Charge Questions for the Scientific Review Panel:
Evaluation of Chlorpyrifos as a Toxic Air Contaminant (December 2017 Draft)

Charge Question #1

Please comment on the appropriateness of the toxic endpoint selected for the chlorpyrifos evaluation (acetylcholinesterase inhibition). Please consider the extensiveness of the chlorpyrifos database, as well as the approach, feasibility and available database for selecting an alternate endpoint.

Charge Question #2

A target margin of exposure (MOE) of 100 is generally considered protective against chlorpyrifos toxicity. This target takes into account uncertainty factors of 1 for interspecies sensitivity, 10 for intraspecies variability, and 10 for potential neurodevelopmental effects. Please comment on whether the uncertainty factors used in this assessment are appropriate.

Charge Question #3

The risk from acute dermal, inhalation, and non-dietary oral exposures was calculated using the 21-day steady state dermal, inhalation and oral points of departure (PoDs). Because the inhibitory effect of chlorpyrifos on acetylcholinesterase is cumulative, acute PoDs may not be sufficient for characterizing AChE inhibition from spray drift especially with background dietary exposure to chlorpyrifos residue in foods. Please comment on HHA's approach to using the 21-day steady state PoD values to evaluate the risk associated with dermal, inhalation, and non-dietary oral exposures from spray drift.

Charge Question #4

A data gap exists with respect to air concentrations associated with ground boom and orchard airblast applications. Field studies available did not measure spray drift aerosols. In addition, the mechanistic AGDISP model used to estimate air concentrations for aerial applications does not have a well vetted ground boom model and does not include an orchard airblast model. HHA used a surrogate approach to estimate spray drift aerosol inhalation exposures due to ground boom and orchard airblast spray. The fixed wing aerial application scenario air concentrations estimated by the AGDISP modeled are used as the surrogate air concentrations. Please comment on the HHA approach of using AGDISP fixed wind aerial application air concentrations as a surrogate for air concentrations that would result from ground boom and/or orchard airblast applications.

Charge Question #5:

A spray drift cloud is comprised of aerosol droplets of varying sizes that continually change as the cloud travels away from the application target. The air concentration estimate produced by the AGDISP model is comprised of an aerosol cloud of varying droplet sizes depending upon the distance downwind of the application (the flux plane) and the height above ground where the air concentration is measured. The AGDISP model can output the droplet spectra of both the entire cloud passing a flux plane (from just above ground level to where the height where the cloud ends above ground) and at any specific height above ground (e.g., the assumed child or adult breathing height). In the current risk assessment, HHA does not adjust for inhalable fraction. Please comment on whether HHA should make adjustments to air concentrations for inhalable fraction and if so, how the panel suggests those adjustments be made.

Charge Question #6

Please comment on suggested approaches to incorporating human epidemiological data into comprehensive risk assessments, considering the specific requirements for human health risk assessments to quantitatively analyze the dose-response relationship of a specific pesticidal active ingredient to a quantified biological outcome.