UNIVERSITY OF SAN FRANCISCO

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November 11, 2014

Science Guidance Panel
Biomonitoring California

Re: VOCs to be prioritized within the Biomonitoring California Program

Dear Members of the Science Guidance Panel;

I would like to request that the Science Guidance Panel recommend the prioritization of volative organic compounds (VOCs) for exposure monitoring by the Biomonitoring California Program. The range of potential exposure pathways for VOCs and the ubiquitous uses in homes, schools, workplaces, as well as community exposures associated with industrial processes, combined with their known health risks, easily labels them as important to study.

Because VOCs are chemicals that volatilize at room temperature, they are present in the air (both indoor and out) and easily absorbed through the lungs. Many VOCs are known toxicants, such as formaldehyde, which is found in household and personal care products. VOCs are also in a wide range of building and construction products such as pressed wood, paints, strippers, adhesives and arts and crafts products, including glues, markers, and paints. People doing home repairs, art and crafts, or construction projects rarely take the necessary precautions to properly ventilate their work areas and thereby risk exposures to potentially toxic levels of VOCs.

There is an even wider range of particularly toxic VOCs that are used in industrial settings, such as benzene, methylene chloride, hexane, toluene, trichloroethane, styrene, heptane, and perchloroethylene. For many of these chemicals there are OSHA standards, but we really do not have good data on who is exposed and to what extent.

In agricultural setting, VOCs can be found in chemicals that are used to control pests and weeds. It would be very useful to have data on VOC levels in agricultural workers and farm families, as well as those living in close proximity to agricultural activities.

The current practice at many sites where they are employing unconventional hydraulic fracturing techniques, is to store the extracted "fracking fluids" in uncovered holding ponds. Many of these chemicals, especially one of the most common combinations of them - BTEX (benzene, toluene, ethylbenzene, and xylenes) are VOCs. Both the workers at these sites, as well as the communities in immediate proximities, are at risk for exposures. This is a new and expanding source of VOCs in California that is important to understand from a human exposure perspective.

The health effects associated with VOCs are also broad, ranging from immediate irritation of eyes and mucosal membranes, headaches, and nausea to the more series neurotoxic and reproductive effects, and cancer. Given the extent to which VOCs are in our environment and their associated

health risks, it would be extremely helpful to have the Biomonitoring California Program measure human's body burdens of these chemicals.

Thank you for considering this request.

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