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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON D.C., 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

*January 7, 2011*

**MEMORANDUM**

**SUBJECT:** Materials for Review by the Human Studies Review Board for its January 2011 Meeting

**TO:** Jim Downing  
Designated Federal Official  
Human Studies Review Board  
Office of Science Advisor (8105R)

**FROM:** William L. Jordan  
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This memorandum describes the materials EPA's Office of Pesticide Programs is providing for review by the Human Studies Review Board (HSRB or Board) at the meeting scheduled for January 26, 2011. At this meeting, EPA will ask the Board to address scientific and ethical issues surrounding these two topics, each of which is discussed further below:

1. A new scenario design and associated protocol from the Agricultural Handler Exposure Task Force (AHETF) describing proposed research to monitor exposure of workers who perform open mixing/loading of pesticide end use products formulated as wettable powders (AHE80)
2. A report from the AHETF of completed research monitoring the exposure of workers applying pesticide sprays to orchard and trellis crops with closed-cab airblast equipment (AHE55, 56, 57, 58, 59)

## **1. Proposed research on the exposure of workers mixing and loading pesticide end-use products formulated as wettable powders (AHE80)**

In several previous meetings, the HSRB has considered the design and conduct of research to measure the levels of exposure received by professionals who mix, load, or apply pesticides using various types of equipment. Both agricultural and antimicrobial pesticide handler scenarios have been considered. At this meeting, the Board will consider a proposal for research monitoring exposure of workers who perform open mixing and loading of end use pesticide products formulated as wettable powders. This proposal is generally similar to others the Board has seen before from the Agricultural Handler Exposure Task Force (AHETF).

Because the proposed research involves scripted exposure, it meets the regulatory definition of “research involving intentional exposure of a human subject” and thus is covered by subparts K and L of EPA’s amended rule for the protection of human subjects of research. The rule at 40 CFR §26.1125 requires a sponsor or investigator to submit to EPA, before conducting a study involving intentional exposure of human subjects, the protocol and related materials describing the proposed human research. In addition, EPA’s regulation at 40 CFR §26.1601 requires EPA to perform science and ethics reviews of the submitted proposal and to seek HSRB review of the proposed research.

EPA has reviewed the scenario design and protocol for AHE80, and has concluded that the research is likely to generate scientifically sound, useful information and, with minor revisions, to meet the applicable provisions of the EPA regulations in 40 CFR part 26, subparts K and L.

EPA is providing for HSRB review the following three documents concerning this research proposal:

- a. AHE80 Protocol - Submission for HSRB Review in Jan 2011
- b. Supplement 1 for AHE80
- c. EPA Science and Ethics Review for AHE80

### Charge Questions:

If the revised AHETF scenario and field study proposal AHE80 is revised as suggested in EPA’s review and if the research is performed as described:

- a. Is the research likely to generate scientifically reliable data, useful for assessing the exposure of handlers who perform open mixing and loading of pesticide end use products formulated as wettable powders?
- b. Is the research likely to meet the applicable requirements of 40 CFR part 26, subparts K and L?

**2. Completed AHETF research on exposure of workers applying pesticide sprays using closed-cab airblast equipment.**

In June and October 2008, the HSRB reviewed five protocols for research to measure the levels of dermal and inhalation exposure received by pesticide applicators who spray pesticides with closed cab airblast equipment. Following favorable HSRB reviews and after revisions to address EPA, HSRB, and California DPR comments, this research was conducted in summer/fall 2008 and spring/summer 2009. The completed reports and monograph were submitted to EPA in November 2010.

If the data for the Closed Cab Airblast Applicator Scenario are accepted by EPA, the resulting data will be added to the Agricultural Handler Exposure Database (AHED®). EPA intends to use these data generically to estimate daily dermal and inhalation exposures of workers who treat agricultural crops with conventional pesticides using closed-cab airblast equipment. If considered appropriate, data from this scenario addressing exposures from closed cab airblast pesticide applications will be combined with data from an appropriate mixing/loading scenario to estimate exposures of workers who both mix/load and apply.

Because this research involved scripted exposure, it meets the regulatory definition of “research involving intentional exposure of a human subject” and thus is covered by subparts K and L of EPA’s amended rule for the protection of human subjects of research. The rule at 40 CFR §26.1303 requires the submitter of reports of completed human research to document its ethical conduct. The rule at 40 CFR §26.1602(a) requires EPA to “review the material submitted under §26.1303 and other available, relevant information, and [to] document its conclusions regarding the scientific and ethical conduct of the research.” The rule at 40 CFR §26.1602(b) further requires EPA to submit the data and EPA’s review to the HSRB if it decides to rely on the data.

EPA has reviewed the AHETF completed study reports, IIRB correspondence reports, and monograph, and has concluded that the research provides scientifically sound, useful information, and was conducted in substantial compliance with the ethics requirements at 40 CFR part 26, subparts A through L.

EPA is providing for HSRB review the following documents concerning these completed studies and monograph:

<b>Background Documents (Submitted to EPA by the AHETF)</b>	
<b>File Name</b>	
1.	AHE55 Final Cluster Report – November 2010
2.	Final AHE55 IIRB Correspondence Report – November 2010
3.	AHE56 Final Cluster Report – November 2010
4.	Final AHE56 IIRB Correspondence Report – November 2010
5.	AHE57 Final Cluster Report – November 2010
6.	Final AHE57 IIRB Correspondence Report – November 2010

<b>Background Documents (Submitted to EPA by the AHETF)</b>	
6a.	Supplement 1 for AHE57
7.	AHE58 Final Cluster Report – November 2010
8.	Final AHE58 IIRB Correspondence Report – November 2010
9.	AHE59 Final Cluster Report – November 2010
10.	Final AHE59 IIRB Correspondence Report – November 2010
11.	CCAB Monograph Report - FINAL

<b>EPA Science Reviews</b>	
<b>File Name</b>	
1.	EPA Science Review of AHETF CCAB Completed Studies
2.	EPA Science Review of AHETF CCAB Monograph
<b>Supporting Files for Science Review (Excel and SAS files)</b>	
<b>File Name</b>	
1.	AHE55 Calcs-Carbaryl-NO MEC-11-30-10_FINAL QA'd.xls
2.	AHE55 Calcs-Malathion-NO MEC-11-30-10_FINAL QA'd.xls
3.	AHE56 Calcs-Carbaryl-NO MEC-11-30-10_FINAL QA'd.xls
4.	AHE56 Calcs-Malathion-NO MEC-11-30-10_FINAL QA'd.xls
5.	AHE57 Calcs-chlorothalonil- No MEC-11-30-10_FINAL QA'd.xls
6.	AHE58 TDE Calcs-Malathion-No MEC-11-22-10_FINAL QA'd.xls
7.	AHE59 TDE Calcs-Carbaryl-No MEC-11-22-10_FINAL QA'd.xls
8.	CCAB-scenario calcs-No MEC-to EPA on 11-22-10.xls
9.	CCAB-scenario calcs-with MEC-to EPA on 11-22-10.xls
10.	CCAB-QAd-Final - 11-8-10.csv
11.	CCAB-with MEA-QA'd_FINAL 6-10-10 - EPA vers 6-15-10.csv
12.	Eval_CCAB.sas
13.	Macro_GetEmpStats.sas
14.	Macro_NormScores.sas
15.	Macro_ObjEval_CCAB.sas
16.	Macro_TestVCs_CCAB.sas

<b>EPA Ethics Review</b>	
<b>File Name</b>	
1.	EPA Ethics Review of AHETF CCAB Completed Studies

Additional Reference Files	
File Name	
1.	EPA Science and Ethics Reviews of CCAB Protocols – AHE55, AHE56
2.	EPA Science and Ethics Reviews of CCAB Protocols – AHE57, AHE58, AHE59
3.	HSRB Report covering CCAB Protocols – AHE55, AHE56
4.	HSRB Report covering CCAB Protocols – AHE57, AHE58, AHE59
5.	IIRB, Inc. Roster and Procedures
6.	AHETF SOPs
7.	AHETF Governing Document

Charge Questions:

- a. Was the research reported in the Agricultural Handler Exposure Task Force (AHETF) completed monograph report and associated field study reports faithful to the design and objectives of the protocol, SOPs, and governing documents?
- b. Has the Agency adequately characterized, from a scientific perspective, the limitations on these data that should be considered when using the data in estimating exposure of those who apply conventional pesticides with closed cab airblast equipment?
- c. Does available information support a determination that the studies were conducted in substantial compliance with subparts K and L of 40 CFR Part 26?