Chair's Comments
April 20, 2007
HSRB

Need for New Research on Occupational Handler Exposure CHARGE QUESTIONS

April 20, 2007 HSRB Meeting

- ✓ Do the materials provided by EPA regarding the quality of the scientific data currently available for assessing exposures for handlers contain useful information to establish the societal value of proposed new handler exposure research, assuming individual protocols would generate scientifically valid information?

- ✓ What additional information, if any, would the Board want with respect to handler research in general or to individual protocols?

June HSRB 2006 Report

- **Occupational Handler Exposure Monitoring Studies**

Scientific Considerations

- The occupational handler exposure monitoring studies were components of a large-scale exercise to create a contemporary database on occupational exposure to agricultural pesticides. The undertaking is in itself likely to be worthwhile in quantifying and improving our understanding of the exposures and risks of pesticide handlers.

- The potential benefits are large and the risks appear to be relatively modest. However, the materials supplied for HSRB review failed to deal adequately with risks and benefits. None of these protocols can be properly evaluated in regard to scientific validity because they lack: (1) a developed rationale documenting the need for new data; (2) a clear and appropriate plan for the handling of the data (including its statistical analysis), and (3) an explanation of the uses to which the data will be put. These points need to be addressed briefly at least in each specific protocol and, more fully, in a separate and new "governing document" that is not simply a generic description of the planned activities.

- Additional validation studies are recommended to determine the extent to which dermal exposure measurements may underestimate true exposure. Laboratory-based removal efficiency studies or field-based biomonitoring studies could be conducted to achieve this goal. Such studies should be published in the peer-reviewed literature. Broader participation of the scientific community and of parties with a direct interest in the database project, such as the labor community, would likely improve the quality of the database and enhance the credibility of its use in risk assessments.

- The HSRB recommended that specific criteria for withdrawal from study participation due to heat stress be included in these worker exposure protocols, and that the protocols included a heat stress management plan. In addition, the length of each study should be truly representative of a full workday, and each protocol should document the basis for the proposed duration of the study.

- • The HSRB was gratified to receive the Agency’s response to its query regarding the use of diazinon in the AHE37. It is the understanding of the HSRB that the Agency would inform the AHETF that it needs to identify a pesticide other than diazinon in this protocol to evaluate exposures associated with open pour activities and applications using open cabs, and that the Agency would ensure that future protocols comply with the most current risk mitigation measures specified in IREDs and REDs.

Ethical Considerations

- The Board concurred with the initial assessment of the Agency that the studies submitted for review failed to meet the requirements established in the 40CFR26.

- The Board determined the proposed research does not comport with the applicable requirements of §40CFR26, subpart K. However, the deficiencies noted, while significant, were not irreparable.

Although public comments from several members of the AHETF helped assuage some of the Board's concerns, the members of the HSRB believed that further comments about this protocol were warranted. The comments below are grouped into four broad categories:

(1) whether the study was designed to adequately minimize risk to study participants;

(2) whether the documentation and process of study subject enrollment was sufficient to meet prevailing standards of voluntary informed consent;

(3) whether study participants would be adequately compensated in the event of a study-related injury; and

(4) whether appropriate alternatives to participation are provided.

Minimization of Risks to Study Participants

- This study proposes to measure dermal and inhalation exposure to liquid pesticides by agricultural handlers who usually perform pesticide mixing, loading, and application as part of their daily routine. However, it was unclear to Board members, given the semi-scripted nature of the protocol provided, as to whether or not study participants would be exposed to greater quantities of these compounds than would normally occur.

- Are the studies proposed purely observational in nature, or are study investigators intervening by requesting that study participants use different types and quantities of pesticide, or different mixing, loading, and application methods, than they normally would? If the latter is true, the assumption that this study represents a negligible increase in pesticide exposure risk to volunteers may be unfounded. Several Board members also expressed concern that the additional requirements for donning and removing the equipment used to measure pesticide exposure may inadvertently lengthen the participant's normal work day. If so, this should be clearly described during the consent process, as should the question of whether the $100 paid for study participation is expected, in whole or in part, to compensate for the extension of the work day.

- The protocol failed to detail the approach taken to ensure that agricultural handlers are adequately trained in the proper mixing, loading, and application of these compounds. Although pesticide mixing instructions and Material Safety Data Sheets are made available to study participants, given that many agricultural workers may not be fluent in English (or may even be illiterate), a clear plan for ensuring that volunteers are properly educated in minimizing their exposure to these compounds should be included. Furthermore, study investigators may want to make arrangements to provide volunteers with the results of the study following completion.

- One of the greatest risks to study participants is heat-related illness, given that dermal exposure to pesticides will be determined by asking volunteers to wear long underwear in addition to their normal protective equipment (e.g., long sleeved shirts and long pants, and other applicable protective gear). Although study coordinators are expected to be vigilant for signs of heat-related illness among volunteers, in order to minimize the risks posed to the study participants the protocol also should include: a) explicit starting and stopping criteria based on a quantifiable measure like ambient temperature or heat index; and b) a clear description of the symptoms of heat-related illness in the informed consent documents. There should also be a clear plan for reporting any heat-related illness (or, for that matter, any other adverse event) to the study investigators, Western IRB, and the EPA.

- Because some of the study participants may be undocumented immigrants, measures to ensure strict confidentiality should be developed. Many undocumented workers, for example, may be loathe to report any adverse study-related event requiring medical attention or hospitalization if they believe that their illegal status will be reported to immigration authorities. Alternatively, study investigators may wish to require documentation of citizenship or immigration status as part of the inclusion criteria for recruiting study participants. In addition, because many pregnant day-laborers may fear job loss in the event that their employer learns of their condition, extra care should be taken to keep the results of over-the-counter pregnancy tests private.

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Occupational Handler Exposure AGENDA

Current Agenda

1. EPA presentations on need for new research -- 130 min
2. Summary of FIFRA SAP report -- 30 min
3. Public comments -- 30 min
4. Board discussion -- 60 min

Proposed Agenda

1. HSRB initial response to charge questions -- 30 min
2. Summary of FIFRA SAP report -- 60 min
3. Public comments -- 30 min
4. Board discussion -- 90 min

Occupational Handler Exposure

- **EPA Charge Question #1**
  - Do the materials provided by EPA regarding the quality of the scientific data currently available for assessing exposures for handlers contain useful information to establish the societal value of proposed new handler exposure research, assuming individual protocols would generate scientifically valid information?

- **Proposed Board Response**
  - Yes. The report from the January 2007 meeting of the FIFRA Scientific Advisory Panel (SAP) provides an excellent rationale for the collection of new occupational handler exposure data for use by EPA and other regulatory agencies in pesticide risk assessments for agricultural workers.

Occupational Handler Exposure

- **EPA Charge Question #2**
  - What additional information, if any, would the Board want with respect either to handler research in general or to individual protocols?

- **Proposed Board Response #1**
  - EPA's "Draft Framework for Developing Best Practices . . ." applies to all human subjects of occupational exposure studies with pesticides
  - Discussion today should be broadened to include all occupational exposure studies with pesticides, including the Agricultural Rentry Task Force (ARTF) study
  - The ARTF study should be discussed at the Board's next meeting, if possible, to inform discussion of the AHETF study

Occupational Handler Exposure

- **June 2006 Meeting Requests**
  - A separate and new “governing document” that is not simply a generic description of the planned activities
  - A clear and appropriate plan for the handling of the data, including its statistical analysis
  - An explanation of the uses to which the data will be put
  - Plans, if any for additional validation studies to determine the extent to which dermal exposure measurements may underestimate true exposure, as recommended by the Board
  - Plans, if any, to broaden participation of the scientific community and of parties with a direct interest in the database project, such as the labor community, as recommended by the Board
  - Plans, if any, to meet the requirements established in the 40CFR26, as recommended by the Board