

ORIGINAL

L/JA/cip

EX-5

FILED
PUBLIC UTILITIES COMMISSION

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
SEP 12 1990

Order Instituting Investigation on the)
Commission's own motion to develop)
revisions to General Orders and rules)
applicable to allowable concentrations)
of vinyl chloride in natural gas.)

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ORIGINAL

ORDER INSTITUTING INVESTIGATION

This Order Instituting Investigation (OII) is issued to address the Commission's responsibility to set an acceptable level for vinyl chloride in natural gas supplies as mandated by AB 4037 (Hayden) (Stats. 1988, ch. 932). This legislation, codified as Health and Safety Code section 25420 et seq., was enacted to carry out the state's policy to encourage and facilitate the production and safe utilization of gas generated in conjunction with sanitary landfill projects.

AB 4037 directs this Commission to adopt a rule or order specifying the maximum amount of vinyl chloride that may be found in landfill gas. (Health and Saf. Code § 25421(b).) The Commission's objective in opening this proceeding is to develop rules and procedures that will accomplish this objective. This order institutes a formal investigation, proposes a specific standard for allowable levels of vinyl chloride in natural gas, and requests public comments and suggestions in order to assist the Commission in developing a final standard to meet its legislative mandate.

I. Proposed Revisions to General Order 58-A

The Commission Advisory and Compliance Division (CACD) has recommended that General Order (GO) 58-A, "Standards for Gas Service in the State of California", be revised in order to comply with AB 4037. The proposed revisions to GO 58-A are

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attached as Appendix A. The proposed revisions would add Section 7.e., "Vinyl Chloride", to the existing GO. This new section would set a maximum level of 1.66 parts per billion of vinyl chloride in landfill gas acceptable as pipeline gas.

The proposed revisions were finalized for this proceeding after CACD circulated a draft of its proposal to the affected utilities and analyzed written comments. Those utilities offering significant comments opposed the allowable level of vinyl chloride recommended by CACD and contended that much higher limits should be allowed.

II. Explanation of Proposed Revisions

AB 4037 requires that the Commission shall specify the maximum amount of vinyl chloride that may be found in landfill gas pursuant to the "no significant risk level" as set forth in Article 7 (commencing with Section 12701) of Chapter 3 of Division 2 of Title 22 of the California Code of Regulations. (Health and Saf. Code § 25421(a).) Article 7 prescribes 0.3 micrograms per day as the level of exposure to vinyl chloride which is deemed to pose no significant risk. (Cal. Code Regs., tit. 22, § 12711(2).) In order to determine the level of vinyl chloride allowed in landfill gas, the Commission must translate the human exposure standard found in Article 7 into a functional equivalent value for presence of vinyl chloride as a contaminant in natural gas. The following discussion sets forth the data and connecting calculations necessary to set a safe and reasonable equivalent value.

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A. Maximum permissible concentration in air

As stated above, the statutory "no significant risk level" for inhalation of vinyl chloride is 0.3 micrograms per day. (Cal. Code Regs., tit. 22, § 12711(2).) For purposes of this regulation, an adult person is assumed to inhale 20 cubic meters of air per day. (Cal. Code Regs., tit. 22, § 12721(d)(1)(B).)¹ The maximum "no significant risk level" of 0.3 micrograms per day divided by 20 cubic meters of air per day equals a maximum permissible concentration of 0.015 micrograms per cubic meter of vinyl chloride in air.

B. Worst-case relationship between vinyl chloride concentration in gas and vinyl chloride concentration in air

Maximum transfer of vinyl chloride contamination in natural gas to vinyl chloride concentration in air would occur if the vinyl chloride passed unchanged through a low-temperature gas flame to enter the air space of a room.

Exposure to unburned pipeline-delivered gas does not present a serious threat to health from vinyl chloride contamination. Other factors combine to lower this particular risk to insignificance. Pipeline gas is odorized and leaks will be detected and abated long before chronic exposure to vinyl chloride contaminants reach health-threatening levels. High concentrations of natural gas from broken lines or defective equipment do not pose a significant long-term cancer health risk since, if not detected and abated, they pose a near certainty of fire or explosion.

Therefore, the major health risk exposure route would be the survival of vinyl chloride with the combustion products of

1. Children and infants are assumed to inhale smaller volumes and hence are at less exposure risk. (See Cal Code Regs., tit. 22, § 12721(d)(2)(A).)

unvented flames. Vinyl chloride is moderately resistant to heat decomposition and could pass unchanged through the short exposures typical of small low-temperature flames such as pilot lights. Pilot lights do not premix air with the gas they burn and are commonly adjusted to the smallest size that is reliably self-sustaining. While most pilot lights are placed so as to be vented to the out-of-doors, commercial range-top pilot lights commonly discharge their combustion products directly to the room where they are used.

A pilot light consumes about 800 BTUs per hour or about 0.8 cubic feet of gas at standard temperature and pressure per hour. Open pilot lights have been replaced by electric spark systems on new domestic equipment since 1982, but they are still present on commercial (restaurant) ranges. Many commercial ranges use multiple pilot lights, as many as one per burner. The pilot lights of such ranges, when operated in poorly ventilated spaces, represent a worst-case exposure for members of the general public.

The actual productive burner use of the stove is usually less than the pilot light gas consumption. A burner flame is well aerated and burns at a much higher temperature than a pilot light. This familiar blue flame, operated under ideal conditions, can destroy vinyl chloride which may be present in low concentrations.

If we treat natural gas as primarily methane (CH₄), combustion of each volume of methane will produce an equal volume of carbon dioxide, measured at standard temperature and pressure. Thus, the amount of carbon dioxide in the air of a room can be taken as a worst-case measure of the amounts of natural gas and, proportionally, of natural gas contaminants that have entered the room through gas pilot lights and flames. The usually small amount of carbon dioxide present from other sources and the fact that natural gas contains longer chain hydrocarbons than methane, both work to make this simple estimate conservative on the safe side.

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C. Maximum vinyl chloride limit in gas

By taking carbon dioxide produced as equal to natural gas burned, a dilution ratio for trace elements like vinyl chloride can be calculated.

The Cal/OSHA General Industry Safety Orders, section 5155, and the National Institute of Government Industrial Hygienists set a time weighted average workplace limit on carbon dioxide exposure of 5,000 parts per million (which equals 5 parts per thousand or 9,000 milligrams per cubic meter). This level indicates very poor ventilation and is rarely encountered in work spaces.

If all the carbon dioxide in a work space is assumed to be the product of low-temperature combustion which fails to destroy any of an associated vinyl chloride contaminant and if this carbon dioxide reaches the legal maximum value of 5,000 parts per million, then the permissible vinyl chloride in the fuel gas can be calculated by simple proportion.

Maximum permissible time weighted average carbon dioxide
= 5,000 parts per million
= 9,000 milligrams per cubic meter
= 9,000,000 micrograms per cubic meter.

Maximum vinyl chloride volume limit in air
= 0.015 micrograms per meter cubed.

Maximum permissible vinyl chloride concentration in gas
= $0.015/9,000,000$
= $0.00166/1,000,000$
= $1.66/1,000,000,000$
= 1.66 parts per billion.

Thus, landfill gas should be accepted for purchase by a regulated gas utility only if its vinyl chloride content falls below 1.66 parts per billion.

III. Procedural Matters

This OII and proposed revisions to GO 58-A will be provided to the affected utilities and the public with a 45-day comment period. Comments may be filed by the affected utilities and any other interested parties. Comments should specify any factual issues raised and the scope of any hearings which may be needed on the proposed revisions.

Revisions to GO 58-A will be accomplished by notice and comment, unless factual issues are raised which indicate the need for evidentiary hearings. The assigned Administrative Law Judge will prepare a draft rule for circulation, additional comment, and adoption by the Commission.

If it appears that evidentiary hearings are necessary, the assigned Administrative Law Judge may schedule hearings in lieu of additional notice and comment.

ORDER

IT IS ORDERED that:

1. An investigation on the Commission's own motion is hereby instituted to determine the need for revisions to General Order 58-A applicable to allowable concentrations of vinyl chloride in natural gas and to define and implement such revisions as are found necessary.

2. Regulated utilities supplying natural gas are named respondents.

3. Other parties are invited to submit comments on the proposed revisions.

4. Those parties who wish to file comments on the proposed revisions may do so by filing an original and twelve copies with the Commission's Docket Office no later than 45 days after the issuance of this Order Instituting Investigation. Additional copies of comments shall be served on all parties on the service list attached as Appendix B.

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5. Comments should include identification of any factual issues raised and the scope of any evidentiary hearings which may be needed regarding the proposed revisions.

6. Based upon the content and sufficiency of the comments received, the assigned Administrative Law Judge will prepare a draft rule for circulation, additional comment, and adoption by the Commission. If factual issues are raised which indicate a need for evidentiary hearings, the assigned Administrative Law Judge may schedule hearings in lieu of, or in addition to, additional notice and comment.

7. The Executive Director shall mail a copy of this order to all parties on the attached service list. (See Appendix B.)

This order is effective today.

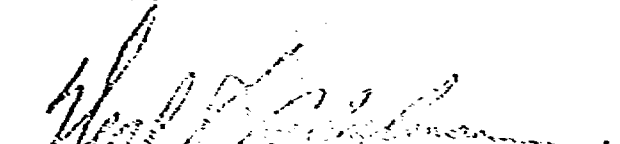
Dated SEP 12 1990, at San Francisco,

California.

G. MITCHELL WILK
President
FREDERICK R. DUDA
STANLEY W. HULETT
PATRICIA M. ECKERT
Commissioners

Commissioner John B. Ohanian,
being necessarily absent, did
not participate.

I CERTIFY THAT THIS DECISION
WAS APPROVED BY THE ABOVE
COMMISSIONERS TODAY


John J. Gorman, Executive Director
PB

APPENDIX A

Proposed Revisions to General Order 58-A:

7. Purity of Gas

e. Vinyl Chloride

No regulated gas utility shall knowingly purchase landfill gas if that landfill gas contains vinyl chloride in a concentration greater than 1.66 parts per billion by volume. This value is adopted as instructed by Section 25421(b) of the California Health and Safety Code as the maximum amount of vinyl chloride that may be found in landfill gas pursuant to Section 25421(a).[1] Testing shall be performed as specified by Section 25241(d) of the Health and Safety Code.[2] Direct delivery for

1 Health and Safety Code section 25421(a) and (b):

(a) Until the rule or order specified in subdivision (b) is adopted, no gas producer shall knowingly sell, supply, or transport landfill gas to a gas corporation, and no gas corporation shall knowingly purchase landfill gas, if that gas contains vinyl chloride in a concentration that exceeds the operative no significant risk level set forth in Article 7 (commencing with Section 12701) of Chapter 3 of Division 2 of Title 22 of the California Code of Regulations

(b) On or before January 1, 1990, the Public Utilities Commission shall, by rule or order, specify the maximum amount of vinyl chloride that may be found in landfill gas pursuant to the requirements of subdivision (a).

2 Health and Safety Code section 25421(d):

Every person who produces, sells, supplies, or releases landfill gas for sale offsite to a gas corporation shall, twice each month, sample and test the gas at the point of distribution for the presence of chemicals known to the state to cause cancer or reproductive toxicity in accordance with the test guidelines prepared under Section 41805.5. The air pollution control district or air quality management district within which the

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industrial use of landfill gas is exempted from these requirements as provided by Section 25421(e). [3]

(Footnote continued from previous page)

landfill is situated shall review the testing procedures for compliance with the guidelines and require the correction of any deficiencies. The district shall require, among other things, that the gas be analyzed by a laboratory certified by the department and shall transmit the results of the analysis to the department for its determination of compliance or noncompliance with subdivisions (a) and (b). The department shall fix and impose upon the gas producer a fee to cover its costs under this subdivision. The results of each sample and test shall be reported promptly to the gas corporation to which the landfill gas is sold, and any person or public agency requesting a copy of the report.

3 Health and Safety Code section 25421(e):

Nothing in this section prohibits the direct delivery of landfill gas for the generation of electricity, the production of steam, or any other industrial application.

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APPENDIX B

SERVICE LIST

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