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May 2, 2003

Scott A. Masten, Ph.D.
Office of Chemical Nomination and Selection
Environmental Toxicology Program
National Institute of Environmental Health Sciences
P.O. Box 12233, MD A3-07
111 T.W. Alexander Drive
Research Triangle Park, NC

Rcvd 5/5/03

Dear Dr. Masten:

Attached is our application to the Office of Chemical Nomination and Selection of the NIEHS for conducting cadmium telluride toxicological studies. The Department of Energy's Solar Technologies Program Office, the Brookhaven National Laboratory's National Photovoltaic Environmental Health and Safety Assistance Center, the National Renewable Energy Laboratory and the PV industry, (i.e., First Solar Inc.) are supportive of this nomination.

Please kindly let me know if there is anything else that is needed for this nomination and the expected time frame of the selection process.

Sincerely,

Vasilis M. Fthenakis, Ph.D.
Principal Investigator
National PV EHS Assistance Program
Brookhaven National Laboratory

Department of Energy
Washington, DC 20585

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Mr. Scott A. Masten, Ph.D.
Office of Chemical Nomination and Selection
Environmental Toxicology Program
National Institute of Environmental Health Sciences
P.O. Box 12233, MD A3-07
111 T.W. Alexander Drive
Research Triangle Park, NC

Dear Dr. Masten:

We are writing to you regarding the nomination to the National Toxicology Program (NTP) of cadmium telluride for toxicological studies. This compound is the basis of one of the U.S. Department of Energy's major thrusts in thin-film photovoltaic (PV) energy technologies. In addition, CdTe was identified as a prime candidate for manufacturing flexible ultrathin PV layers based on nanotechnology. These applications have the potential to revolutionize electricity production, and bring CdTe photovoltaics near people's residences in very large scales.

Cadmium telluride is a commercial chemical for which there is very limited toxicological data. Future large-scale use in photovoltaics may present health issues related to potential exposures during manufacturing and decommissioning.

Currently, the PV industry is very small and generates too little revenue to support toxicological evaluations of the compound. The Department of Energy's Office of Solar Energy Technologies, the Brookhaven National Laboratory, the National Renewable Energy Laboratory, and the PV industry, (i.e., First Solar Inc.) strongly support this nomination.

Sincerely,

R. A. Sutula

Raymond A. Sutula, Ph.D.
Program Manager
Office of Solar Energy Technologies

Vasilis M. Fthenakis, Ph.D.
Principal Investigator
National PV EHS Assistance
Brookhaven National Laboratory

National Renewable Energy Laboratory

April 3, 2003

Scott A. Masten, Ph.D.
Office of Chemical Nomination and Selection
Environmental Toxicology Program
National Institute of Environmental Health Sciences
P.O. Box 12233, MD A3-07
111 T. W. Alexander Drive
Research Triangle Park, NC

Dear Dr. Masten:

We understand that you may be willing to engage in a study to delineate the potential health issues surrounding the important photovoltaic (PV) material, cadmium telluride. This would be a wonderful service to us and to US photovoltaics.

We view CdTe PV as one of the most promising candidate materials for large-volume production of cost-competitive PV. Our mission at NREL since inception has been to develop this kind of PV technology for the nation to provide electricity from a domestic source with fewer environmental impacts than current fossil and nuclear options. CdTe is a thin film PV technology that appears to have the right mix of technical qualities to achieve this goal. Much technological progress has been made, and a new manufacturing facility for CdTe PV modules has been built in Perrysburg, Ohio, by First Solar Inc. This facility is one of the most important new entrants in the entire commercial PV field.

However, traditionally CdTe has been viewed with much skepticism by the PV community because of the presence of Cd. The small amount involved and other safety factors have inured us to the Cd, but doubts remain. We recently developed a web site concerning Cd Issues in PV (http://nreldev.nrel.gov/cdte/). Any findings you develop during this study would be added to the website as soon as it becomes available.

The Cd health and safety issue has been so critical that several multi-billion dollar businesses that would otherwise be in CdTe PV have dropped out, mostly due to the uncertainties surrounding the Cd issue – litigation as well as any actual potential health problems. Because of the technical importance of CdTe to PV development, this is not a

satisfactory situation (unless it turns out that Cd-related problems are more serious than is currently believed).

So thank you for your interest in this valuable health study. It should have a major value for the industry and out program management decision-making.

Sincerely,

Lawrence Kazmerski
Director, NCPV

Thomas Surek
PV Program Manager

Ken Zweibel
Manager, Thin Film Partnership

First Solar

April 14, 2003

Scott A. Masten, Ph.D.
Office of Chemical Nomination and Selection
Environmental Toxicology Program
National Institute of Environmental Health Sciences
P.O. Box 12233, MD A3-07
111 T.W. Alexander Drive
Research Triangle Park, NC 27709

Dear Dr. Masten:

I am writing regarding the nomination of cadmium telluride (CdTe) to the National Toxicology Program (NTP).

CdTe is an integral part of the leading-edge solar technology being developed by First Solar. CdTe photovoltaic panels have been recognized by the Department of Energy (DOE) as potentially revolutionizing solar electricity production.

CdTe is a commercial compound for which there is very little toxicological data. The photovoltaic industry in the United States is not currently in a position to conduct an independent toxicological evaluation of the scale proposed in the NTP, but having this toxicological information would allow the industry to better serve its customers, employees and the communities in which it does business.

Because of the importance of CdTe to the future of the US photovoltaic industry and energy producers and consumers nationwide, First Solar strongly supports the nomination of CdTe to the NTP.

Best regards,

Chip Hambro
President & General Manager

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