State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider the Adoption of a Regulatory Amendment Identifying Trichloroethylene (TCE) as a Toxic Air Contaminant

Agenda Item No.: 90-17-1

Public Hearing Date: October 12, 1990

Issuing Authority: Air Resources Board

Comment: No comments were received identifying any significant environmetnal issues pertaining to this istem. The staff report identified no adverse environmental effects.

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Response: N/A

Certified: Pat Hutchens for
Judith M. Lounsbury
Board Secretary

Date: January 18, 1991

State of California
AIR RESOURCES BOARD

Resolution 90-62

October 12, 1990

Agenda Item No.: 90-17-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "Board") to do such acts and to adopt such regulations as may be necessary for the proper execution of the powers and duties granted to, and imposed upon, the Board by law;

WHEREAS, Chapter 3.5 (commencing with section 39650) of Part 2 of Division 26 of the Health and Safety Code establishes procedures for the identification of toxic air contaminants by the Board;

WHEREAS, section 39655 of the Health and Safety Code defines a "toxic air contaminant" as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health;

WHEREAS, section 39662 of the Health and Safety Code directs the Board to list, by regulation, substances determined to be toxic air contaminants, and to specify for each substance listed a threshold exposure level, if any, below which no significant adverse health effects are anticipated;

WHEREAS, in California, trichloroethylene is emitted from many activities including degreasing operations, painting and coating, adhesive formulations, and polyvinyl chloride production; and trichloroethylene is not naturally removed or detoxified in the atmosphere at a rate that would significantly reduce the resulting public exposure;

WHEREAS, pursuant to the request of the Board, the Department of Health Services (DHS) evaluated the health effects of trichloroethylene in accordance with section 39660 of the Health and Safety Code;

WHEREAS, DHS concluded in its evaluation that trichloroethylene is causally associated with cancer in humans; that health effects other than cancer are not expected to occur at existing or expected ambient levels of trichloroethylene; that based on the upper 95 percent confidence limit of potency, the estimated range of lifetime (70 year) excess lung cancer mortality risk from continuous exposure to 1 $\mu g/m^3$ of atmospheric trichloroethylene is from 8×10^{-7} to 1×10^{-6}; that the DHS' best estimate for the unit risk for TCE is 2×10^{-6} $(\mu g/m^3)^{-1}$;

WHEREAS, for the reasons set forth in its evaluation, DHS treats trichloroethylene-induced carcinogenesis as a nonthreshold phenomenon because DHS found no evidence that there is a carcinogenic threshold level for trichloroethylene;

WHEREAS, upon receipt of the DHS evaluation, staff of the Board prepared a report including and in consideration of the DHS evaluation and recommendations and in the form required by section 39661 of the Health and Safety Code and, in accordance with the provisions of that section, made the

report available to the public and submitted it for review to the Scientific Review Panel (SRP) established pursuant to section 39670 of the Health and Safety Code;

WHEREAS, in accordance with section 39661 of the Health and Safety Code, the SRP reviewed the staff report, including the scientific procedures and methods used to support the data in the report, the data itself, and the conclusions and assessments on which the report was based, considered the public comments received regarding the report, and on April 16, 1990 adopted, for submittal to the Board, findings which included the following:

1. Trichloroethylene has been identified as an animal carcinogen and should be regarded as a potential human carcinogen.

2. Trichloroethylene is emitted into the air by a variety of stationary sources in California. It is emitted indoors and can give rise to concentrations approximately 5 times higher than outdoors.

3. Based on its gas-phase reactivity with hydroxyl radicals, trichloroethylene has an atmospheric lifetime estimated to range from 4 to 15 days.

4. Approximately 20 million people in California represented by the toxics air monitoring network are estimated to be exposed to a population-weighted mean trichloroethylene concentration of 0.22 parts per billion (ppb).

5. Adverse health effects other than cancer are not known to occur at predicted concentrations of trichloroethylene in ambient outdoor air.

6. Based on available scientific information, a trichloroethylene exposure level below which carcinogenic effects are not expected to occur cannot be identified.

7. Based on an interpretation of available scientific evidence, DHS staff estimated the range of lifetime excess cancer risk from exposure to 0.19 ppb (1 $\mu g/m^3$) of atmospheric trichloroethylene based on the upper 95 percent confidence limit is from 4.2×10^{-6}/ppb to 5.3×10^{-5}/ppb. Based on available data, 1.1×10^{-5}/ppb is the most plausible estimate of the upper limit of risk. These upper bound excess lifetime risks are health-protective estimates; the actual risk may well be below these values.

8. Exposure to the statewide mean ambient concentration (weighted by population) of 0.22 ppb for a population of 20 million people represented by the toxics air monitoring network, could result in up to 41 excess lifetime cancers, based on the DHS' best estimate for unit risk. Assuming that this applies to the California state population of 28 million, this could result in up to 56 excess lifetime cancers, based on the DHS' best estimate for unit risk.

9. The conclusions are based on limited animal data. As a result, the numbers cited here are subject to a significant degree of uncertainty.

WHEREAS, the SRP found the staff report to be without serious deficiency, and the SRP agreed with the staff recommendation that trichloroethylene should be listed by the Air Resources Board as a toxic air contaminant, and

found that, based on available scientific information, the trichloroethylene exposure level below which carcinogenic effects are not expected to occur cannot be identified;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with provisions of Chapter 3.5 (commencing with section 11340), Part 1, Division 3, Title 2 of Government Code;

WHEREAS, in consideration of the staff report, including DHS' evaluation and recommendations, the available evidence, the findings of the SRP, and the written comments and public testimony it has received, the Board finds that:

There is strong evidence that trichloroethylene is an animal carcinogen and should be regarded as a potential human carcinogen;

Health effects other than cancer are not anticipated at existing or expected trichloroethylene exposure levels in ambient outdoor air;

The DHS and the SRP agree that the most plausible estimate of the upper bound of the overall unit risk is 1.1×10^{-5} ppb;

There is not sufficient available scientific evidence to support the identification of a threshold exposure level for trichloroethylene;

Trichloroethylene is an air pollutant which, because of its carcinogenicity, may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health; and

WHEREAS, the Board has determined, pursuant to the requirements of the California Environmental Quality Act and Board regulations, that this regulatory action will have no significant adverse impact on the environment.

NOW, THEREFORE BE IT RESOLVED, that the Board adopts the proposed regulatory amendment to section 93000, Titles 17 and 26, California Code of Regulations, as set forth in Attachment A.

I hereby certify that the above is a true and correct copy of Resolution 90-62, as adopted by the Air Resources Board.

Pat Hutchens for

Judith M. Lounsbury, Board Secretary