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RULE 2.41, EXPANDABLE POLYSTYRENE MANUFACTURING OPERATIONS

FINAL STAFF REPORT

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Table of Contents

Page

I.	EXECUTIVE SUMMARY	3
A.	BACKGROUND	3
II.	DISCUSSION OF PROPOSED RULE 2.41 REQUIREMENTS	5
III.	COMPARISON WITH OTHER APPLICABLE REGULATIONS AND REQUIREMENTS	7
IV.	IMPACTS OF THE PROPOSED RULE	10
V.	ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE	11
VI.	REGULATORY FINDINGS	12
VII.	PUBLIC COMMENTS AND STAFF RESPONSES	13
VIII.	REFERENCES	16
ATTACHMENT A	PROPOSED RULE 2.41, EXPANDABLE POLYSTYRENE MANUFACTURING OPERATIONS	
ATTACHMENT B	NOTICE OF EXEMPTION FROM CEQA GUIDELINES	
ATTACHMENT C	RESOLUTION NO. 08-09	
ATTACHMENT D	WRITTEN COMMENTS RECEIVED	

I. EXECUTIVE SUMMARY

On September 10, 2008, the Yolo-Solano Air Quality Management District (District) Board of Directors will consider the proposed adoption of Rule 2.41. The rule will affect facilities that manufacture products made from expandable polystyrene (EPS).

The District committed to adopting a rule for this source category in the Reasonably Available Control Technology (RACT) State Implementation Plan (SIP), dated September 13, 2006. The District has one permitted source that would be subject to this rule. The source has permitted emissions of 175 tons per year of volatile organic compounds (VOCs), which is above the major source threshold of 25 tons per year. The District does not currently have a prohibitory rule regulating this source category.

The main requirements for Rule 2.41 will be:

1. Control of manufacturing emissions by maintaining a 90% capture efficiency and a 95% destruction efficiency for VOC emissions, along with a 5.2% VOC content limit on the raw material used.
2. Annual source testing to show compliance with the capture and destruction requirements.
3. Implementation of an operations and maintenance (O&M) plan for the emission control system.

There is currently one source within the District that will be affected by this rule. This source produces blocks made from EPS, which can be sold as whole blocks or cut into sheets to be sold for building insulation. There are no reductions anticipated from the adoption of this rule, since the one facility that will be subject is already in compliance with the provisions in the proposed rule.

The proposed rule will neither have a significant nor detrimental effect on the environment. Therefore, staff has prepared a Notice of Exemption to satisfy the requirements of the California Environmental Quality Act (CEQA). The notice states that the revisions to the Rules are exempt from the requirements of CEQA pursuant to Section 15308, Actions by Regulatory Agencies for Protection of the Environment.

A. BACKGROUND

Overview of source category

The process of manufacturing EPS product from raw material is similar for molded foam products, regardless of whether the facility makes blocks, as is in the case of the source in this District, or whether they make some other type of molded product. The basic process starts with small polystyrene beads that have been formulated with liquid pentane to act as a blowing agent. The beads arrive at the facility in cartons or bulk fabric mesh bags that weigh 1,000 pounds or more. The raw bead is available in various pentane contents. The beads are first batch processed with steam in the "pre-expanders", which causes the

pentane in the bead to vaporize, and the bead to expand. The “pre-puff” beads are then transferred pneumatically via ducting into an enclosed room with large mesh bags for “aging”, where the exposure to air allows the beads to stabilize and set. After aging, the beads are transferred to the block molds, where heat, pressure, steam, and vacuum are used to fuse the beads into a block shape. After exiting the mold, the blocks are moved to a storage area and are either sold to customers as whole blocks, or are then taken to other portions of the facility to be cut into sheets for use as insulation in buildings.

There is one source within the District that will be subject to this rule. Insulfoam, LLC operates an EPS facility in Dixon, CA, and is permitted for 175 tons per year of VOC emissions, after controls. The facility is subject to the Federal Title V permitting program, therefore they are subject to RACT requirements.

Reason for Rulemaking

According to EPA’s Final Rule to Implement the 8-Hour Ozone NAAQS (70 FR 71612, November 29, 2005), areas classified as “moderate” nonattainment or higher must submit a demonstration that their current rules fulfill 8-hour ozone Reasonably Available Control Technology (RACT) for all Control Technique Guidelines (CTG) categories and all major non-CTG sources as a revision to their State Implementation Plans (SIPs). Such demonstrations can be made with either a new RACT determination, such as adopting a prohibitory rule that meets RACT, or a certification that previously required RACT controls represent RACT for the 8-hour ozone standard. Insulfoam, LLC is a major non-CTG source, therefore the District has committed to adopting a rule for EPS facilities that meets RACT for this source category.

In determining RACT for this source category, the District considered the source category as a whole and all rules regulating this source category that have been adopted by other Districts. The District has determined that the control measures presented in this proposed rule are RACT.

Several other Districts or states have adopted prohibitory rules to cover this source category. Most of these rules have performance standards for the control of VOC emissions that are either in the format of: pounds of VOC emissions per 100 pounds of material processed (lbs/100 lbs); or 90% capture and 95% control with a pentane content limit on either raw material or finished product. In addition, there are some rules which allow other alternative standards. A few of the rules have also required that the control include either the first 24 or 48 hours of storage emissions. Because many facilities (including the one in our District) have demonstrated compliance with the 90% capture and 95% control (destruction), the district believes that controlling VOC emissions to that level, along with a raw material pentane content limit, is RACT. However, due to the number of facilities that do not currently and can not feasibly control large warehouses of product storage, the District does not believe that including storage emissions is reasonably available control. In addition, our District is proposing ongoing annual source testing to show compliance with these limits. Many of the other Districts’ rules do not include this requirement, however we believe that this source testing is essential to ensuring that the limits in the rule are not only met, but are maintained over time. Many factors can affect the efficiency of a control system over time, including equipment degradation, minor

changes in operational processes, raw material variation, and technological improvements. Many of these items that could affect capture or destruction efficiencies might only be detected with a source test.

II. DISCUSSION OF PROPOSED RULE 2.41 REQUIREMENTS

Listed below is a description of the proposed requirements for Rule 2.41 - Expandable Polystyrene Manufacturing Operations:

Section 101 Purpose

The purpose of the rule is to limit the emissions of VOCs from the manufacture of EPS products.

Section 102 Applicability

The rule is applicable to any facility which manufactures EPS product. There is only one source that currently manufactures EPS product in the District. An EPS manufacturing operation is defined in the rule.

Section 110 Exemptions

The rule is not applicable to any facility which uses only non-VOC blowing agents. Non-VOC blowing agents do not contribute to the formation of ozone, therefore they have no impact on the District's ability to achieve attainment with state and federal standards.

Section 200 Definitions

Rule 2.41 will provide several definitions to clarify the terms used in the rule.

Section 300 Standards

- 301 The proposed rule will require the use of add-on controls to achieve a capture efficiency of at least 90% and a destruction efficiency of at least 95% of manufacturing emissions. This includes the emissions from pre-expansion, aging, and molding steps. These are the points where most of the emissions occur and are the most cost effective steps to control with add-on controls for existing facilities. This does not include any emissions that occur after the block molding step (i.e. - block storage).
- 302 The proposed rule will require the use of low and mid pentane bead for manufacturing of all products. This requirement, coupled with the capture and destruction requirement, effectively limit the total emissions that may be produced by an EPS facility. The one source in the District is currently limited by permit to using bead under 5.5%. Although the proposed rule will actually limit them to using under 5.2% pentane content bead, the source has indicated that there is not currently any bead available in the range of 5.2% to 5.5% and there has not been for

some time. Therefore, there are no reductions associated with this requirement.

303 The proposed rule will require annual source testing of manufacturing operations. This will ensure compliance with the standards set in section 301 and will also ensure that the facility maintains the equipment and operating practices at the level intended by the rule on an ongoing basis. The annual source test is key to ensuring that the facility is achieving the level of control required by the rule.

304 The proposed rule clarifies what constitutes a violation of the rule.

Section 400 Administrative Requirements

401 This section specifies the proposed compliance date as January 1, 2009. For the existing facility in the District, there are no equipment additions/modifications expected as a result of this rule.

402 The proposed rule will require the facility to submit an operation and maintenance plan to the District. The plan will include procedures for collecting and recording the required data to show compliance with the rule. It will also include procedures and schedules for corrective and preventive maintenance. The plan will help the facility maintain the control system in proper operating condition.

Section 500 Reporting and Record Keeping

501 The records required by the rule will be retained for five years at the facility.

502 The facility will be required to keep records of key operating parameters of the emissions control system (temperature, pressure, flow rate), raw material usage (and blowing agent content), and finished product amounts. This will aid the District in ensuring that the facility is maintaining compliance with the rule.

Section 600 Test Methods and Calculations

This section details the applicable test methods to be used to show compliance during the annual source test. The test methods referenced are standardized methods from various regulatory agencies.

III. COMPARISON WITH OTHER APPLICABLE REGULATIONS AND REQUIREMENTS

California Health and Safety Code Section (CH&SC) 40727.2 requires districts to perform a comparative alternative analysis of any new control standard. Specifically, the District is required to prepare a written analysis (usually in the form of a matrix) that

identifies all existing federal air pollution control requirements, including, but not limited to emission control standards constituting best available control technology (BACT) that applies to the same equipment or source type as the rule or regulation proposed for adoption or modification by the District. In addition, the analysis shall identify any other District rule or regulation that applies to the same equipment or source type.

There are no federal regulations, such as NESHAPs or NSPSs, that apply to this source category. However, there are several other air districts that have rules that apply to similar facilities. In particular, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and the San Diego Air Pollution Control District (SDAPCD) all have rules that apply to EPS facilities.

Best Available Control Technology

There are standards such as BACT that apply to EPS manufacturing operations. BACT for EPS manufacturing facilities was determined to be compliance with the SCAQMD Rule 1175. The comparison is noted below:

Element for comparison	District Rule 2.41	BACT
Emissions Control Standard	-90% capture/95% destruction of manufacturing emissions -maximum 5.2% raw material pentane content	-90% capture/95% destruction of manufacturing emissions and emissions from first 24 or 48 hours storage <u>or</u> -2.4 lbs VOC emitted per 100 lbs raw material used <u>or</u> -93% overall control of manufacturing emissions
Operating parameters and work practice requirements	-Initial and annual ongoing source tests -Operation and Maintenance Plan	-Initial source test
Monitoring, reporting, and recordkeeping requirements	-Daily raw material usage, emission control system parameters, finished product	-Daily raw material usage and emission control system parameters

Reasonably Available Control Technology

Emissions Control Standard

The emissions control standards for this source category can be separated into two distinct areas: manufacturing emissions and storage emissions. For manufacturing emissions, although the SCAQMD Rule 1175 can be considered BACT for this source category, it certainly does not represent RACT. There are not many block making facilities that are able to comply with the limits set in rule 1175, and as a result, SCAQMD has recently added another compliance option. The SCAQMD still remains

the most stringent rule of all rules governing EPS facilities. Of the remaining rules that are SIP-approved, the BAAQMD Rule 8-52 requirement of 2.7 lbs VOC/100 pounds of raw bead is less stringent than the SCAQMD rule, but more stringent than some of the other District rules mentioned above. Therefore, it is reasonable that the BAAQMD rule limit on manufacturing emissions could be considered to be RACT.

Although the BAAQMD Rule 8-52 limit of 2.7 lbs VOC/100 lbs of raw bead is in a different format than the proposed limit of 90% collection/95% destruction given in this rule, approximate equivalency can be shown between the two limits when taking into account the limitation of using all low and mid pentane bead for production. The equivalency calculation for manufacturing emissions is shown below for both low and mid pentane bead. Note that the final pentane content figures are an average of 1.5 years of monthly freshly molded block residual pentane content analyses from the site in the District (residual testing used SCAQMD test method 306-91). Also note that residual pentane contents of blocks can vary based on the time the bead has spent in the aging room. For the residual results used, the aging time was normal for the facility and ranged from 14 to 33 hours.

Low Pentane Bead:

$$\begin{aligned} & ((4.0\% \text{ initial pentane content}) - (1.84\% \text{ final pentane content})) * ((90\% \text{ capture} \\ & \text{efficiency}) * (95\% \text{ destruction efficiency})) + (1.84\% \text{ final pentane content}) \\ & = 2.15 \text{ lb VOC per 100 lb raw bead} \end{aligned}$$

Mid Pentane Bead:

$$\begin{aligned} & ((5.2\% \text{ initial pentane content}) - (2.04\% \text{ final pentane content})) * ((90\% \text{ capture} \\ & \text{efficiency}) * (95\% \text{ destruction efficiency})) + (2.04\% \text{ final pentane content}) \\ & = 2.50 \text{ lb VOC per 100 lb raw bead} \end{aligned}$$

As stated above, it has been determined that BACT for this source category is compliance with SCAQMD Rule 1175. However, this rule must represent RACT for this source category. The District does not believe that requiring storage emissions to be captured and destroyed represents RACT for this category. In researching the other Districts rules and sources, there did not appear to be any block makers of this size that are successfully capturing and destroying storage emissions.

For the facility within this district to control storage emissions, they would either need to build a new structure or divide an existing structure in order to maintain the storage area as a total enclosure. Based on previous production data, the normal to high production rate for the facility is 72,000 cubic feet of block per day. Based on this production rate, and limits on configuration of storage within the building such as fire code requirements on stacking height and spacing of aisles between blocks, it is estimated that the footprint of the building would need to be between 55,000 and 70,000 square feet. To facilitate loading and unloading of blocks, there would need to be three doorways of 24 x 15 feet. As a guideline, the requirement of 200 feet per minute through natural draft openings should be used for air flow purposes. In order to maintain the required air flow and serve the whole storage warehouse, at least 144,000 cfm would need to be

maintained. It should be noted that this does not account for the guideline of 15 room air changes per hour for worker comfort given in the EPA OAQPS Cost Control Manual. The pentane emission rate is expected to be a maximum of 5 ppm, based on a combination of conservative assumptions and site specific data. The same calculation yields a result of 2.5 ppm when the Sealed Housing for Emission Determination (SHED) test results are used. The SHED results were referenced in the most recent approved version of SCAQMD Rule 1175.

In considering control options for RACT, it is appropriate to evaluate both technical feasibility and cost effectiveness. If either the technical feasibility or cost effectiveness are not within the guidelines of other RACT evaluations, then the control option should not be required. For control of storage emissions for this source category, we first looked at technical feasibility of the available control options.

The efficiency of adsorber technology is a function of the properties of the material to be controlled, pentane (C5) in this case, and the concentration in the exhaust stream. Due to the very low concentration in the air stream and the flammability of pentane, adsorption onto carbon is technically infeasible. The facility currently in the District has attempted to use carbon in the past as a backup control and had several issues which ultimately resulted in abandonment of this control option. For some of the same reasons, rotor concentrator technology would also be infeasible. Due to the low concentration and high volume of exhaust air, along with the physical properties of pentane, the zeolite would be incapable of adsorbing and holding the pentane efficiently enough for this type of application.

A cold trap/condenser type technology could also be considered. The vapor pressure of pentane holds some issues in that a very low condenser temperature would need to be selected to obtain any control at all of a pollutant concentration of 5 ppm. The condenser temperature would need to be lowered to near the freezing point of pentane just to obtain control down to approximately 2.5 ppm. This would still only result in 50% control at best, and would also present problems in trying to ensure the pentane did not freeze in the process.

The control option currently utilized at most EPS facilities for control of emissions from the manufacturing process is a regenerative thermal oxidizer (RTO). However, there are several differences between the control of the manufacturing emissions and the proposed control of the storage emissions. Some of the major differences include the flow rate and the pollutant concentration. The flow rate for devices controlling manufacturing emissions generally ranges between 10,000 and 15,000 cfm, where the minimum flow rate for the proposed storage is 144,000 cfm, as stated above. The pentane concentrations in the air stream for manufacturing can vary widely, but have been observed at 100-1500 ppm and are variable upon the pre-expansion and molding cycles. The pentane concentration in the air stream for proposed storage is approximately 5 ppm. The District has found no evidence of any facility successfully using an RTO for the approximate flow rate and pollutant concentration that would be expected from this type of storage facility.

Due to the problems discussed above, all of which are affected by the properties of

pentane, the low pollutant concentration, and the high flow rate, the above control options are currently technologically infeasible for storage.

Operating Parameters and Work Practice Requirements

This rule meets RACT for operating parameters and work practice requirements because the requirements are more stringent than the requirements contained in the BAAQMD Rule 8-52 and SCAQMD Rule 11.75. This rule proposes annual compliance source testing, whereas the other rules have requirements for initial testing only.

Monitoring, Reporting and Recordkeeping Requirements

This rule meets RACT for monitoring, reporting, and recordkeeping because the requirements contained in the rule are equal or more stringent than those contained in the previously mentioned rules. Records are required for daily raw material usage, emission control system parameters, and finished product. The rule also requires an operation and maintenance plan to be in place.

IV. IMPACTS OF THE PROPOSED RULE

Emissions Impacts

There is one source in the District that would be subject to the proposed rule. The controlled emissions from this source are 175 tons per year. There are no additional emission reductions expected as a result from this rule since the source is already in compliance with section 300 of the rule.

Cost Effectiveness

CH&SC Section 40703 requires the District, in the process of the adoption of any regulation, to consider and make public its findings related to the cost effectiveness of a control measure. Cost effectiveness for rulemaking purposes is calculated by dividing the cost of air pollution controls required by the rule by the amount of air pollution reduced.

Since there are no reductions expected from the adoption of this rule, and there are no additional air pollution controls expected, no cost effectiveness calculations are required.

Socioeconomic Impacts

CH&SC Section 40728.5 (a) requires the District, in the process of the adoption of any rule or regulation, to consider the socioeconomic impact if air quality or emission limits may be significantly affected. However, districts with a population of less than 500,000 persons are exempt from the provisions of Section 40728.5 (a). The District's population is estimated to be approximately 310,000 and well below the 500,000 person threshold. Therefore, a socioeconomic analysis for this rulemaking is not required.

Incremental Cost Effectiveness

CH&SC Section 40920.6 requires an assessment of the incremental cost-effectiveness for proposed regulations relative to ozone, Carbon Monoxide (CO), Sulfur Oxides (SOx), Nitrogen Oxides (NOx), and their precursors. Incremental cost-effectiveness is defined as the difference in control costs divided by the difference in emission reductions between two potential control options that can achieve the same emission reduction goal of a regulation.

There is no incremental cost effectiveness for this rule, since there are no expected reductions.

Impacts to the District

It is anticipated that the proposed rule will have little to no impact on staff workload at the District. It is expected that any additional work load can be absorbed within the stationary source division at the District.

V. ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE

California Public Resource Code Section 21159 requires the District to perform an environmental analysis of the reasonably foreseeable methods of compliance. The analysis must include the following information for the proposed adoption of Rule 2.41:

1. An analysis of the reasonably foreseeable environmental impacts of the methods of compliance.
2. An analysis of the reasonably foreseeable mitigation measures.
3. An analysis of the reasonably foreseeable alternative means of compliance with the rule or regulation.

Table 1 lists all reasonably foreseeable compliance methods, the environmental impacts of those methods, and measures that could be used to mitigate the environmental impacts.

TABLE 1. Environmental Impacts, Mitigation Measures, and Alternatives

Compliance Methods	Reasonably Foreseeable Environmental Impacts	Reasonably Foreseeable Mitigation Measures
Regenerative Thermal Oxidizer (RTO)	Air Quality Impacts: Reduced VOC emissions, small increase in all other pollutants	No mitigation required for negligible amounts of pollutants from control equipment

Compliance Methods	Reasonably Foreseeable Environmental Impacts	Reasonably Foreseeable Mitigation Measures
	Water Impacts: No water impacts. Although moisture is removed from exhaust stream, pentane is not water-soluble	No mitigation required
	Human Health Impacts: Benefit to human health by reducing VOC	No mitigation required
	Solid Waste Disposal Impacts: No impact	No mitigation required

This analysis demonstrates the adoption of proposed Rule 2.41 will not have a significant effect on the environment or humans due to unusual circumstances. In addition, the amendments to proposed Rule 2.41 are an action taken to protect the environment. Therefore, staff have determined that the project is categorically exempt from the requirements of the CEQA pursuant to Section 15308, Actions by Regulatory Agencies for Protection of the Environment. Staff prepared a Notice of Exemption (NOE) to meet the CEQA Guidelines (Attachment B).

VI. REGULATORY FINDINGS

Section 40727(a) of the CH&SC requires that prior to adopting or amending a rule or regulation, an air district's board make findings of necessity, authority, clarity, consistency, nonduplication, and reference. The findings must be based on the following:

1. Information presented in the District's written analysis, prepared pursuant to CH&SC Section 40727.2;
2. Information contained in the rulemaking records pursuant to CH&SC Section 40728; and
3. Relevant information presented at the Board's hearing for adoption of the rule.

The required findings are:

Necessity: The rule is required in order to meet the RACT SIP commitment, which is required in order to implement the 8-Hour Ozone NAAQS (70 FR 71612, November 29, 2005).

Authority: The District is authorized to adopt rules and regulations by CH&SC, Sections 40001, 40702, 40716, 41010 and 41013. (CH&SC Section 40727 (b)(2)).

Clarity: District staff have reviewed the proposed rule and determined that it can be easily understood by the affected industry. In addition, the record contains no evidence

that the persons directly affected by the rule cannot understand the rule. (CH&SC Section 40727(b)(3)).

Consistency: The proposed rule does not conflict with and is not contradictory to, existing statutes, court decisions, or state or federal regulations. (CH&SC Section 40727(b)(4)).

Non-Duplication: The proposed rule does not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality limits. (CH&SC Section 40727(b)(5)).

Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.

VII. PUBLIC COMMENTS AND STAFF RESPONSES

Staff held a public workshop on July 18, 2008, to discuss the proposed adoption of Rule 2.41. Notification was sent to surrounding Air Districts, City Managers within the District, building/planning/community development departments within the District, all Chambers of Commerce within the District, all city and county libraries within the District, all Board members, and the one affected permitted source in this category. The workshop notice was published in the Dixon Tribune on July 13, 2008. A copy of the public workshop notice, the preliminary staff report, and preliminary rule language, were posted on the District's web page.

A. Public Workshop - July 18, 2008

The public workshop on July 18, 2008 was attended by two (2) representatives from Insulfoam, LLC.

The verbal comments received from Insulfoam, LLC during the public workshop and the written comments that they submitted are very similar. District Staff will attempt to paraphrase the comments that were received both during the workshop and in the comment letter. The comment letter can be seen in Attachment D of this staff report.

Comment 1. Please re-write section 301 to include an option of meeting a combined efficiency requirement of 85.5% (based on 90% times 95%). The strategy of a combined limit is allowed by EPA's written policies and would provide an equivalent level of control while providing greater flexibility in complying with the limits.

Response 1. While EPA's guidance documents allow for Districts to justify a combined capture/control limit where appropriate, the District has determined that the 90% capture and 95% control, along with the annual testing constitutes RACT for this source category. The facility is currently limited by permit condition to this level of control and has performed source tests that demonstrate compliance. We do not feel that it is equivalent

nor appropriate to change to a combined control requirement. If the district were to consider a combined efficiency approach, we would likely evaluate using a value of 93% (instead of 85.5%) based on South Coast Rule 1175.

Comment 2. Please change the testing frequency to at least once every 24 calendar months for major sources that are subject to Compliance Assurance monitoring (CAM).

Response 2. The District does not believe that a source test every two years is sufficient enough to ensure compliance with the collection and destruction requirements. In addition, CAM is a federal requirement to ensure compliance with limits placed on Title V permits. The District does not see any benefit to linking the source testing requirement in this rule to a federal requirement that has a separate applicability and does not have any relation to how RACT is determined.

Comment 3. Please reword section 303 to clarify what "other parameters" means.

Response 3. The section language has been generalized for clarification and consistency with other rules.

Comment 4. Please modify section 402 such that CAM plans submitted by major sources that contain all elements of this section are satisfactory.

Response 4. The section language will not be changed. CAM plans typically contain a portion of the proposed requirements in this section, but do not always contain procedures and schedules for preventive and corrective maintenance. If a source that is subject to CAM would like, they could choose to modify their CAM plan to include this additional information and then submit it to the District to satisfy the requirement in this section.

Comment 5. Please delete the words "with the bead usage records" from the last sentence of section 502.2.

Response 5. The district agrees and has made the change.

Comment 6. Please modify section 602 to allow for the requested alternative flow method.

Response 6. Section 601 already allows for use of alternative test methods which are determined to be equivalent and are approved by the District and EPA. This language is sufficient for approval of other test methods, therefore, there is no change needed to section 602.

Comment 7. Please modify section 605 to allow for the most recent approved version of the test method.

Response 7. The District agrees and has added language to section 601 to allow for the most recent version of all the required test methods to be used.

Comment 8. Please clarify or remove section 607.

Response 8. The section has been clarified to be applicable to all capture efficiency testing. While the rule does not have any requirements to install total enclosures, it does contain requirements for capture efficiency and the referenced methods are specific to measurement of capture efficiency.

B. Written Comments

Other than the written comments, referenced above, submitted by Insulfoam, the only written comments received were from EPA Region IX. The comments were received by email on August 7, 2008.

Comment 1. Rule 2.41 must establish specific VOC emission limits for polystyrene foam operations that are consistent with requirements for RACT.

Response 1. The staff report for the rule has been enhanced to include a more thorough RACT determination which includes feasibility of emissions controls and a comparison and equivalency determination for regulations in other areas which are SIP approved. These changes can be found in section III of this staff report and provide justification for all requirements and limits included in this rule.

Comment 2. Establishing only a minimum VOC emission capture and control rate without regard to beginning or ending VOC content is not an adequate emissions limit because there is no enforceable means within the rule to limit facility-wide emissions.

Response 2. The rule has been changed to include a maximum raw material pentane content to provide a beginning VOC content. The rule now contains language and definitions in sections 208, 209, and 302 to limit all raw bead initial pentane content to 5.2% or less.

Comment 3. EPA needs the ability to review state or ASTM test methods as they are revised before approving them for rule inclusion.

Response 3. The title and language of section 601 have been changed to require EPA approval prior to use of a revised test method.

Comment 4. Section 607 should require the use of EPA's Capture Efficiency Guidelines as well as Methods 204 A-F. These methods should be used in any case of determining the capture efficiency of temporary and total enclosures.

Response 4. The title and language of section 607 have been changed to reflect the

requested test methods, and to reflect applicability of these methods during all capture efficiency determinations.

VIII. REFERENCES

1. YSAQMD Reasonably Available control Technology (RACT) State Implementation Plan (SIP) (September 13, 2006)
2. South Coast Air Quality Management District Final Staff Report for Proposed Amended Rule 1175 (August 2007)
3. South Coast Air Quality Management District Rule 1175 (September 7, 2007)
4. South Coast Air Quality Management District Staff Report for Proposed Rule 1175 (August 15, 1989)
5. San Joaquin Valley Unified Air Pollution Control District Final Draft Staff Report for Proposed Amendments to Rule 4682 (August 16, 2007)
6. San Joaquin Valley Unified Air Pollution Control District Rule 4682 (September 20, 2007)
7. Bay Area Air Quality Management District Staff Report for Proposed BAAQMD Regulation 8, Rule 52 (June, 1999)
8. Bay Area Air Quality Management District Regulation 8, Rule 52 (July 7, 1999)
9. San Diego Air Pollution Control District Staff Report for Rule 67.22 (April 19, 1994)
10. Maricopa County Air Pollution Control Regulations, Rule 358 (April 20, 2005)

ATTACHMENT A

**RULE 2.41, EXPANDABLE POLYSTYRENE MANUFACTURING
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