

Office of Environmental Health Hazard Assessment



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MEMORANDUM

TO: Susan Edmiston, Chief
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FROM: Anna Fan, Ph.D., Chief 
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DATE: February 24, 2010

SUBJECT: COMMENTS ON FINAL DRAFT OF MITIGATION MEASURES TO CONTROL OFF-SITE AND BYSTANDER SHORT-TERM EXPOSURE TO METAM SODIUM, METAM POTASSIUM AND DAZOMET

Thank you for the opportunity to review the final draft of the mitigation measures proposed by the Department of Pesticide Regulation (DPR) to control off-site and bystander short-term exposure to methyl isothiocyanate (MITC), a breakdown product generated from metam sodium, metam potassium and dazomet (*Metam Sodium, Metam Potassium and Dazomet Mitigation to Control Off-Site and Bystander Short-Term Exposure*, January 2010).

As noted in our review of the July 2009 draft of this document, the Office of Environmental Health Hazard Assessment (OEHHA) believes that these proposed mitigation measures offer significantly more protection to the public than current practices, while still providing County Agricultural Commissioners (CACs) with the flexibility to apply previously adopted controls that have successfully limited off-site movement of MITC. However, OEHHA has the following questions/comments.

1. OEHHA continues to express concern, as we have in prior correspondences, that the target value for MITC of 220 parts per billion (ppb) may not be adequately health-protective, especially for sensitive individuals (e.g., those with respiratory distress symptoms).

California Environmental Protection Agency

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption.

In its Risk Management Directive, dated December 2, 2002, DPR indicated, "Ensuring that exposures do not exceed the REL [22 ppb] would provide the highest level of public health protection. However, levels above an REL do not necessarily indicate the potential of adverse health effects, but rather indicate a progression of increasing risk." The Risk Management Directive further states, "Our goal is to ensure the use of metam-sodium and other MITC-generating products does not result in noticeable eye or respiratory effects."

OEHHA is concerned that the target value of 220 ppb is the no-observed-adverse-effect level (NOAEL) from a human exposure study in which a limited number of individuals were exposed, eyes only, to two different concentrations of MITC (Russell and Rush, 1996). Since exposures in this study were performed using goggles, the study did not address MITC effects on the respiratory tract. Furthermore, the study by Cone and colleagues (1994) reported 20 cases of persistent irritant-induced asthma and 10 cases of persistent exacerbation of asthma, which fall under the category of reactive airways dysfunction syndrome (RADS), as a result of environmental and/or occupational exposure to MITC following the 1991 metam sodium spill in the Sacramento River near the town of Dunsmuir, California. It is worth noting that although reliable measurements of MITC air concentrations were not available until post-spill day 4, 5 of the 20 patients with irritant-induced asthma and 2 of the 10 patients with exacerbation of asthma reported no eye irritation within the first 24 hours of becoming symptomatic (Cone et al., 1994). This suggests that eye irritation may not be an adequately health-protective indicator of MITC exposure, since it appears that the much more severe adverse health effect of RADS may be triggered in its absence. Consequently, the NOAEL of 220 ppb based on human eye irritation may not be a health-protective mitigation target value for sensitive individuals who are pre-disposed to RADS.

2. The requirements for multiple block applications were removed for drip, spray blade with soil cap, power mulcher, and rotary tiller applications. Is this because these applications are no longer allowed for multiple blocks? DPR may wish to clarify this in the document.
3. In Appendix III (MITC Control Plan), the section on response for handling leaks and spills indicates that recovered material or contaminated soil is to be disposed of properly. OEHHA suggests providing a more detailed standard operating procedure on how to "dispose of properly," either incorporated within the text or by reference.
4. In Table 3, the buffer zones for 160 lbs active ingredient/acre (ai/A) have changed for 1 through 20 acres treated. It is unclear what prompted the change and how it might affect the rest of the buffer zones in this table. For example, if these changes

resulted from changes in modeling results, would the other buffer zones in the table be affected as well?

5. In Table 4, the highest application rate shown is 320 lbs ai/A, whereas in the July 2009 draft, the highest application rate was 290 lbs ai/A. Furthermore, the buffer zones for 320 lbs ai/A are the same as those that were shown for 290 lbs ai/A and the buffer zones for 300 lbs ai/A in the current draft are smaller than those for 290 lbs ai/A in the previous draft. Please provide to OEHHA DPR's rationale for allowing higher application rates and smaller buffer zones for this method of application.
6. In Tables 5-7, the spray blade without soil cap application is no longer included. Is this application method no longer used or allowed? DPR may wish to clarify this in the document.
7. In Tables 5 and 8, at the higher application rates, the buffer zones are the same for 40 acres up to 80 acres. Is it adequately health-protective to have the same size buffer zone when the amount of active ingredient applied has essentially doubled (i.e., the buffer zone is 600 feet whether 320 lbs ai/A are applied to 40 acres, totaling 12,800 lbs, or to 80 acres, totaling 25,600 lbs)? DPR may wish to clarify this in the document.

Minor comments:

- p. 10, last line in *Drip Applications*: Add "If the tables do not capture the specific acreage or application rate, round up to the nearest acre and/or rate."
- p. 11, line 2: *nearest acre or rate* should be nearest acre and/or rate.
- p. 11, last line in *Spray Blade...*: Add "If the tables do not capture the specific acreage or application rate, round up to the nearest acre and/or rate."
- p. 11, last line: "6" should be 6 inches.
- p. 12, line 4: Add "If the tables do not capture the specific acreage or application rate, round up to the nearest acre and/or rate."
- p. 12, under Specific Requirements For Dazomet Applications:
- In the section heading, *For* should be for.
 - Line 4 should include "when school is in session, or is scheduled to be in session while the buffer zone is in effect."
 - The description for Multiple Block Applications should be changed using the new definition.
 - Last line in this section: *nearest acre or rate* should be nearest acre and/or rate.
- p. 21, Appendix III indicates MITC Control Plan, Page 1 of 3, but there are only 2 pages.
- p. 22, second line: *MITC Control Plan* should be centered and bolded as the page heading.

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p. 33, Table 11: There are major spacing problems with the numbers.
We appreciate the opportunity to work cooperatively with DPR and look forward to our continued collaboration on any subsequent issues pertaining to the permit conditions for metam sodium, metam potassium and dazomet. If you have any questions, please contact Dr. Elaine Khan at (916) 324-1277, Dr. Charles Salocks at (916) 323-2605, or you may contact me at (510) 622-3165.

cc: Allan Hirsch
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References

Cone, JE, Wugofski, L, Balmes, JR, Das, R, Bowler, R, Alexeeff, G, and Shusterman, D (1994) Persistent respiratory health effects after a metam sodium pesticide spill. *Chest* 106: 500-508.

Russell, MJ and Rush, TI (1996) Methyl isothiocyanate: Determination of human olfactory detection threshold and human no observable effect level for eye irritation. Report No. RR 96-049B. DPR Vol. 50150-142 #149369.