



Air Pollution Control Board  
Brian P. Bilbray District 1  
Dianne Jacob District 2  
Pamela Slater District 3  
Leon L. Williams District 4  
John MacDonald District 5

Air Pollution Control Officer  
R. J. Sommerville

DATE: April 19, 1994  
TO: Air Pollution Control Board  
SUBJECT: Adoption of Rule 67.22 (Expandable Polystyrene Foam Products Manufacturing Operations)

### SUMMARY:

New Rule 67.22 regulates emissions of volatile organic compounds (VOC's) from manufacturing expandable polystyrene foam products. The rule will affect one facility and reduce emissions by approximately 14 tons per year. The facility is a federal major source; hence, subject to reasonably available control technology (RACT) requirements of the federal Clean Air Act. The affected facility is a small business and the District determined that general RACT requirements for this industry will impose a severe economic hardship and may force the company out of business. Therefore, the District worked with the Environmental Protection Agency (EPA) to establish a lower source-specific emissions standard reflecting an alternative RACT control level. The facility can comply by using raw material with a lower VOC content, thus implementing a pollution prevention program.

Adoption of Rule 67.22 is consistent with the Board's direction of February 2, 1993 regarding implementation of new or revised rules because the 1990 federal Clean Air Act mandates adopting rules reflecting RACT for major VOC emission sources. Rule 67.22 also satisfies California Clean Air Act requirements to apply all feasible VOC control measures as expeditiously as possible. In addition, in January 1993, EPA notified the District that failure to submit a rule by July 15, 1994 requiring major sources manufacturing expandable polystyrene foam products to apply RACT will result in imposition of federal sanctions including 2.0 to 1.0 emission offset ratio for new and modified facilities and withholding of up to \$75 million in federal transportation funds.

A socioeconomic impact assessment concluded that the rule will not have a significant impact on employment or economy of the region. District staff met frequently with the affected business, conducted a thorough economic analysis of the proposed rule and, as a result, revised the rule to incorporate a source specific alternative RACT that will be environmentally sound and economically feasible for the affected company.

### Issue

Should the Board adopt new Rule 67.22 (Expandable Polystyrene Foam Products Manufacturing Operations) to reduce volatile organic compound emissions from the manufacturing of polystyrene foam products in San Diego County?

**SUBJECT: Adoption of Rule 67.22**

**Recommendation**

**AIR POLLUTION CONTROL OFFICER**

1. Set June 7, 1994 at 2:00 p.m., as the date and time for public hearing to consider the resolution adopting new Rule 67.22 into the Rules and Regulations of the San Diego County Air Pollution Control District.
2. Direct the Clerk of the Board to notice the Hearing pursuant to Section 40725 of the State Health and Safety Code.
3. Following the hearing: (a) adopt the resolution adopting Rule 67.22, and (b) make appropriate findings:
  - (i) of necessity, authority, clarity, consistency, non-duplication and reference as required by Section 40727 of the State Health and Safety Code;
  - (ii) that new Rule 67.22 will alleviate a problem and promote attainment of ambient air quality standards (Section 40001 of the State Health and Safety Code);
  - (iii) that an assessment of the socioeconomic impact of new Rule 67.22 has been prepared and has been made available for public review and comment, and that the socioeconomic impacts of the proposed rule have been actively considered and the District has made a good faith effort to minimize adverse socioeconomic impacts; and
  - (iv) that there is no reasonable possibility that the new rule may have a significant adverse effect on the environment, and that the adoption of new Rule 67.22 is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Sections 15300 and 15308, as an action taken to assure the maintenance or protection of the environment and where the regulatory process involves procedures for protection of the environment.

**Advisory Statement**

The Air Pollution Control Advisory Committee recommended adopting proposed Rule 67.22 at its March 30, 1994 meeting.

**Fiscal Impact**

Adopting the proposed rule will have no fiscal impact on the District.

**Alternatives**

Not adopt Rule 67.22. The requirements of the federal Clean Air Act to adopt rules reflecting RACT for major VOC emission sources and California Clean Air Act requirements to adopt all feasible VOC control measures (Health and Safety Code Section 40914) would not be met under this alternative. Also, the Environmental Protection Agency has notified the District that a RACT rule for expandable polystyrene foam manufacturing operations must be submitted to EPA before July 15, 1994, or EPA will impose sanctions (2.0 to 1.0 emission

**SUBJECT: Adoption of Rule 67.22**

offset ratio for new and expanding large businesses and withholding of up to \$75 million in federal transportation funds) on San Diego County. Accordingly, this alternative is not recommended.

**BACKGROUND:**

Rule 67.22 is a new rule developed to control volatile organic compound (VOC) emissions from expandable polystyrene foam manufacturing operations. Foam manufacturing facilities produce 'Styrofoam' cups, panels, and packing materials from polymeric beads containing VOC's such as pentane, as blowing agents. During manufacturing operations, VOC is emitted to the atmosphere and participates in smog formation. The federal Clean Air Act requires all major VOC emission sources (emitting 25 tons per year or more) to meet reasonably available control technology (RACT) requirements. EPA advised the District that it must submit RACT rules for major VOC sources, including expandable polystyrene foam products manufacturing, by July 15, 1994 or EPA will impose federal sanctions (2.0 to 1.0 emission offset ratio for new and expanding major industrial sources and withholding up to \$75 million in federal transportation funds) on San Diego County. In addition, the California Clean Air Act requires adopting all feasible VOC control measures.

The rule will affect one facility which is a federal major source of pentane emissions. EPA has determined that when it has not issued a formal guideline specifying RACT requirements for an industrial category, RACT is a control reflecting at least an 81% emission reduction. In cases where this is not technically or economically feasible, the level of control must be determined based upon technical and economic feasibility and submitted to EPA as alternative RACT.

Because the affected facility is a small business, the District conducted a thorough control technology review and an analysis of the company's ability to finance the installation of RACT controls. The analysis concluded that an 81% emission control requirement would impose a severe economic hardship on the company and may force it out of business. The District then worked with EPA to develop an alternative source specific emission standard requiring the affected company to reduce VOC emissions by either using low VOC content raw polymeric materials containing no more than 3.6% by weight of blowing agent or by meeting an emission standard of 3.0 pounds of VOC emissions per 100 pounds of raw polymeric materials used. The affected company has elected to comply with the rule using a lower VOC raw material and has already purchased a pre-expander to use this material. Compliance using the second option will require installing add-on control equipment. Because of the increased cost, this option was not selected by the company.

The rule includes a compliance schedule providing up to 12 months to implement equipment modifications to use the lower VOC-content raw material or to install add-on air pollution control equipment. New facilities will be required to comply with Rule 67.22 at the time of equipment installation and start-up. Recordkeeping requirements and test methods for determining compliance are also included in the rule.

The rule will provide a 40% emission reduction. Since it does not meet the 81% RACT reduction requirement, it must be submitted to EPA for approval as a 'source-specific' alternative RACT determination. The District will work closely with EPA to ensure all information necessary for EPA to approve this alternative is provided.

Section 40001 of the State Health and Safety Code requires the District to determine, prior to adopting any rule to reduce emissions of criteria pollutants, that the rule will alleviate a problem

## **SUBJECT: Adoption of Rule 67.22**

and promote the attainment or maintenance of state or federal air quality standards. San Diego County does not attain the state or federal ambient air quality standard for ozone. The proposed rule will reduce emissions of volatile organic compounds (ozone precursors). Therefore, it will help to alleviate San Diego County's ozone non-attainment problem by promoting the attainment of the state and federal ozone standards.

On February 2, 1993, the Air Pollution Control Board directed that, with the exception of a regulation requested by business or a regulation for which a socioeconomic impact assessment is not required, no new or revised regulation shall be implemented, unless specifically ordered by federal or state law. Proposed new Rule 67.22 is mandated by the federal Clean Air Act which requires that all major sources of VOC and NOx emissions be controlled by rules reflecting RACT. Failure to submit such rules to EPA before July 15, 1994 will result in the imposition of federal sanctions on San Diego County. Rule 67.22 also complies with the California Clean Air Act requirements to adopt all feasible control measures. Accordingly, Rule 67.22 adoption is consistent with Board direction.

### **Socioeconomic Impact Assessment**

Section 40728.5 of the State Health and Safety Code requires the District to perform a socioeconomic impact assessment (SIA) for rules and regulations significantly affecting air quality or emission limitations. Rule 67.22 imposes new emission limitations on sources. Accordingly, a SIA was prepared by the District and made available for public comment at the March 14, 1994 workshop.

The only facility in San Diego county subject to Rule 67.22 is a small, family owned business. It employs 15 people and is classified as a small business under California and federal law. The company produces mostly Styrofoam packing for electronic equipment and emits approximately 35 tons of volatile organic compounds per year.

Rule 67.22 provides a source-specific alternative level of emission control which will achieve 40% emission reduction from the affected facility. The company has elected to comply with the rule by a process modification using low VOC materials. The cost-effectiveness of this option is estimated to be \$1.10 per pound. This is significantly better than the cost-effectiveness of other VOC control measures adopted by the District.

The proposed rule will require a \$115,000 capital expenditure for a pre-expander (already purchased by the affected company) for using low VOC raw material. In addition, the company is expected to incur an annual compliance cost of \$31,000, primarily for additional steam requirements.

It is estimated the cost of compliance with Rule 67.22 will result in an average cost increase of approximately 2 cents per pound of product (less than one percent). Therefore, it is expected the affected facility will be able to pass the cost of compliance on to its customers thus negating the impact on profitability. There also is expected to be no impact on employment for this facility or San Diego County.

### **California Environmental Quality Act**

The California Environmental Quality Act requires an environmental review for certain actions. However, no significant adverse impacts on the environment have been suggested to result from the proposed rule, and no such impacts are reasonably possible.

**SUBJECT: Adoption of Rule 67.22**

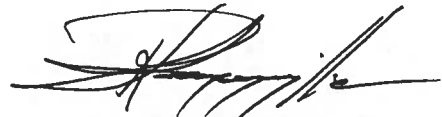
Adopting proposed new Rule 67.22 will not have a significant effect on the environment and is therefore categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Sections 15300 and 15308, as an action taken to assure the maintenance or protection of the environment where the regulatory process involves procedures for protection of the environment.

Public workshops on proposed Rule 67.22 were held on October 29, 1992 and March 14, 1994. The workshop reports and Socioeconomic Impact Assessment are attached.

Concurrence:

Respectfully submitted,

DAVID E. JANSSEN  
Chief Administrative Officer

A handwritten signature in black ink, appearing to read 'R. J. Sommerville', with a long horizontal stroke extending to the right.

R. J. SOMMERVILLE  
Air Pollution Control Officer

APRIL 19, 1994  
MEETING DATE

FINDINGS OF THE SAN DIEGO COUNTY AIR POLLUTION  
CONTROL BOARD IN RESPECT TO ADOPTION OF  
NEW RULE 67.22 (EXPANDABLE POLYSTYRENE FOAM  
PRODUCTS MANUFACTURING OPERATIONS)

- A. Pursuant to section 40727 of the Health and Safety Code, the Air Pollution Control Board of the San Diego County Air Pollution Control District makes the following findings:
1. (Necessity) The adoption of the proposed new District Rule 67.22 is necessary for the District to satisfy the requirements of section 182(a)(1)(A) of the federal Clean Air Act requiring adoption of rules relating to reasonably available control technology for new or modified stationary sources, and California Health and Safety Code sections 40914 requiring adoption of all feasible measures for reducing emissions of volatile organic compounds and 40919 requiring application of best available retrofit control technology to existing stationary sources.
  2. (Authority) The adoption of the new proposed rule is authorized by Health and Safety Code sections 40001, 40702 and 40914.
  3. (Clarity) The proposed new rule is written so that its meaning can be easily understood by persons directly affected by the rule.
  4. (Consistency) The proposed rule is in harmony with, and not in conflict with or contrary to, existing statutes, court decisions, and State law and Federal regulations.
  5. (Nonduplication) The proposed rule does not impose the same requirements as an existing state or federal regulation.
  6. (Reference) The adoption of the proposed new rule implements section 182(a)(1)(A) of the federal Clean Air Act [42 U.S.C. section 7511a(a)(1)(A)], and California Health and Safety Code sections 40914 and 40919.
- B. The Air Pollution Control Board further finds that an assessment of socioeconomic impacts of the proposed rule was performed and made available for public comment and review pursuant to Health and Safety Code section 40728.5, and that the socioeconomic impacts of the proposed rule have been actively considered and the District has made a good faith effort to minimize adverse socioeconomic impacts.
- C. The Air Pollution Control Board further finds that there is no reasonable possibility that the proposed rule may have a significant effect on the environment, and that the adoption of the proposed rule is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, title 14, sections 15300 and 15308, as an action taken to assure the protection of the environment which will not have a significant effect on the environment and where the regulatory process involves procedures for protection of the environment.
- D. The Air Pollution Control Board further finds in accordance with Health and Safety Code section 40001 that the adoption of the proposed rule is necessary to satisfy federal and state law, and that the proposed rule will promote the attainment of state and federal ambient air quality standards.

APCD Meeting 6/7/94  
Agenda Item #3

OFFICIAL RECORD

Clerk of the Board of Supervisors

Exhibit No. \_\_\_\_\_ Agenda No. 3

Meeting Date JUN 7 1994 ( )

Presided by C. Course

753972  
Document No. \_\_\_\_\_

THOMAS J. PASTUSZKA

## NEW RULE

Reso 94-200

Re Rules and Regulations of the)  
Air Pollution Control District )  
of San Diego County . . . . .)

TUESDAY, JUNE 7, 1994

### **RESOLUTION ADDING RULE 67.22 TO REGULATION IV OF THE RULES AND REGULATIONS OF THE SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT**

On motion of Member MacDonald, seconded by Member Bilbray  
the following resolution is adopted:

**WHEREAS**, the San Diego County Air Pollution Control Board, pursuant to Section 40702 of the Health and Safety Code, adopted Rules and Regulations of the Air Pollution Control District of San Diego County; and

**WHEREAS**, said Board now desires to amend said Rules and Regulations; and

**WHEREAS**, notice has been given and a public hearing has been had relating to the amendment of said Rules and Regulations pursuant to Section 40725 of the Health and Safety Code.

**NOW THEREFORE IT IS RESOLVED AND ORDERED** by the San Diego County Air Pollution Control Board that the Rules and Regulations of the Air Pollution Control District of San Diego County be and hereby are amended as follows:

Proposed new Rule 67.22 is to read as follows:

#### **RULE 67.22. EXPANDABLE POLYSTYRENE FOAM PRODUCTS MANUFACTURING OPERATIONS**

##### **(a) APPLICABILITY**

Except as otherwise provided in Section (b), this rule is applicable to any person who manufactures expandable polystyrene (EPS) foam products using volatile organic compounds (VOC's) as blowing agents. EPS foam products manufacturing operations subject to this rule shall not be subject to Rule 66.

##### **(b) EXEMPTIONS**

The requirements of Section (d) of this rule shall not apply to any stationary source with uncontrolled VOC emissions of less than 25 tons per calendar year from EPS foam products manufacturing operations.

Rule 67.22  
3/22/94



(c) **DEFINITIONS**

For the purposes of this rule, the following definitions shall apply:

(1) **"Blowing Agent"** means a liquid or gaseous volatile organic compound that facilitates the formation of an EPS foam product from polymeric raw materials.

(2) **"Exempt Compound"** means any of the following compounds or classes of compounds: 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trifluoromethane (HFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), chlorodifluoromethane (HCFC-22), dichlorotrifluoroethane (HCFC-123), dichlorofluoroethane (HCFC-141b), 1,1,1,2-tetrafluoroethane (HFC-134a), 1,1,2,2-tetrafluoroethane (HFC-134), chlorodifluoroethane (HCFC-142b), 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124), pentafluoroethane (HFC-125), 1,1,1-trifluoroethane (HFC-143a), 1,1-difluoroethane (HFC-152a), and the following four classes of perfluorocarbon (PFC) compounds:

(i) cyclic, branched, or linear, completely fluorinated alkanes;

(ii) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

(iii) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

(iv) sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

(3) **"Existing Equipment"** means any EPS foam products manufacturing equipment for which an Authority to Construct or Permit to Operate was issued before (*date of adoption*).

(4) **"EPS Foam Products"** means low-density foam products which are manufactured from a series of processes where raw polymeric materials such as polystyrene beads containing a blowing agent are expanded by exposure to steam or any other expansion agent and subsequently molded into the final products. EPS foam products include, but are not limited to, drinking cups, insulation boards, packaging materials, and ice chests.

(5) **"Manufacturing Emissions"** means VOC emissions which occur during the manufacturing of EPS foam products, from the delivery of the raw polymeric materials to the manufacturing site to 24 hours after the molding of pre-expanded materials to form the final EPS foam products.

(6) **"New Equipment"** means any EPS foam products manufacturing equipment for which an Authority to Construct was issued after (*date of adoption*).

(7) **"Stationary Source"** means the same as defined in Rule 20.1.

(8) **"Uncontrolled VOC Emissions"** means VOC emissions from an EPS foam products manufacturing operation, calculated according to Subsection (g)(1), before application of add-on air pollution control equipment or process modification.

(9) **"Volatile Organic Compound"** means any volatile compound containing at least one atom of carbon excluding methane, carbon monoxide, carbon dioxide, carbonic

acid, metallic carbides or carbonates, ammonium carbonates, and exempt compounds which may be emitted to the atmosphere from EPS foam products manufacturing operations subject to this rule.

**(d) STANDARDS**

A person shall not manufacture EPS foam products unless:

(1) VOC emissions from such manufacture do not exceed 3.0 pounds per 100 pounds of EPS raw polymeric materials used; or

(2) The raw polymeric materials used for such manufacture contain no more than 3.6 percent by weight of blowing agent, as indicated in product specifications from the manufacturer of the raw polymeric material.

**(e) CONTROL EQUIPMENT**

(1) A person subject to the provisions of Subsections (d)(1) may comply by using an air pollution control system which:

(i) Has been installed in accordance with an Authority to Construct; and

(ii) Includes an emission collection system which captures manufacturing emissions, and transports the captured emissions to an air pollution control device; and

(iii) Has a combined emissions capture and control device efficiency such that VOC emissions from manufacturing operations do not exceed 3.0 pounds per 100 pounds of EPS raw polymeric materials used.

(2) A person subject to the provisions of Subsection (e)(1) of this rule shall submit an Operation and Maintenance Plan for the air pollution control device and emission collection system to the Air Pollution Control Officer for approval and receive such approval prior to operation of the air pollution control equipment. Thereafter, the plan can be modified, with the Air Pollution Control Officer approval, as necessary to ensure compliance. Such plan shall:

(i) Identify all key system operating parameters. Key system operating parameters are those necessary to ensure compliance with Subsection (e)(1) such as temperatures, pressures and flow rates; and

(ii) Include proposed inspection schedules, anticipated ongoing maintenance, and proposed recordkeeping practices regarding the key system operating parameters necessary to maintain continuous compliance with the provisions of Subsection (e)(1)(iii).

(3) A person subject to the requirements of Subsection (e)(2) shall implement the plan upon approval of the Air Pollution Control Officer, and shall comply with the provisions of the approved plan thereafter.

**(f) RECORDKEEPING**

Any person who manufactures EPS foam products shall maintain records in accordance with the following requirements:

(1) Maintain current records of manufacturer data for the blowing agent content of EPS raw materials used.

(2) Maintain monthly records of the amount of EPS raw materials used.

(3) For control equipment, maintain daily records of the key system operating parameters specified in Subsection (e)(2)(i), which will demonstrate continuous operation and compliance of the emission control device during periods of emission producing activities.

These records shall be retained on-site for at least three years and shall be made available to the District upon request.

#### (g) TEST METHODS

(1) Calculations of VOC emissions pursuant to Sections (b) and (d) and Subsection (c)(8) of this rule shall be by multiplying the quantity of EPS foam products produced by the difference between the blowing agent content of the raw polymeric materials and that of the final EPS foam products, as determined after 24 hours of storage.

(2) Measurement of the blowing agent content of raw polymeric materials and/or EPS foam products pursuant to Subsection (g)(1) of this rule shall be conducted in accordance with South Coast Air Quality Management District (SCAQMD) Test Method 306-91, "Analysis of Pentanes in Expandable Styrene Polymers." Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer. An alternative test method may be used provided such method has been approved, in advance, by the Air Pollution Control Officer, California Air Resources Board (ARB) and federal Environmental Protection Agency (EPA).

(3) Measurement of VOC emission control device efficiency pursuant to Section (e) of this rule shall be conducted using EPA Methods 18, 25, and/or 25A (40 CFR 60, Appendix A), as they exist on (*date of adoption*). Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer.

(4) Measurements of capture efficiency pursuant to Section (e) of this rule shall be conducted using test methods as provided in Subsections (g)(1), (g)(2) and (g)(3). Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer. Subsequent to the initial compliance demonstration period, appropriate key system operating parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of the emission collection system.

#### (h) COMPLIANCE SCHEDULE

(1) Any person operating existing equipment who is subject to the provisions of Section (d) and electing to comply with this rule by installing an air pollution control system pursuant to Section (e) shall meet the following increments of progress:

(i) By (*six months after date of adoption*), submit to the Air Pollution Control Officer an application for Authority to Construct and Permit to Operate an air pollution control system meeting the requirements of Section (e).

(ii) By (*twelve months after date of adoption*), install an air pollution control system pursuant to Section (e).

(2) Any person operating existing equipment who is subject to the provisions of Section (d) and electing to comply with process modification shall meet the following increments of progress:

(i) By (*six months after date of adoption*), submit to the Air Pollution Control Officer an application for Authority to Construct and Permit to Operate new or modified equipment necessary to comply with Section (d).

(ii) By (*twelve months after date of adoption*), install new or modified equipment necessary to comply with Section (d).

(3) Any person installing new equipment who is subject to the provisions of Section (d) shall comply with the provisions of Section (d) upon startup.

**IT IS FURTHER RESOLVED AND ORDERED** that the subject addition Rule 67.22 to Regulation IV shall take effect upon adoption.

**PASSED AND ADOPTED** by the Air Pollution Control Board of the San Diego County Air Pollution Control District, State of California, this 7th day of June, 1994 by the following votes:

**AYES:** Bilbray, Jacob, MacDonald  
**NOES:** None  
**ABSENT:** Slater, Williams

APPROVED AS TO FORM AND LEGALITY  
COUNTY COUNSEL

BY

Dutton  
DEPUTY

STATE OF CALIFORNIA) ss.  
County of San Diego)

I hereby certify that the foregoing is a full, true, and correct copy of the Original Resolution which is now on file in my office.

THOMAS J. PASTUSZKA  
Clerk of the Air Pollution Control Board

By Maritza C. Steele  
Maritza C. Steele, Deputy

Resolution No. 94-200  
No. 3 (APCB)  
6/7/94  
MCS

**AIR POLLUTION CONTROL DISTRICT  
SAN DIEGO COUNTY**

**1ST WORKSHOP REPORT**

**RULE 67.22 - EXPANDABLE POLYSTYRENE FOAM PRODUCTS  
MANUFACTURING OPERATIONS**

A workshop notice was mailed to all permitted facilities manufacturing foam products in San Diego County, the US. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and other interested parties. Four people attended the workshop held on October 29, 1992. The comments received and District responses are as follows:

**1. WORKSHOP COMMENT**

Why do we need to develop a separate rule for just one manufacturing facility?

**DISTRICT RESPONSE**

The one affected facility emits more than 25 tons per year (tpy) of volatile organic compounds (VOC's), and thus is a major source as defined by the Federal Clean Air Act Amendments (FCAA) of 1990. As mandated by the FCAA, the District must adopt a specific rule for each source category to require existing major VOC source(s) to implement Reasonably Available Control Technology (RACT).

**2. WORKSHOP COMMENT**

The 25 tpy emission threshold above which a VOC source is classified as a major source corresponds to a federal ozone nonattainment area which is classified as 'Severe'. Since the Air Resources Board (ARB) has reclassified San Diego County as a 'Serious' state ozone nonattainment area, why must the 25 tpy threshold be used in Rule 67.22?

**DISTRICT RESPONSE**

The 25 tpy threshold is based on the Federal Clean Air Act definition of a major emission source in Severe nonattainment areas for the federal ozone air quality standard. San Diego County is currently classified as a Severe nonattainment area. Since Rule 67.22 is being developed to satisfy the requirements of the FCAA, the 25 tpy emission threshold must be used.

**3. WORKSHOP COMMENT**

A facility may emit less than 25 tpy of VOC from expandable polystyrene foam products manufacturing operations. However, the total VOC emissions from such a facility, including VOC emissions from other operations, may exceed 25 tpy. Would such a facility be exempt from the emission control requirements of Rule 67.22, under the exemption provided in Subsection (b)(1)?

**DISTRICT RESPONSE**

Yes, such a facility would be exempt from Section (d) of Rule 67.22.



#### **4. WORKSHOP COMMENT**

How does Rule 67.22 differ from South Coast Air Quality Management District's Rule 1175?

##### **DISTRICT RESPONSE**

Rule 67.22 addresses only polystyrene foam molding operations, while Rule 1175 also applies to other foam products manufacturing processes such as polystyrene foam extrusion, polyurethane, isocyanurate and phenolic foam operations. Other foam products manufacturing operations were not included in Rule 67.22 because either such operations do not exist in San Diego County or the operations use only exempt compounds such as chlorofluorocarbons as blowing agents.

The South Coast air district has recently revised Rule 1175 to require polystyrene molding operations to comply with a production-based emissions standard of 2.4 pounds of VOC emissions per 100 pounds of production. This standard provides more flexibility achieving emission reductions, and in most cases can be met without requiring an air pollution control system that collects emissions from the entire plant floor.

An analysis of Rule 67.22 conducted by the District showed that capital and operational costs of add-on air pollution control equipment may be very significant for the one affected facility in San Diego County. In addition, the affected facility was already considering a process modification to use a raw polymeric material with a lower pentane content. Proposed Rule 67.22 has therefore been revised to now require the affected facility to comply with a production-based emissions standard of 3.0 pounds of VOC emissions per 100 pounds of production, which will provide an estimated 40 percent overall emission reduction.

#### **5. WORKSHOP COMMENT**

It does not seem fair that, under the compliance schedule of Section (h), an existing facility has up to 36 months after the date of adoption to comply with the requirements of Rule 67.22, whereas a new facility has to comply with these requirements upon adoption of the rule.

##### **DISTRICT RESPONSE**

The 36-month period is necessary to allow an existing facility adequate time to implement the required controls without having to shut down its operations. An existing facility will have to apply for modifications of the existing permit(s), perform the necessary engineering design, purchase and install the control equipment, and conduct performance tests in order to demonstrate compliance with Rule 67.22. A new facility, on the other hand, will have to go through the permitting process in order to comply with other District rules, including New Source Review, and should be in compliance with all District rules upon startup. This requirement is consistent with other District rules regulating VOC emission sources.

#### **6. WORKSHOP COMMENT**

Does the 25 tpy exemption level apply to VOC emissions per facility?

##### **DISTRICT RESPONSE**

Yes. Eligibility for exemption from emission control requirements of Rule 67.22 under Subsection (b)(1) is determined based on VOC emissions from polystyrene foam products manufacturing operations at a single stationary source.

## **7. WORKSHOP COMMENT**

If an existing major VOC source which emitted more than 25 tpy in 1990 reduces its VOC emissions to less than the 25 tpy exemption threshold, it should be exempt from the emission control requirements of Rule 67.22.

### **DISTRICT RESPONSE**

The 1990 Federal Clean Air Act Amendments require the District to adopt rules reflecting RACT for major stationary sources. For San Diego County, currently identified as a Severe federal ozone nonattainment area, a major source is a facility which emits or has the potential to emit 25 tons per year or more of VOC's. EPA has clarified this requirement to exclude certain major sources from the RACT requirements as follows: (1) the source must have an approved federally enforceable permit that permanently restricts the source's emissions to less than 25 tons per year, and (2) the actual emissions at the source since the enactment of the 1990 FCAA have never exceeded 25 tons per year, and (3) the emissions allowed under the permit are not greater than the emissions assumed in the latest EPA approved attainment demonstration. A source which emitted more than 25 tons per year in any year since 1990 does not meet condition (2), and therefore cannot be excluded from RACT requirements.

## **8. EPA COMMENT**

The referenced test method for measurement of the blowing agent content of raw polymeric materials and/or expandable polystyrene foam products, SCAQMD Test Method 306-91, "Analysis of Pentanes in Expandable Styrene Polymers", has not been approved by EPA. This test method is being reviewed by EPA headquarters and the District will be informed of the results. Please be advised that if SCAQMD Test Method 306-91 is found inappropriate for its intended use, Rule 67.22 cannot be approved without an appropriate test method.

### **DISTRICT RESPONSE**

The District anticipates that EPA will approve SCAQMD Method 306-91 with some minor modifications.

## **9. ARB COMMENT**

The term 'emission reduction efficiency' is used in Subsection (e)(1)(iii), while Subsection (g)(3) uses the term 'control efficiency' for the same concept. To improve clarity, only one term should be used for a single concept.

### **DISTRICT RESPONSE**

Subsections (e)(1)(iii) and (g)(3) have been revised, and no longer include either of these terms.

## **10. ARB COMMENT**

Subsection (g)(2) specifies a test method for measuring the pentane content of expandable styrene polymers. This assumes that the determination of pentane content is equivalent to the determination of blowing agent content. Although pentane is the only blowing agent commonly used, there is no restriction in the rule against using other blowing agents to expand the foam. If



the possibility exists that other blowing agents may be used in the District, provisions should be made for quantifying them.

### **DISTRICT RESPONSE**

The rule has been revised expanding the definition of a blowing agent to include any liquid or gaseous volatile organic compound. In addition, Subsection (g)(2) has been revised to specify the use of SCAQMD Test Method 306-91 for determination of pentane, or the use of an alternative test method for other VOC containing blowing agents provided that it has been approved in writing by the Air Pollution Control Officer, the ARB and EPA.

### **11. ARB COMMENT**

In several places, Rule 67.22 refers to 'blowing agent content'. Since a blowing agent is defined in the rule as a liquid or gas which 'contains' VOC's, 'blowing agent content' would not necessarily exclude exempt compounds. If there is a possibility that exempt compounds alone, or mixed with non-exempt compounds, may be used as blowing agents, we suggest that the rule explicitly state whether or not exempt compounds are included or excluded from 'blowing agent content'. A test method for quantifying exempt compounds will be necessary if such compounds are used and not to be included in 'blowing agent content'.

### **DISTRICT RESPONSE**

The definition of 'blowing agent' has been revised to apply specifically to VOC's.

### **12. ARB COMMENT**

Subsection (g)(3) specifies methods for determining control device efficiency and overall capture and control efficiency. The portion of the section devoted to capture efficiency is ambiguous because the second sentence specifies a test method for determining VOC evaporation from raw material usage and blowing agent content, and the third sentence specifies methodology for determining how much VOC is captured. The fourth sentence contradicts these two sentences by indicating that capture efficiency will be determined by a protocol approved by the Air Pollution Control Officer. Evaporative losses and captured VOC are the principal parameters of capture efficiency, although EPA protocols call for determining captured VOC indirectly by subtracting fugitive losses (measured using a temporary or permanent enclosure around the process) from evaporated VOC. It is suggested that either the fourth sentence in this section be deleted or, alternatively, the mention of capture efficiency and VOC capture in the section's second and third sentences be deleted.

### **DISTRICT RESPONSE**

Subsection (g)(3) has been revised to correspond to other revisions in the rule. The results of the revisions include the removal of the second and third sentences and some modification to the fourth sentence. This will address this comment.

**AIR POLLUTION CONTROL DISTRICT  
SAN DIEGO COUNTY**

**RULE 67.22 - EXPANDABLE POLYSTYRENE FOAM PRODUCTS  
MANUFACTURING OPERATIONS**

**2ND WORKSHOP REPORT**

A workshop notice was mailed to all facilities involved in manufacturing foam products in San Diego County. Notices were also mailed to all Chambers of Commerce in San Diego County, all Economic Development Corporations, the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and other interested parties.

The proposed rule and Socioeconomic Impact Assessment (SIA) were presented for public comment. The workshop was held on March 14, 1994, and was attended by three people. The workshop comments and District responses are as follows:

**1. WORKSHOP COMMENT**

How were annual uncontrolled pentane emissions calculated for the affected facility?

**DISTRICT RESPONSE**

Annual emissions were calculated by multiplying the annual raw material usage by the difference in weight percentage of pentane in the raw material and the molded products. The annual raw material usage was included in the facility's annual Emissions Inventory reports, and the difference in weight percentage of pentane was determined by laboratory analysis of the raw material, and of the final molded product after 24 hours of storage.

**2. WORKSHOP COMMENT:**

If San Diego County's classification as a federal ozone nonattainment area is changed from 'severe' to 'serious', the federal major source threshold will change from 25 tons to 50 tons per year. Would the exemption level for emission control requirements in Section (b) be changed accordingly?

**DISTRICT RESPONSE:**

No. In addition to federal requirements, the District must also meet California Clean Air Act requirements and implement all technically and economically feasible emission control measures. Such measures included in proposed Rule 67.22 are expected to be cost effective for foam manufacturing facilities emitting 25 tons of VOC's per year or more. Therefore, an increased exemption level in Section (b) would not meet state requirements, nor would it meet the commitments made by the District in its Regional Air Quality Strategy.

**3. WORKSHOP COMMENT**

Polystyrene foam molding facilities using low-pentane raw beads (3.6 percent of initial weight) are encountering operational difficulties. Manufacturers may need to reformulate the raw beads to contain 3.8 percent pentane. Will Rule 67.22 provide for the use of such reformulated raw beads?

#### **DISTRICT RESPONSE**

The District has revised the compliance schedule to provide two years for a process modification. This will allow the affected facility and the raw bead manufacturers additional time to implement the new technology. In the event that compliance with the proposed emissions standard cannot be realized solely by use of low-pentane raw beads, the affected facility may need to pursue compliance options which include add-on pollution control equipment, such as a catalytic oxidizer, or use of an existing boiler.

#### **4. WORKSHOP COMMENT**

Rule 67.22 provides a three year compliance schedule for the implementation of add-on air pollution control, but only one year for a process modification. More than one year may be needed to implement a new technology such as switching to low-pentane raw beads.

#### **DISTRICT RESPONSE**

The District has revised the compliance schedule to provide an additional year for a process modification.

#### **5. WORKSHOP COMMENT**

What might be addressed in a typical compliance determination for the use of low-pentane raw beads at the affected facility? Who will be responsible if a test analysis shows the raw beads to be out of compliance?

#### **DISTRICT RESPONSE**

As provided in Subsection (d)(2), the district would determine compliance according to the manufacturer's specification of the pentane content of the raw beads. However, compliance determinations is ultimately subject to verification according to the analytical methods in Subsection (g)(2). Occasionally, such verification is employed by the District, or ARB or EPA.

Ultimately the affected facility is responsible for compliance with the rule. If a violation of the standard specified in Subsection (d)(2) were determined, the facility would receive a District Notice of Violation. In order to address this concern, an affected facility may take precautions, such as entering into contractual agreements with the supplier and/or manufacturer concerning possible violations due to exceedance of Rule 67.22 standards (e.g., certification of the VOC content of raw materials).

#### **6. WORKSHOP COMMENT**

Is a facility which conducts operations such as polyurethane foam expanding subject to Rule 67.22?

#### **DISTRICT RESPONSE**

No. Only polystyrene foam products manufacturing operations are subject to Rule 67.22.

**SOCIOECONOMIC IMPACT ASSESSMENT**

**PROPOSED RULE 67.22-  
EXPANDABLE POLYSTYRENE FOAM PRODUCTS  
MANUFACTURING OPERATIONS**

**APRIL 1994**

**San Diego County  
Air Pollution Control District**

**SOCIOECONOMIC IMPACT ASSESSMENT  
PROPOSED RULE 67.22-  
EXPANDABLE POLYSTYRENE FOAM PRODUCTS  
MANUFACTURING OPERATIONS**

**INTRODUCTION**

Section 40728.5 of the State Health and Safety Code requires the Air Pollution Control District (District) to perform a Socioeconomic Impact Assessment (SIA) for any new or amended rules and regulations that will significantly affect air quality or emission limitations. This report contains the District's assessment of the socioeconomic impacts of proposed District Rule 67.22 - Expandable Polystyrene Foam Products Manufacturing Operations.

Rule 67.22 is a new rule developed to control volatile organic compound (VOC) emissions from expandable polystyrene (EPS) foam manufacturing operations. These operations produce 'Styrofoam' items such as cups, panels, and packing materials for electronic equipment. Volatile organic compounds such as pentane, which are contained in polystyrene beads, are used as foam blowing agents. Manufacturing processes include a 'pre-expansion stage' where the beads are exposed to steam which volatilizes and heats the blowing agents in the beads, thereby expanding the beads, and a 'molding' stage where the beads are heated further and formed into the desired shape. Pentane is emitted to the atmosphere during the manufacturing processes and subsequent storage of the fabricated EPS foam products. It subsequently participates in the photochemical reactions that form ozone. The San Diego Air Basin exceeds both federal and state ambient air quality standards for ozone.

Rule 67.22 applies to one EPS foam manufacturing facility in San Diego County which emitted approximately 35 tons of VOC's in 1990. The rule requirements are as follows:

- EPS foam manufacturers emitting 25 tons of VOC's per year or more are required to meet a production-based emissions standard of 3.0 pounds VOC emissions per 100 pounds of EPS foam product. Options to achieve compliance include process modifications such as switching to raw materials which contain smaller amounts of pentane, and/or add-on air pollution control equipment applied to all or part of the operation.
- If compliance is achieved with add-on air pollution control equipment, the rule specifies a compliance schedule for installation of the equipment. It also requires that an operation and maintenance plan be submitted, which includes a proposed inspection schedule for the control system, and the anticipated maintenance of key system operating parameters. A compliance date is also included for process modification.
- All EPS foam manufacturers are required to keep current records necessary to determine VOC emissions, such as the amount of EPS raw materials used and blowing agent content of each EPS raw material. Facilities installing air pollution control systems must also keep daily records of the system's key operating parameters.

Proposed Rule 67.22 is expected to reduce annual VOC emissions from EPS foam manufacturing by approximately 14 tons, or by 40% from the 1990 level. It is anticipated that the single affected facility would comply with the emissions standard by process modification. Estimated

cost-effectiveness is \$1.10 per pound of VOC reduced, and total cost to the affected facility is estimated to be about \$31,000 per year.

### **THE NECESSITY OF ADOPTING RULE 67.22**

The 1990 Federal Clean Air Act Amendments require the District to adopt rules reflecting Reasonably Available Control Technology (RACT) for major stationary sources of ozone precursors. For San Diego County, identified as a ‘Severe’ federal ozone nonattainment area, a major source is defined as any stationary facility which directly emits or has a potential to emit 25 tons per year or more of **volatile organic compounds (VOC) or nitrogen oxides (NOx)**.

The **Environmental Protection Agency (EPA)** has established specific RACT requirements for several categories of industry in Control Technique Guideline (CTG) documents. EPS foam manufacturing is not among these industries. For industries with no specific requirements, EPA considers RACT for major sources to be a level of control which achieves an overall reduction in uncontrolled VOC emissions of at least 81 percent. In cases where this is not achievable at a particular facility, the most stringent level of control achievable must be determined based upon technical and economic feasibility, and submitted to EPA for approval as a ‘source-specific’ alternative RACT.

VOC emissions reduction for EPS foam manufacturing operations can be achieved by using EPS beads with lower pentane content, or by using typical VOC add-on control technologies such as catalytic or thermal oxidation, or carbon adsorption. These practices are technologically feasible and currently available, and they have been used on EPS foam manufacturing operations in California and other parts of the country. However, while using low-pentane EPS beads is generally economically feasible for this industry, often using add-on emissions control is not. For the affected facility, the most stringent level of control economically feasible has been determined to be an emissions standard of 3.0 pounds per 100 pounds of EPS foam product, as is contained in proposed Rule 67.22.

A VOC control measure for EPS foam manufacturers was included in the District’s 1991 Regional Air Quality Strategy (RAQS) developed to comply with the California Clean Air Act. The Act requires the District to adopt the RAQS control measures as expeditiously as possible in order to attain the state and national ambient air quality standards for ozone.

Therefore, both federal and state laws necessitate the adoption of Rule 67.22.

### **IMPACT ASSESSMENT**

As specified in the Health and Safety Code, “socioeconomic impact” means the following:

- (1) The type of industries or business, including small business, affected by the rule or regulation.

- (2) The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.
- (3) The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.
- (4) The availability and cost-effectiveness of alternatives to the rule or regulation being proposed or amended.
- (5) The emission reduction potential of the rule or regulation.
- (6) The necessity of adopting, amending, or repealing the rule or regulation in order to attain state and federal ambient air standards.

Item 6 was discussed in the preceding section. The remaining items are discussed below.

#### **Types of Industries Affected by Rule 67.22**

The adoption of proposed Rule 67.22 will directly affect EPS foam product manufacturers (SIC 3069). The rule may indirectly affect electronic equipment (SIC 3651) and motor vehicle accessory manufacturers (SIC 3714) which purchase EPS foam packaging products because any increase in the cost of EPS products may be passed on by the EPS foam product manufacturers to their business customers.

Only one existing facility in San Diego County will be impacted by Rule 67.22. That facility employs about 15 persons and had estimated sales of about \$3.3 million in 1990. It is considered a small business under Section 11342 (e) of the State Government Code. This section defines a small business, in part, as independently owned and operated, not dominant in its field of operation, and a manufacturing facility with less than 250 employees. This facility is also a small business according to the definition in the federal Small Business Act.

#### **Range of Probable Costs of Proposed Rule 67.22**

- a. Cost of implementation of the emissions standard.

The single affected facility could comply with Rule 67.22 by switching to a low-pentane raw material. However, to use low-pentane EPS beads, the affected facility would need to replace its existing pre-expander with a different type of equipment. Table 1 shows the estimated costs associated with the implementation of this new process at the affected facility.

**TABLE 1**  
**Costs for Process Modification and Associated New Equipment**  
**at the Affected Facility**



<u>Initial Capital Cost</u>	<u>Annual Operating Costs</u>	<u>Total Annualized Cost</u>	<u>Cost-Effectiveness (per lb VOC reduced)</u>
\$115,000	\$12,000	\$31,000	\$1.10

The initial capital cost estimate reflects the cost difference between the new and existing pre-expander, and includes installation. The operating cost estimate reflects additional steam requirements and operator training for the new equipment. The cost of the new raw material would be about the same as the current material used.

b. Cost of recordkeeping requirements

Compilation of annual records for the affected facility is estimated to require about 20 staff-hours per year. Assuming \$15 per hour labor cost,<sup>1</sup> and an equal amount for overhead, annual recordkeeping costs are estimated to be \$600.

c. Costs to indirectly affected facilities

The affected facility may pass the cost of compliance with Rule 67.22 on to its business customers. This cost is estimated to be about 2¢ per pound of EPS product, or less than a one percent price increase. The affected facility's customers, such as electronic equipment and motor vehicle accessory manufacturers, may in turn be able to pass this cost on to their consumers.

**Economic Impacts of Proposed Rule 67.22**

a. Impact on the facility subject to the emissions standard of Rule 67.22.

An economic criterion which has been used by EPA and the **California Air Resources Board** (ARB) to evaluate economic impacts of regulations is 'Return on Equity' (ROE). ROE is a general indicator of profitability and is determined as a company's net profit after taxes, often expressed as a percentage of the company's equity. An annual compliance cost of a single regulation greater than 10% of annual ROE for a facility is considered a potentially significant economic impact by ARB.<sup>2</sup> An annual compliance cost for all environmental regulations greater than 30% of ROE for a facility is considered potentially significant by EPA.<sup>3</sup>

For the one facility in San Diego County affected by Rule 67.22, the estimated annual compliance cost of \$31,000 is approximately 29% of the ROE. According to both the ARB and EPA criteria, this may represent a significant economic impact on the company's operations. However, the affected facility has already secured the equipment necessary to process low-pentane EPS beads. In addition, the impact may be reduced if compliance costs are passed on to customers. Since the expected increase in price of their foam products is not significant (2¢ per pound or less than one percent) such a scenario may be realistic. Therefore, it is anticipated

that compliance with proposed Rule 67.22 at this facility could be implemented without significant adverse economic impacts.

b. Impact on facilities indirectly affected by Rule 67.22

Facilities such as appliance and electronic manufacturers use EPS foam for insulating and packaging their products. These manufacturers would likely accept a passed-on cost increase only to the extent they could in turn pass the cost on to consumers. Otherwise they would seek alternative available suppliers. However, such suppliers would, most likely, be from the South Coast air district, which has a regulation more stringent than Rule 67.22. Options for EPS product substitution may exist, and affected businesses may choose other available products if the price increase of EPS products is substantial. However, at a foam price increase of approximately one percent, a significant impact is not expected at indirectly affected facilities. The increased costs for packaging an appliance or electronic product would likely be only a few cents or less.

**Employment Impacts of Proposed Rule 67.22**

a. Impact on the facility subject to emission control requirements of Rule 67.22

If the compliance cost cannot be passed on to customers, the affected facility may reduce its existing work force, or may shutdown or relocate the facility. If the facility were to bear the entire annual compliance cost of \$31,000, any resulting decrease in personnel at the affected facility would probably be, at most, one employee.

On the other hand, the existing plant personnel may not be able to perform additional operational and maintenance work for the new process equipment or for emissions control equipment. Therefore, extra help may need to be hired at the facility.

Overall, no significant employment impact is expected at the affected facility.

b. Impact on employment in San Diego County.

If emission control equipment were installed and local contractors hired for the design and installation, there may be a temporary increase in local employment resulting from Rule 67.22. However, with only one affected facility, it is not anticipated that such increases will create new permanent jobs in the County.

**Availability and Cost-Effectiveness of Alternatives to Rule 67.22**

**Alternative A: Not adopt Rule 67.22**

This is not a viable option. It is inconsistent with the federal Clean Air Act Amendments of 1990, which require air pollution control districts to adopt rules reflecting reasonably available control technology (RACT) for major sources emitting more than 25 tons per year of VOC's by November 15, 1992. On January 15, 1993, EPA notified the District of a finding of failure to submit RACT rules for several major sources of VOC emissions. EPA stated that this failure would result in the imposition of federal sanctions, such as withholding of federal highway and transportation funds to the region and severe restrictions on industrial expansion, unless the required rules are adopted within 18 months of the finding, i.e. by July 15, 1994. Failure to adopt RACT rules within two years of such a finding could also result in promulgation of a Federal Implementation Plan. Rule 67.22 should be adopted as expeditiously as possible to fulfill the requirements of the **federal Clean Air Act Amendments**.

Additionally, a tactic containing the emissions control measures required by proposed Rule 67.22 is included in the 1991 Regional Air Quality Strategy (**RAQS**) which was adopted by the Air Pollution Control Board on June 30, 1992. Therefore, not adopting Rule 67.22 would be inconsistent with the RAQS and with the California Clean Air Act which requires the District to adopt all feasible VOC control strategies.

#### **Alternative B: Adopt a more stringent Rule 67.22**

As mentioned previously, for industries with no specific requirements, such as EPS foam manufacturing, EPA considers RACT for major sources to be a level of control which achieves an overall reduction in uncontrolled VOC emissions of at least 81 percent. The rule could be made more stringent by requiring 81% emission reduction at facilities emitting 25 tons of VOC's per year or more. This requirement would be more stringent than the 40% emission reduction provided by the proposed emissions standard of 3.0 pounds VOC's per 100 pounds of production, and would be achievable only by applying add-on air pollution control equipment to the entire manufacturing operation. The cost and economic impact of this alternative are presented below.

##### **a. Probable Costs to the Affected Facility**

Several VOC control technologies were considered for implementation at the affected facility, including thermal and catalytic incineration, and carbon adsorption. Catalytic oxidation has been determined to be the least expensive choice with an estimated cost-effectiveness of \$3.20 per pound of VOC reduced.

A detailed cost analysis was performed for VOC emission control using catalytic oxidation at the affected facility (Table 2). Initial capital cost estimates included cost of the control device, cost of all ancillary equipment, and all costs associated with delivery installation, and startup. Operating cost estimates included all costs associated with general maintenance and utilities, and catalyst replacement. The estimates indicate an initial capital expense of \$520,000 and total annualized costs of \$180,000.

**TABLE 2**

**Cost and Economic Impacts of Alternatives for Rule 67.22  
for the Affected Facility**

<u>Rule Option</u>	<u>Initial Capital Cost</u>	<u>Total Annualized Cost</u>	<u>Cost- Effectiveness (per lb VOC reduced)</u>	<u>Percent of ROE</u>	<u>Emission Reduction ton/yr</u>	<u>%</u>
Current Proposal	\$115,000	\$31,000	\$1.10 / lb	29%	14	40
Alternative B	\$520,000	\$180,000	\$3.20 / lb	167%	30	81

b. Economic Impacts of Alternative B on the Affected Facility

The cost-effectiveness of Alternative B (\$3.20/lb VOC reduced) is within the bounds of cost-effectiveness values associated with other current District VOC rules. However, cost-effectiveness values do not always serve as indicators of economic impact on a facility affected by any environmental regulation. Factors that should also be considered are the capital and annual compliance cost estimates.

Table 2 shows these estimates for the affected facility assuming the application of the least expensive technology, catalytic oxidation, to comply with Alternative B. It shows that the annual compliance cost of this alternative significantly exceeds its return on equity (167%). In addition, the resulting increase in product costs which may be passed on to business customers and consumers is approximately 13¢ per pound of EPS product, or about a 6% price increase. This larger price increase may be less acceptable to the affected customers and may cause them to seek alternative suppliers. Many EPS foam manufacturing facilities in the neighboring South Coast air district which have installed air pollution control equipment are larger than the facility in San Diego. Since cost increase per unit production is expected to be smaller for larger facilities,<sup>2</sup> larger suppliers in the South Coast air district would be able to offer smaller cost increases. As a result, supplies from these larger facilities may represent cost-effective alternatives to the products from the company located in San Diego County, if that company were required to install add-on emission control equipment.

If the annual compliance cost could be passed on to its customers, the facility affected by Alternative B to the proposed rule, would have to absorb the costs. However, these costs are of such magnitude that they would affect overall economic viability of the facility, and could cause the facility to shutdown or relocate.

Another significant expenditure for the affected facility would be the initial capital cost. Securing conventional financing may be difficult for this facility. Since it is a major emission source, it does not qualify for the small business environmental compliance assistance program

of the federal Clean Air Act. However, the facility could qualify for a seven year loan from the State CLEAN Program (California Loans for Environmental Assistance Now) at 8.75% interest and a two percent loan fee.<sup>3</sup>

c. Employment Impacts on the Affected Facility of Adopting Alternative B

If the compliance cost cannot be passed on to customers, the affected facility may reduce its existing work force, or may shutdown or relocate the facility. In the South Coast air district, approximately 25 EPS foam manufacturing firms were affected by requirements of Rule 1175, Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, which in practice could be met only by installing add-on emissions control. According to the Society of the Plastics Industry,<sup>4</sup> several smaller firms were compelled to relocate or shutdown their operations in that district.

d. Conclusions

The economic impact of Alternative B on the affected facility far exceeds the ARB and EPA criteria. It shows the potential for significant negative effect on the facility's financial viability of a magnitude that could result in facility closure. The District does not recommend adopting Alternative B.

**Alternative C: Adopt a less stringent Rule 67.22**

This is also not a viable option. As indicated previously, the proposed rule contains a technologically and economically feasible emissions control measure which represents RACT for the affected facility. A less stringent rule would not comply with the 1990 Federal Clean Air Act Amendments which require the District to adopt rules implementing RACT. Alternative C would also result in lower emission reductions than required by the Regional Air Quality Strategy.

**Minimization of Adverse Socioeconomic Impacts**

The District has worked closely with the affected company to minimize economic impacts which may result from Rule 67.22 to the extent allowed by state and federal requirements. The affected company, its raw material supplier and other industry representatives were consulted during the rule development process in two formal workshops, numerous additional meetings, and other written and telephone contacts. Because the affected company is a small business, the District conducted a thorough control technology review and an analysis of the company's ability to finance the installation of RACT controls. The analysis concluded that the 81% emission control requirement would impose a severe economic hardship on the company and may force it out of business. The District then worked with EPA to develop an alternative source specific emission standard that requires the affected company to reduce VOC emissions by either using low VOC content raw polymeric materials or applying add-on emission

control on part of the operation. The cost of compliance with the new standard will be 80% lower than with the previous requirement. In addition, if the company elects to comply with Rule 67.22 requirements by using the low VOC content raw material, it would provide it an opportunity to employ a new low polluting technology, thus accomplishing pollution prevention in lieu of using add-on controls .

### **Benefits and Emission Reduction Potential in Adopting Rule 67.22**

The annual VOC emissions from the EPS foam manufacturing facility in San Diego County were 35 tons in 1990. Implementation of Rule 67.22 would result in an annual VOC emission reduction of about 14 tons per year, or 40%. Implementation of Rule 67.22 will contribute to the attainment of the ambient air quality standards for ozone in San Diego County.

PC:jo  
4/6/94

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<sup>1</sup> EPA, Office of Air Quality Planning and Standards, Control Cost Manual.

<sup>2</sup> EPA study, "Control of VOC Emissions from Polystyrene Foam Manufacturing," EPA-450/3-90-020, September 1990.

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- <sup>3</sup> Discussion with California Department of Commerce- Business, Transportation, and Housing Agency.
  - <sup>4</sup> Discussion with Steve Reiter, EPS Division, Western Region, Society of the Plastics Industry.