October 24, 2008

Ms. Cynthia Oshita
Office of Environmental Health Hazard Assessment
Proposition 65 Implementation
P.O. Box 4010 (coshita@oeoaa.ca.gov)
1001 I Street, 19th floor
Sacramento, California 95812-4010

Re: “Review of Toxicology of Chlorpyrifos with an Emphasis on Human Exposure and Neurodevelopment” as published in Critical Reviews in Toxicology

Dear Ms. Oshita:

I am writing to you on behalf of Science Partners LLC as we understand that the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment is in the process of reviewing chlorpyrifos for potential listing as a developmental and reproductive toxicants as required by the California Health and Safety Code Section 25249.8 (Prop 65). We at Science Partners felt it was important to ensure that members of the Developmental and Reproductive Toxicant Identification Committee were aware of the findings in a recently published study, “Review of Toxicology of Chlorpyrifos with an Emphasis on Human Exposure and Neurodevelopment,” which was co-authored by an international panel of 13 eminent medical scientists commissioned by Science Partners and was published as a supplement to the September 2008 Issue of Critical Reviews in Toxicology, following an extensive peer review. The full report is attached and also can be accessed at www.informaworld.com/10.1080/10408440802272158.

The scientists gathered by Science Partners for the review have extensive expertise in all relevant disciplines including pediatric neurology, teratology, epidemiology, toxicology, neurotoxicology and child psychiatry. They performed a comprehensive and rigorous analysis of all relevant scientific and medical studies related to chlorpyrifos and the plausibility of the insecticide causing adverse effects in humans. A total of 10,136 published citations were obtained and examined from peer-reviewed journals from numerous scientific databases from around the world spanning more than 40 years. They also had access to 6,593 private, unpublished documents, studies and assessments provided by Dow AgroSciences.

David L. Eaton, Ph.D., University of Washington, Environmental and Occupational Health Sciences, directed the review as one of the lead authors and was responsible for coordinating the basic toxicology review. Robert Darroff, M.D., Associate Dean of Development and Professor and Chair Emeritus of the Department of Neurology at Case Western Reserve University School of Medicine, coordinated the clinical review. Patricia Buffler, Ph.D., UC-Berkeley, handled the epidemiology review, with support from William Mobley, M.D., Ph.D., neurologist/neuroscientist at Stanford.

As a result of this review, the team of experts found no support for a causal connection between current levels of chlorpyrifos exposure and adverse human development. The team also concluded that there was lack of compelling evidence of a cause-and-effect relationship in Western populations between chlorpyrifos and some measures of health at birth, such as birth weight, and that current exposure to chlorpyrifos from dietary sources is estimated to be substantially below acceptable levels established by the U.S. EPA. These experts additionally determined that on the basis of available data, it is unlikely that current exposure to chlorpyrifos alters brain development.
Science Partners LLC is an independent scientific partnership comprised of more than 150 of the United States' and Europe's most respected authorities including physicians, medical scientists, biomedical engineers, toxicologists, epidemiologists, and environmental, safety and risk experts. The operation and structure of Science Partners LLC are designed to provide maximum objectivity and independence. Further information can be found on our website www.sciencepartners.com

Our organization is somewhat like a “private” National Academy of Sciences. The National Academy of Sciences and the National Research Council (NRC) are paid by government agencies to conduct independent reviews, but does not support reviews for the private sector. Science Partners is paid by clients in the private sector to assemble appropriate experts to address specific scientific topics of interest (much like NRC does), and to conduct a thorough, independent and objective review of all existing scientific literature, and then publish these findings in peer reviewed journals. Clients have no say in the outcomes, and cannot prevent or otherwise interfere with the publication of the final report. For chlorpyrifos, Dow AgroSciences contracted with Science Partners to conduct this independent review.

Here is a full listing of the scientific review team involved in the study:
- David Eaton, Ph.D., University of Washington, Environmental and Occupational Health Sciences;
- Robert B. Daroff, M.D., Case Western Reserve University, Neurology, USA;
- Herman Autrup, Ph.D., University of Aarhus, Environmental and Occupational Medicine, Denmark;
- James Bridges, Ph.D., M.Ed., University of Surrey, Toxicology and Metabolism, UK;
- Patricia Bueffler, Ph.D., University of California-Berkeley, Epidemiology, USA;
- Lucio G. Costa, Ph.D., University of Washington, Environmental & Occupational Health Sciences, USA;
- Joseph Coyle, M.D., Harvard Medical School, Psychiatry and Neuroscience, USA;
- Guy McKhann, M.D., The Johns Hopkins University Medical School, Neurology & Neuroscience, USA;
- William C. Mobley, M.D., Ph.D., Stanford University, Neuroscience, USA;
- Lynn Nadel, Ph.D., University of Arizona, Psychiatry, USA;
- Diether Neubert, M.D., Charité Berlin Campus Franklin Benjamin, Clinical Pharmacology and Toxicology, Germany;
- Rolf Schulte-Herman, Ph.D., D.M., Medical University of Vienna, Toxicology, Austria; and,
- Peter S. Spencer, Ph.D., F.R.C. Path., Oregon Health & Science University, Center for Research on Occupational and Environmental Toxicology, USA.

I urge you to consider this study and our findings as part of your review and decision-making process related to chlorpyrifos.

Sincerely,

Jeremy Griffiths
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Science Partners, LLC
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(Original Signed)
The following article was submitted as an attachment both to comments from Dow AgroSciences and from Science Partners LLC. A copy of the article may be obtained from OEHHA’s Proposition 65 Implementation Office by calling (916) 445-6900

Eaton, David L.; Daroff, Robert B.; Autrup, Herman; Bridges, James; Buffler, Patricia; Costa, Lucio G.; Coyle, Joseph; McKhann, Guy; Mobley, William C.; Nadel, Lynn; Neubert, Diether; Schulte-Hermann, Rolf and Spencer, Peter S. (2008), Review of the Toxicology of Chlorpyrifos With an Emphasis on Human Exposure and Neurodevelopment. Critical Reviews in Toxicology 38(1): 1 – 125.