



December 28, 2004

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Research Division  
California Air Resources Board  
P.O. Box 2815  
Sacramento, California 95812

**Re: Comments on November 2004 California ARB Draft Report - Indoor Air Pollution in California**

Dear Ms. Shimer:

The Formaldehyde Council, Inc. (FCI)<sup>1</sup> appreciates the opportunity to comment on the November 2004 Draft for Public Review of the Report to the California Legislature: Indoor Air Pollution in California (November 2004 Report or Revised Draft Report), issued by the California Air Resources Board (ARB). FCI has a unique understanding of the science and toxicology of formaldehyde and submitted a set of comments on ARB's June 2004 Draft Report.

FCI would like to commend the ARB for the considerable work that has been done in revising this Report. From FCI's perspective, the November 2004 Report is clearer, more precise, and more balanced than the Draft June 2004 Report. There are, however, several sections in the Revised Draft Report that merit revision in their discussion of formaldehyde. To that end, FCI would like to make the following points:

**A. ARB's Prioritization Scheme for Mitigation Measures**

The Revised Report contains improved prioritization tables that are more developed, understandable, and less focused on certain pollutants for no discernible reason.<sup>2</sup> In our comments on the June 2004 Draft Report, we explained that the extremely small impact

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<sup>1</sup> FCI is a trade association of leading producers and users of formaldehyde that is dedicated to promoting the responsible use and benefits of formaldehyde and ensuring its accurate scientific evaluation. For more information about FCI, visit <http://www.formaldehyde.org>. Members of the Council include: Borden Chemical, Inc., Celanese, Ltd., DuPont Engineered Resins, Dynea North America and Georgia-Pacific Corporation.

<sup>2</sup> November 2004 Report, p. 148.

(roughly 2% of total indoor air costs and impacts) of VOCs did not justify ARB's significant and troubling emphasis on VOC reduction in indoor air.<sup>3</sup> FCI continues to challenge the significant and largely unexplained emphasis on the presence of formaldehyde and other VOCs in indoor air, when ARB acknowledges it is only a small part of the problem. FCI agrees with the statement in the Revised Draft Report that quantitative prioritization, while apparently beyond the scope of this project, is a necessary step prior to taking action under a comprehensive program to address indoor sources.<sup>4</sup>

## **B. Formaldehyde Risk Characterization**

In our comments on the June 2004 Draft Report, we stated that the Report contained inappropriately conservative part per billion concentration recommendations and completely lacked a discussion of one of the most significant advances in formaldehyde science (the cancer risk assessment methodology developed by the CIIT Centers for Health Research). Thus, we commented that the Draft Report did not meet its mandate of providing the "best scientific information available."

In the Summary of Public Comments and ARB Responses on the June 2004 Draft Report for AB1173, ARB explains:

"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 1999 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 and validated."<sup>5</sup>

While we understand the Revised Report's reliance on OEHHA's current risk assessment for formaldehyde, the CIIT approach should be referenced in the final report. The CIIT

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<sup>3</sup> From a priority setting perspective, if all VOC's constitute only 2% of the impact, focusing on any one VOC will address less than 1% of the overall issue. Overall, the report appears to focus 98% of its time and energy on 2% of the problem. This is hardly appropriate for a document that the Legislature requested to help it understand the issues and properly direct state resources. From an impact and resource allocation perspective, all VOCs merit, at most, a footnote based on ARB's own cost benefit projections.

<sup>4</sup> November 2004 Draft Report, p. 147. According to the Revised Draft Report, "a quantitative prioritization was not undertaken because such an effort is beyond the scope of this report. Such an effort would be an appropriate step prior to taking action under a comprehensive program to address indoor sources; a detailed prioritization based on quantified criteria would be needed." *Id.*

<sup>5</sup> November 2004 Report, p. 23.

model has undergone extensive review by U.S. EPA and Health Canada, and has been utilized by the Organization for Economic Cooperation and Development (OECD), World Health Organization (WHO), the German MAK Commission, and others. CIIT has been working to educate and support the use of the model as well as address some perceived deficiencies. A total of eleven papers have been published over the past four years, the most recent in July 2004 involving rodent and human data.<sup>6</sup>

Because the Report's recommendations may not be implemented for several years, FCI recommends that the final report reference the CIIT model and other efforts to refine the understanding of any risk associated with exposure to formaldehyde. These anticipated developments include a U.S. EPA Integrated Risk Information System (IRIS) evaluation of formaldehyde, and an important update of the National Cancer Institute (NCI)'s epidemiology study. FCI asks that the Report acknowledge these forthcoming developments because they may well validate the CIIT approach and support a revised assessment by OEHHA.

### **C. Misplaced Mitigation Strategies**

The final report should address the relationship between outdoor and indoor exposure levels more directly and consistently when discussing a mitigation strategy that relates to formaldehyde. For example, the Revised Draft Report recommends mitigating indoor air pollution in schools because it is an "urgent need" and the Legislature should "make children's health in schools, homes, and care institutions the top priority."<sup>7</sup> The problems identified by the Report include lack of adequate ventilation, uncomfortable temperature and humidity levels, *formaldehyde air concentrations*, noise levels, lead/arsenic/pesticide residues, dust, mold, and poor lighting.<sup>8</sup> In stating that "nearly all classrooms exceed formaldehyde guidelines for preventing long term effects," the Draft Report gives the extremely misleading impression that this problem must be corrected immediately, especially as it directly impacts the health of California's children. However, this

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<sup>6</sup> RB Connolly, JS Kimbell, D Janszen, PM Schlosser, D Kalisak, J Preston, and FJ Miller, Human Respiratory Tract Cancer Risks of Inhaled Formaldehyde: Dose-Response Predictions Derived From Biologically-Motivated Computational Modeling of a Combined Rodent and Human Dataset, *ToxSci Advance Access* at <http://www.toxsci.oupjournals.org> (2004).

<sup>7</sup> November 2004 Report, pp. 25, 155.

<sup>8</sup> November 2004 Report, p. 157.

statement fails to explain that average *outdoor levels* (3-5 ppb) would fail this test since the "formaldehyde guidelines" are OEHHA's chronic guidelines of 2.4 ppb. This is an incomplete characterization of the facts, and this section of the Report should at the very least cross-reference the statement on p. 62, which explains that "it is generally not feasible to achieve levels below these guideline levels because outdoor levels average about 3-5 ppb."<sup>9</sup> This example underscores FCI's position that at typical exposure levels presented in the Draft Revised Report, adverse effects are unlikely to occur. In any case, ARB needs to consider the feasibility of a strategy that would seek to make indoor exposure levels lower than outdoor levels and the risk-shifting anomalies that arise when indoor air risk is not necessarily associated with indoor sources of exposure.

#### **D. Statements about Formaldehyde in Indoor Air**

Misleading statements about formaldehyde levels in indoor air abound. In certain sections, the Revised Draft Report provides incomplete information about California's extremely conservative health benchmarks. For example, the November 2004 Report contains a few statements similar to the following:

- "Indoor levels of formaldehyde, a pungent smelling gas, nearly always exceed chronic health-based guideline levels and acceptable cancer risk levels."<sup>10</sup>
- "Some pollutants, like formaldehyde, nearly always exceed recommended levels."<sup>11</sup>

The November 2004 Report should be revised to ensure that broad statements about these "health guidelines" are qualified such that it is clear that "it is generally not feasible to achieve levels below these guideline levels because outdoor levels average about 3-5 ppb."<sup>12</sup> It is not readily apparent, as it should be from reading these statements, that outdoor air levels exceed OEHHA's recommended levels. Given the expanse of this Report and the significant amount of data covered, it is not acceptable to have only one reference to the feasibility of the guideline levels.

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<sup>9</sup> November 2004 Report, p. 62.

<sup>10</sup> November 2004 Report, p. 8.

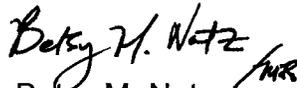
<sup>11</sup> November 2004 Report, p. 9.

<sup>12</sup> November 2004 Report, p. 62.

**E. Conclusion**

FCI respectfully requests that the points raised in our comments are addressed and the Report is revised so that the California Legislature and the general public are not misled about the seriousness of the current level of indoor exposures to formaldehyde. While we focus on select points in these comments, our original comments, submitted on August 27, 2004, are still central to our critique of the Report and provide data and supporting details not included here.

Respectfully yours,

  
Betsy M. Natz  
Executive Director