offsite as overland flow onto adjacent land, at least equal in area to the treated area, where it infiltrates into the soil with no chance of flow into structures such as dry wells, or ditches or excavated retention areas with percolation rates of greater than 0.2 inches per hour. "Overland flow" is the movement of a thin film of water before the water collects into ditches, creeks, or streams.

Disposition

The equivalent of the above language will be proposed by the Department of Pesticide Regulation to amend 3 CCR section 6387.4 in future rulemaking, pursuant to Government Code section 11340 et seq.

STATE OF CALIFORNIA
DEPARTMENT OF PESTICIDE REGULATION

By: _____ Dated: _____
Mary-Ann Warmerdam
Director

References

Prichard, T., J. Troiano, and M. Canevari. Submitted. Holding pond infiltration is a source of ground water contamination from pre-emergence herbicide application to a cracking-clay soil. Submitted to Journal of Environmental Quality.

Prichard, T. 2004. California Department of Pesticide Regulation Final Report, September 6, 2004.

bcc: Pepple Surname File