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Dr. Winston Dang
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USEPA Headquarters
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: Transmittal of Technical Papers by Wester, Nico, and Yost
Project No. 8601936.006

Dear Dr. Dang:

In response to your request, I am providing you with the most current versions of draft manuscripts pertaining to recent CCA-related research involving Exponent staff. Specifically, I am providing you with:

1. Nico, S.P., S.E. Fendorf, Y.W. Lowney, S.E. Holm, and M.V. Ruby. 2003. Chemical structure of arsenic and chromium in CCA-treated wood: Implications of environmental weathering. Submitted for publication.

This draft manuscript describes recent research into the chemical characterization of CCA-treated wood. This paper uses XAS (X-ray Absorption Spectroscopy) to provide data showing that the form of the Cr and As in CCA-treated material is consistent between fresh and aged samples and between treated wood and dislodged residue. In all cases, the dominant oxidation state of the two elements is As(V) and Cr(III), and the local chemical environment of the two elements is best represented as a stable Cr/As cluster consisting of a Cr dimer bridged by an As(V) oxyanion

2. Wester, R.C., X. Hui, S. Barbadillo, H.I. Maibach, Y.W. Lowney, R.A. Schoof, S.E. Holm, and M.V. Ruby. 2003. *In vivo* percutaneous absorption of arsenic from water and CCA-treated wood residue. Submitted.

This draft manuscript presents the methods and results from testing the dermal absorption of arsenic from CCA residues. Generally, the research methods replicate the earlier (1993) research conducted by Dr. Wester on radiolabeled, soluble arsenic, but this work provides results specific to the residues on CCA-treated wood. Results from this research indicate that this study methodology can be used to evaluate dermally absorbed arsenic without the use of a

radiolabel. Urinary excretion of arsenic above background levels can be measured following application of soluble arsenic, and absorption rates for soluble arsenic are consistent with prior research using the more sensitive, radiolabeled technique. Conversely, and most importantly, the results show that dermal application of arsenic in CCA residue does not result in urinary arsenic excretion above background levels, indicating that arsenic is poorly absorbed from CCA residues.

3. Yost L.J., S.H. Tao, S.K. Egan, L.M. Barraj, K.M. Smith, J.S. Tsuji, Y.W. Lowney, R.A. Schoof, and N.J. Rachman. 2004. Estimation of dietary intake of inorganic arsenic in U.S. children. Journal of Human and Ecological Risk Assessment (in press).

I have included this paper because it provides a useful perspective for interpreting the predicted levels of exposure to arsenic from CCA-treated wood. This paper estimates dietary intake for U.S. children (1–6 years of age) based on reported inorganic arsenic concentrations in foods and in water used to cook those foods, and U.S. Department of Agriculture food consumption data. This information is combined using a probabilistic software model to extract food consumption patterns and compute exposure distributions. The mean childhood dietary intake estimate for inorganic arsenic was 3.2 μg/day, with a range of 1.6–6.2 μg/day for the 10th and 95th percentiles, respectively.

From our conversation, I understand that you are compiling information to include in the briefing package that is provided to the SAP members. I have notified the authors of the attached documents that I am transmitting the documents to you, and I am providing these documents for you to include in information packets that you develop. Please contact me if you have any difficulties in extracting the electronic attachments included with this transmittal.

Sincerely,

Yvette Lowney

Yvette Lowney
Managing Toxicologist/Regional Manager

Enclosures (3)

cc: Stewart Holm