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Ms. Dorothy Shimer
Staff Air Pollution Specialist
Research Division
California Air Resources Board
P.O. Box 2815
Sacramento, California 95612

Re: Indoor Air Pollution in California – Draft for Peer Review

Dear Ms. Shimer:

These supplementary comments on the November draft of the A.B. 1173 Report are submitted on behalf of the California Wood Industry Coalition (the "Coalition"), a broad-based group representing industries and companies that manufacture wood adhesives, wood panel products and items such as furniture and cabinets made from them. The Coalition filed comments with you on August 27, 2004, regarding a number of points of interest to our industries. We complement you on many of the changes that have been made and appreciate the further opportunity to add input as the report proceeds to the scientific peer review panel. The additional discussion of biological and radiological concerns is very useful. It is also evident from the many changes that the Air Resources Board staff have carefully considered the many comments, including many of ours.

There are, however, some major points that we believe still require review by the Peer Review Panel. Clarifications and context on certain important issues would give a more informed and balanced report to the legislature. Additionally, we include below some more minor comments on some of the changes that have been made, or in our view should be made. It is our understanding that the reviewers will have copies of our original comments, so we will not reiterate the other points raised in August. We refer you and the reviewers to our original comments for full background on the points noted below.

1. Lack of Reference to the New Formaldehyde Cancer Risk Assessment.

Perhaps one of the most disappointing and disturbing aspects of the November Draft is the lack of even a fleeting reference to the major new formaldehyde research and cancer risk assessment that has been developed over the last fifteen years.

In its earlier comments, the Coalition pointed out once again the ground-breaking work of the Chemical Industry Institute of Toxicology ("CIIT") reflected in *Formaldehyde: Hazard characterization and dose-response assessment for carcinogenicity by the route of inhalation* (1999). We refer you to those comments as well as to the extensive comments of the Formaldehyde Council on the subject. We further ask that the petition submitted to ARB in April of 2002 by the Formaldehyde Epidemiology, Toxicology and Environmental Group be

provided to the peer reviewers. They will see for themselves the scope and sophistication of the CIIT work.

In its Summary of Public Comments and ARB Responses, Number 54, ARB explained the refusal to reference the CIIT work as follows:

> In November 2002, OEHHA denied a petition to review the California formaldehyde risk assessment. The petition was based in part on the potency estimate change associated with the CIIT report. OEHHA stated that the report was a new analysis of old evidence rather than new evidence. OEHHA also stated that more information is needed to evaluate the risk assessment model used by CIIT, and that it needs to be peer-reviewed.

Several comments are in order. First, clearly OEHHA was disinterested in undertaking a reevaluation of the work that it did in the early 1990's. This would have required substantial time and effort. In an era of reduced staffs and budgets, requests of this magnitude are no doubt troubling. However, the petition was not for them to deny -- their role is advisory to ARB.

The fact that the same underlying rat bioassays were used in all of the major risk assessments on formaldehyde done over the last twenty-five years, including CIIT's is undeniable. No one to our knowledge disputes the way in which the bioassays were conducted. The challenge is to appropriately extrapolate from life-time, extraordinarily high dose exposures in rats, to much lower exposures in humans. Computer models which have been used to do this employ conservative, default assumptions in the absence of scientific knowledge about the particular mechanism of formaldehyde carcinogenesis.

It is also undeniable that substantial new evidence, discovered over the years, was used by CIIT in place of many of the default assumptions in the earlier computer models. New information on cell proliferation, delivered dose, computational flow dynamics in the breathing passages of various mammal species, and many other features were incorporated into CIIT's biologically based risk assessment.

It is also undeniable that this work has been widely accepted by prestigious bodies around the world including the Organization for Economic Cooperation and Development, the German MAK Commission, Health Canada, the World Health Organization and recently in several proposed rules by the U.S. Environmental Protection Agency. Citations and descriptions of these activities were included in our earlier comments.

While we understand that OEHHA may have a different view of the subject and does not want to address the new information in detail, we submit that it would be a disservice to the readers of the report and to the legislature to mask the CIIT risk assessment and other governmental activity, hiding them from view. Although we believe that all of the standards for re-opening a California risk assessment were met by the petition, it should be noted that those standards are far more exacting and substantially different than those for including information in a report to the legislature that is to provide guidance and texture to these very important issues.

We ask that the CIIT risk assessment be explained in the final report, that its quantitative

results be expressed in addition to and in distinction to those of OEHHA and that its acceptance by other national and international governmental bodies be acknowledged.

2. Point Estimates of Cancer Incidence. In its earlier comments, the Coalition noted that the Report included numerous specific estimates of cancer incidence and pointed out that this practice is consistently criticized by the very scientists who developed the risk assessment models. The Human Health Committee that developed the 1994 Comparative Risk Project Report (upon which many of the references were drawn) specifically noted:

> The Human Health Committee decided that consistent application of standards, assumptions and methods would provide the best basis for comparing risks across topic areas, with the important caveat that resulting risk estimates should not be interpreted as predictions of actual disease incidence.

(CRP Report at 104, emphasis added). We appreciate the fact that the November draft has included a brief reference to the fact that the specific numbers are the 95% Upper Confidence Limit statistical expressions and should not be interpreted as predictions of actual risk (November Report at 38-39). However the Report continues to do just that in numerous places (See page 4 and Appendix II, for example). Most readers are unlikely to appreciate the nature of risk assessment niceties – they will focus on the predictions of risk repeatedly made in the text.

Appendix II -- Explanation of Indoor Cancer Risk Estimates – a four page discussion of the cancer risk process used in the report, continually reflects the CRP report as a basis of point estimate of risk, a practice that the CRP authors considered inappropriate. The Appendix does not even mention the fact that a statistical UCL expression was used. Neither the text nor the Appendix mentions that the computer models used to generate these figures also develop alternative expressions of risk, including a maximum likelihood estimate ("MLE") that in some instances are orders of magnitude lower than the UCL expressions. The more uncertain the assumptions, the more divergence there is between the MLE and UCL expressions..

The Appendix notes that a literature search was conducted to obtain more recent exposure information, but fails to mention that the U.S. Environmental Protection Agency, Health Canada, and various European jurisdictions have adopted and proposed regulations based on the new CIIT formaldehyde risk assessment methodology.

The Coalition recommends that the point estimates of risk be removed from the report, or if used, be put into context by also referencing the Maximum Likelihood Estimate ("MLE") expression of the California model and the CIIT results in close proximity. The Appendix should be used to fully explain the nature of the estimates used, their limitations and alternative approaches that have been widely adopted.

3. Recommendations Regarding Testing The November draft added a new suggestion that a broad array of products, including home furnishings, be submitted to independent testing laboratories for determination of emissions.. While many wood panel products are currently certified to meet the formaldehyde emission requirements of various applicable American National Standards, this is not a practical suggestion for complex manufactured products such as furniture. Unlike some regulated products, such as coatings or cosmetics, which can be evaluated simply based on the percentage content of a particular compound of concern, formaldehyde emissions vary depending on the amount and type of panel products that are in the finished piece and how they are covered or finished. A bureau has a significantly different make-up than a bed stand or chair and the same type of piece could have very different types of wood components. The variations are endless. Emissions also vary over time and with atmospheric conditions such as temperature and humidity. Emissions also change depending on other materials that may be in the room..

Typical industry standards are based on the testing of the component materials (e.g. particleboard, medium density fiberboard or hardwood plywood) under specified conditions of loading, temperature, humidity and conditioning. These test protocols give normative, objective and comparable results. The situation would be quite different with furniture. Pieces vary by size, material composition, construction techniques, laminations and finishes, and vary

dramatically. It would be virtually impossible to develop a test protocol that would capture meaningful information on consumer furnishings, per se.

This situation is further complicated by distribution patterns. The Coalition has also submitted numerous comments to CARB regarding the surge in imports of furniture into this country and the particular challenges that are faced by testing and regulation of these items.

4. Ongoing Cooperation with ARB. We are somewhat curious as to why some references to the ongoing ARB Air Toxics Control Measure proceeding have been eliminated. (See, e.g., pages 26 and 104 of the June draft report). The Coalition takes pride in the cooperative effort that it has undertaken in working with ARB's staff over the last four years and we believe that those developing the ATCM will confirm our responsiveness to their requests.

5. References to the Large Chamber Metrics. The Coalition appreciates the added information on page 60 of the Report regarding the recent survey by ARB in the context of its ATCM proceeding. However, the reference to the large chamber limit of 0.3 ppm in the context of the discussion on page 60 could mistakenly lead the reader to conclude that this number relates to an ambient level in a home. That is not the case. ASTM 1333 -- the large chamber test – is a protocol with set conditions and processes which gives a reading of emissions under consistent parameters. Home ambient

concentrations in which complying wood products are used consistently have been shown to be extraordinarily low and are not related to the 0.3 ppm maximum value in some of the industry standards. Results of an EPA-sponsored home study on this issue have been submitted to ARB.

6. Reference to Industry Standards. ARB has responded to earlier comments from the Coalition by recommending the use of low-emitting products meeting industry standards when UF bonded products are needed (Page 127). We believe it would be appropriate and in the best interests of Californians to broaden this recommendation given the lack of feasible alternative products in many applications. The U.S. Consumer Product Safety Commission and Environmental Protection Agency have similarly advised consumers to seek materials made from low-emitting, certified panel products.

There is one inaccuracy regarding industry standards that should be corrected in the next draft – the industry standards are not identical to HUD standards for mobile homes. Many years ago, the Composite Panel Association lowered the formaldehyde emission limits in the American National Standard (ANSI A208.1) for certain particleboard products to 0.2 ppm in the large chamber test, lower than the HUD requirements. This standard has been submitted to ARB. CPA has also promulgated emission limits for medium density fiberboard (ANSI A208.2).

We also request that the reference to industry standards for voluntary formaldehyde limits on page 15 of the Report identify the actual names of the associations involved --the Composite Panel Association and Hardwood Plywood & Veneer Association rather than "Composite Wood Manufacturers" -- so that the reader can more readily identify those documents and the industry products..

We fully appreciate the difficulty, complexity and very broad scope of the assignment posed to ARB by the Keeley bill. We ask that you and the Scientific Peer Reviewers look at these suggestions in a spirit of better informing both the public and the legislature of these important issues.

Thank you for affording us the opportunity for additional comment on the Report.

Very truly yours,

Brock R. Landry